

Use of English Prepositions by Japanese University Students

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Abstract

The present study examined if Japanese university students use bound prepositions more correctly than free prepositions in English writing. At the same time, the use of prepositions was compared with learners of various language backgrounds and the effect of the phrase meaning expressed by the combination of a verb and a preposition on the correctness of use was also examined using argumentative essay corpora.

The result shows that there were more errors in bound prepositions, and missing errors were the most frequent. The fact that redundancy and substitution errors were frequent only in lexico-grammatical combinations of a verb plus a preposition shows that the students are conscious only of this type of combination. It was also found that Japanese students used communication domain most frequently, however, the error ratio was also the highest in this domain.

Introduction

In this researcher's former study on the use of English vertical axis prepositions (i. e. *over, above, under, below*) by Japanese learners of English using a speaking corpus (Kaneko, 2007), it was found that the learners made more errors in free prepositions than in bound prepositions⁽¹⁾. This finding suggested that learning bound prepositions were more effective, at least for the beginning level learners, in order to use correct English over learning free prepositions. At the same time, it also suggested that for learners to use free prepositions correctly, more abundant input and output would be needed than what is now being practiced in the classroom. In the above study, the NICT JLE Corpus (The National Institute of Communications Technology Japanese Learner English Corpus), a speaking corpus, was used and the use of prepositions only in the case of vertical axis prepositions was studied.

In the present study, the researcher would like to discover if Japanese university students use bound prepositions (not only in the case of vertical axis prepositions but also in all types of prepositions) more correctly than free prepositions in writing using ICLE (International Corpus of Learner English) Japanese Sub-Corpus, a written corpus. At the same time, the use of prepositions will be compared with learners of various language backgrounds. The effect of the phrase meaning expressed by the combination of a verb and a preposition on the correctness of use will also be examined.

Research Questions

The first research question addressed here is whether Japanese university students make more preposition errors in free prepositions than in bound prepositions not only in vertical axis prepositions but also in general in writing. This will be answered by comparing the frequency of errors in bound prepositions and free prepositions. Differences in the distribution of three types of errors, namely missing, redundancy, and substitution errors⁽²⁾, will also be examined.

The second research question is on the use of bound prepositions plus verb combinations. Here the focus of the study is on the effect of meanings to the correctness of the use. The answer for this question will be searched for by looking at the meaning domains⁽³⁾ typically used by Japanese students compared to students with other mother tongue backgrounds, and also by looking at the most frequent errors among such uses.

The Corpus

In the present study, this researcher used ICLE Japanese Sub-Corpus and several other corpora as data. The Center of English Corpus Linguistics (CECL), which is collecting ICLE from various countries in the world, is at University of Louvain in Belgium and more than 14 member countries are collecting argumentative essays written by the advanced level English learners, namely third- and fourth-year university students. Japanese team is cited at Showa Women's University in Tokyo and a part of the Japanese Sub-Corpus has been error-tagged. Error-Tagged Japanese Sub-Corpus (Error-T) contains more than 40,000 word argumentative essays. LOCNESS (Louvain Corpus of Native English Speakers) has also been collected to be served as comparative corpus. The data for LOCNESS has been collected from American and British university students, respectively. Chart 1 below shows the characteristics of the corpora used in the present study. Japanese B is a collection of university students' English essays, which were not included in the formal ICLE Japanese Sub-Corpus (Japanese A file). The B file was used for the present study because the Japanese A file has already been sent to the CECL to be published as the 2nd version of the ICLE.

Chart 1. Characteristics of the Corpora Used in the Present Study

	ICLE					LOCNESS	
	Japanese B	Error-T	French	German	Italian	American	British
Tokens	76,884	70,507	287,683	234,621	226,988	148,966	65,658
Types	5,813	5,096	12,732	14,943	11,239	10,799	6,647
TTR	7.56	7.23	4.43	6.37	4.95	7.25	10.12
Std. TTR	35.03	34.79	37.71	40.85	38.17	40.06	40.02

If a text is 1000 words long, it is said to have 1000 “tokens”. Usually a lot of these words are repeated. If, for example, there are 250 different words in the text, it is said to have 250 “types” in the text. Type/Token Ratio (TTR) shows the ratio between types and tokens. In this example the ratio would be 25.00%. When the text gets bigger, the number of new word types gets smaller and it is often difficult to compare the TTR of smaller texts against larger ones. In order to remedy this, standardized TTR⁽⁴⁾ is also calculated, which is the average TTR on every 1000 words.

Procedure

First of all, using Error-T, frequency of preposition errors in bound combinations (tagged as XNPR, XADJPR, XVPR, and XPRCO⁽²⁾) and free preposition errors (tagged as WR and WM⁽²⁾) were counted and were also categorized into three types. Then, the preposition errors in bound prepositions with verbs (tagged as XVPR) were categorized according to the semantic domains they represent based on the semantic domain categories presented in Biber et al. (1999). Thirdly, frequencies of the use of bound prepositions with verbs in ICLE Japanese, French, German and Italian Sub-Corpora were compared to that in LOCNESS.

Results and Discussion

Chart 2 shows the frequency of errors in various prepositions in Error-T. The percentage in each box shows the ratio of errors in the target use of prepositions. Among the bound prepositions, redundancy errors were extremely few. It is shown that there were more errors in bound prepositions (8.34%) than in free prepositions (6.86%), although there was no statistical significance. The result was opposite from the one gained when spoken corpus was analyzed

Chart 2. Bound vs. Free Preposition Errors in Error-Tagged Japanese Sub-Corpus

	Bound Preposition Errors					Free P. Errors (WR, WM)	Total Errors
	XNPR	XADJPR	XVPR	XPRCO	Total		
Missing	41 2.48%	12 4.49%	98 9.60%	5 100.00%	156 5.29%	92 4.32%	248 4.88%
Redundancy	0	0	31 3.04%	0	31 1.05%	32 1.50%	63 1.24%
Substitution	19 1.15%	2 0.75%	38 3.72%	0	59 2.00%	22 1.03%	81 1.60%
Total	60 3.62%	14 5.24%	167 16.36%	5 100.00%	246 8.34%	146 6.86%	392 7.72%
Obligatory Context	1655 100.00%	267 100.00%	1021 100.00%	5 100.00%	2948 100.00%	2129 100.00%	5077 100.00%

in former study (Kaneko, 2007).

To find the distribution of the three types of errors, Chart 2 was modified into Chart 3 with total error frequency in each type of bound prepositions as 100%. Among the bound prepositions, redundancy errors were found only in XVPR combination, where bound prepositions are combined with verbs.

Chart 3. Types of Errors in Bound & Free Prepositions in Error-Tagged Japanese Sub-Corpus

	Bound Preposition Errors					Free P. Errors (WR, WM)	Total Errors
	XNPR	XADJPR	XVPR	XPRCO	Total		
Missing	41 68.33%	12 85.71%	98 58.68%	5 100.00%	156 63.41%	92 63.01%	248 63.27%
Redundancy	0	0	31 18.56%	0	31 12.60%	32 21.92%	63 16.07%
Substitution	19 31.67%	2 14.29%	38 22.75%	0	59 23.98%	22 15.07%	81 20.66%
Total	60 100.00%	14 100.00%	167 100.00%	5 100.00%	246 100.00%	146 100.00%	392 100.00%

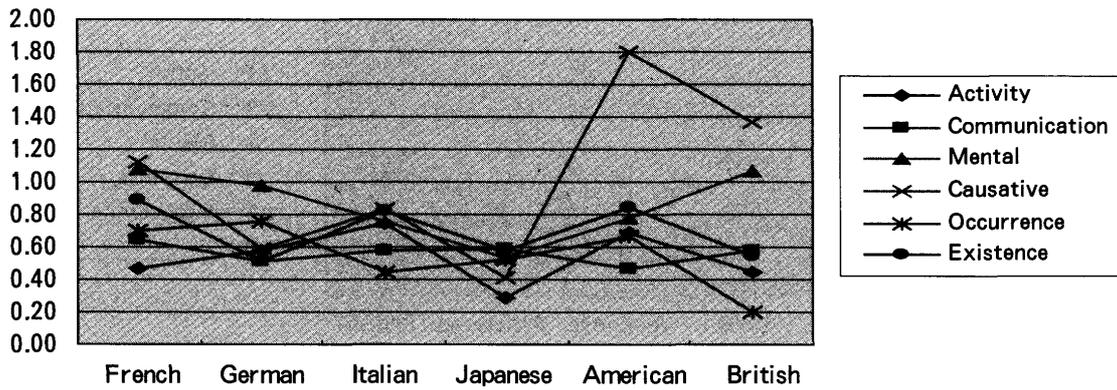
There are fewer missing errors in prepositions in XVPR than in other bound preposition combinations and free prepositions; though, again, it is not statistically significant.

Thus the answers for the first research question are as follows:

1. Contrary to the former finding, there were more errors in bound prepositions than in free prepositions, though not statistically significant.
2. There was no statistically significant difference in the distribution of the three types of errors in bound and free prepositions. It is not statistically significant either; though, there are fewer missing errors in prepositions in XVPR combinations than in free prepositions.
3. Redundancy errors only emerged in prepositions in XVPR combination, and not in other combinations of bound forms.

Next, the effect of the learners' L1 background and the semantic categories on the use of XVPR prepositional phrases will be examined. In order to compare the result among the learner data compiled from various L1 backgrounds, Japanese B, French, German, Italian, American, and British corpora were analyzed. Graph 1 shows a comparison of total frequency of XVPR combinations by writers of various L1 backgrounds. The numbers on the left side of the following four graphs show the average frequency of each semantic domain in every 10,000 words.

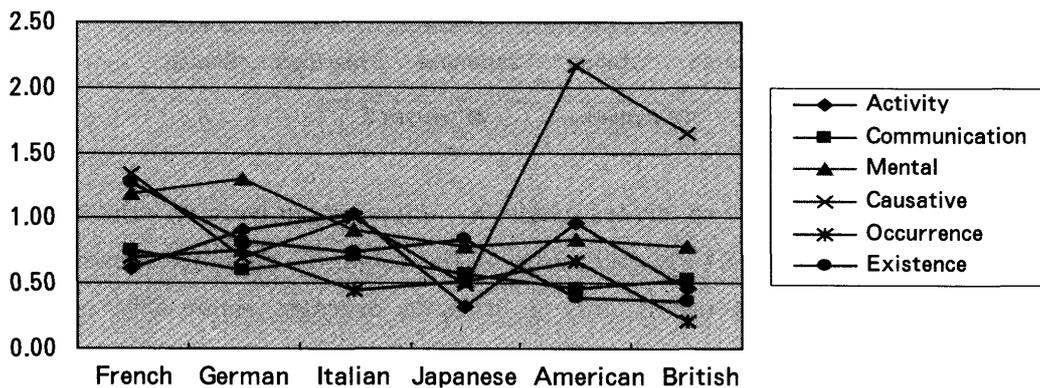
Graph 1. Comparison of Frequency of XVPR by Writers of Various L1 Backgrounds Based on the Semantic Domains



What is special in the use of prepositions in XVPR by Japanese university students compared to other writers whose L1 backgrounds are not Japanese? As shown here, the Japanese students' use in "activity" domain, for example, "look at" or "fill something with", is the least compared to other groups. In general, although the frequency is not high in all semantic domains, the use of "communication" domain, for example, "talk to" or "be expressed in", was rather high compared to the other groups.

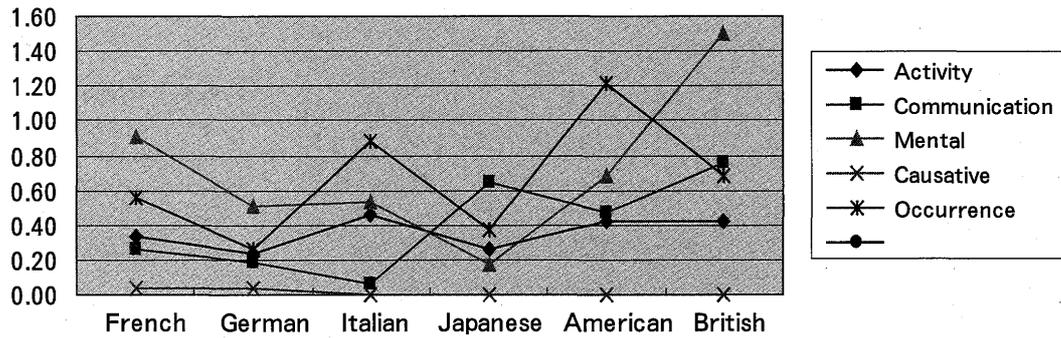
As explained in Note (3), each meaning domain consists of two sub-categories: patterns 1 and 2. Graph 2 compares the frequency of pattern 1 in each semantic domain. In general, there seems to be not much difference from Graph 1. The extremely frequent use in "causative" by American and British university students is worth noting.

Graph 2. Comparison of Frequency of Pattern 1 by Writers of Various L1 Backgrounds Based on the Semantic Domains



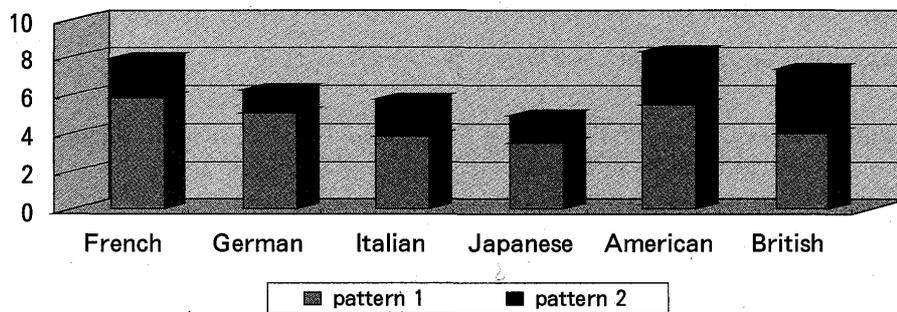
Graph 3 shows the comparison of pattern 2. There is a great difference in the use here. European students used "communication" domain less frequently than Japanese students. On the other hand, Japanese students did not use "mental" domain, for example, "lead to", "result in", as often as British students.

Graph 3. Comparison of Frequency of Pattern 2 by Writers of Various L1 Backgrounds Based on the Semantic Domains



Graph 4 below shows the difference in the ratio of the frequency of patterns 1 & 2 by the writers of various L1 backgrounds. French and German students used pattern 1 combinations much more than pattern 2 combinations. As for the ratio of the use of the 2 patterns, Italian and Japanese students show a similar pattern except for the amount difference. In general, native speakers' ratio of pattern 2 to pattern 1 use is higher than learners. And Japanese university students under-use pattern 2 compared to native speakers, which seems to be a general tendency among learners.

Graph 4. Comparison of Frequency of Patterns 1 & 2 by Students of Various L1 Backgrounds Based on the Semantic Domains



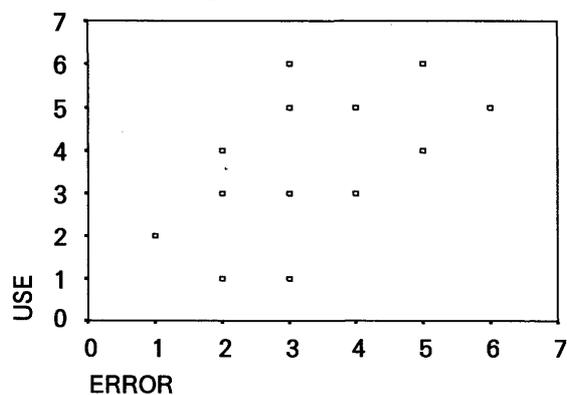
Now let's move our focus to errors made by Japanese university students. Chart 4 shows the error frequency of XVPR according to the semantic domains shown in Error-T. Although the total amount of use is only a little, in average, about 85% of the XVPR combinations designated in Biber et al. (1999) were used correctly. Among the total of 15% errors, the most frequent errors are in "mental" and "communication" domains. If we compare the error ratio of pattern 1 with that of pattern 2, it is clear that when pattern 2 semantic domain combinations were used, there were more errors than pattern 1 combinations in the same domain.

Chart 4. Error Frequency of XVPR Based on Biber et al. (1999) by Japanese Students

Semantic Domains		Number of XVPR listed in Biber et al.	Frequency of Use by Japanese Students					
			Non-Errors		Errors		Total	
Activity	pattern 1	15	18	100.0%	0	18		
	pattern 2	15	24	96.0%	1	4.0%	25	
	total	30	42	97.7%	1	2.3%	43	
Communication	pattern 1	8	23	85.2%	4	14.8%	27	
	pattern 2	2	4	66.7%	2	33.3%	6	
	total	10	27	81.8%	6	18.2%	33	
Mental	pattern 1	9	39	68.4%	18	31.6%	57	
	pattern 2	6	4	100.0%	0		4	
	total	15	43	70.5%	18	29.5%	61	
Causative	pattern 1	5	11	91.7%	1	8.3%	12	
	pattern 2	1	0		0		0	
	total	6	11	91.7%	1	8.3%	12	
Existence	pattern 1	5	13	86.7%	2	13.3%	15	
	pattern 2	6	12	100.0%	0		12	
	total	11	25	92.6%	2	7.4%	27	
Occurrence	pattern 1	3	4	100.0%	0		4	
	total	3	4	100.0%	0		4	
Total			304	84.4%	56	15.6%	360	100.0%

Interestingly, though, when the frequency of the use and the error ratio are compared, as Graph 5 shows, there is a statistically significant correlation ($S = 0.543$ $\alpha = 0.05$) between them. This means that the more Japanese learners use prepositions in XVPR combinations, the more errors they have in their writings.

Graph 5. Comparison of Use and Error Frequency Rank Orders



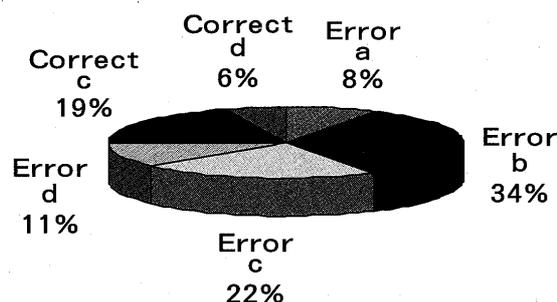
Thus, the answers to research question 2 are as follows:

1. Japanese students used XVPR combinations in expressing "communication" among others more frequently than students in various mother tongue backgrounds, while the ones expressing other meanings, especially expressing "activity", were extremely less frequent than other students.
2. Erroneous uses were frequent in using XVPR combinations which are categorized in "communication" and "mental" meaning domains among Japanese students.
3. Thus, the more XVPR combinations were used by Japanese students, the more errors appeared.

In summary, the results show that as for the error rates of bound prepositions and free prepositions, there are more errors in bound prepositions. Missing errors were the most frequent in general but the fact that redundancy and substitution errors were frequent only in XVPR combinations shows that the students are conscious only of this type of combination. When focus is put on the prepositions in XVPR combinations, it is interesting to find that Japanese students used communication domain most frequently, however, the error ratio was also the highest in this domain.

In order to find out how Japanese university students fill in the prepositions in XVPR combinations, a small size questionnaire (see Appendix) was administered to 63 advanced level university students. The questions asked were to fill in the missing words in 18 sentences if needed. Each sentence misses either a verb or *be* verb plus past participle and a certain preposition. And then, the students were asked to answer how they filled in the missing words. The choices for their answers were prepared to find out if they were conscious of the existence of prepositions when they wrote their answers (cf. Appendix). The result shown in Graph 6 explains that the students answered correctly in average 25%, and among the 25%, only about 6% (Correct d) were correct because they remembered the verb plus preposition right from the beginning and 19% (Correct c), because they remembered the verb first and later added a preposition. This means that most of the students who had correct answers used the bound prepositions analytically, choosing appropriate prepositions by analyzing the meaning of the target prepositions or guessing intuitively spending a long time for the work. On the other hand, 75% of the answers were incorrect, and over one third of the answers were errors (Error b) because the students just remembered the verbs and didn't notice the existence of the prepositions at all. Another one third of the answers were also errors (Error c) because they later added prepositions or wrote prepositions from the beginning but, in fact, their guesses were not correct.

Graph 6. Result of Questionnaire on the Use of XVPR Combination



Conclusion

Different from in speaking, the use of bound prepositions in writing seems to be more problematic for Japanese university students than free prepositions. One of the reasons of less erroneous bound preposition use in speaking seems to be that in speaking only firmly acquired phrases are used. This means that the students only use phrases of which they are confident and proficient in speaking. In writing, they have more time to elaborate their sentence structures and try to push out the English knowledge they have stored to the limit. The learners are pushed to use those phrases which are not yet acquired as implicit knowledge. This seems to lead them to make more errors in bound prepositions in set phrases in writing. When using set phrases, which are usually learned as items and used automatically by native speakers of English, the planning time seemed to work in the negative direction for learners.

Secondly, the use of bound prepositions concentrated in XVPR, and among XVPR, in "communication", and at the same time, the most frequent errors were in this use. This also reflects the fact that although Japanese students have been explicitly taught these types of bound prepositions in class, the varieties presented are so little and, even worse, the class time allotted for using them is extremely limited. Adding to this, they are too familiar with the analytical approach both in being taught and learning English as the questionnaire suggested. Thus a holistic approach, for example the one proposed by Simpson and Mendis (2003), where more focuses are on acquiring bound prepositions as a part of chunks, that is, paying attention to their composite meanings, seems extremely useful in Japanese English teaching context. To attain this goal, it is essential to have more chances for more genuine interaction using various language forms, not limited to what are used only in the textbook, between the teacher and students as well as among the students.

Notes

(1) Bound vs. free prepositions

Bound prepositions often have little independent meanings, and the choice of the preposition depends upon some other words in the context. They are usually learned as an item as a whole. On the other

hand, free prepositions have independent meanings and the choice is not dependent upon any specific words in the context. They are usually learned as a system or a rule. The following sentences show some examples of free and bound prepositions:

- a. I live *in* Tokyo. (Free preposition)
- b. I live *at* 1-7, Konosu. (Free preposition)
- c. It's hard to live *on* such a small salary. (Bound preposition)

(2) Error tags and the three types of errors

The following is a list of error tags used in Error-T which includes prepositions with a sample sentence from the corpus. Error types are also categorized. The first sentence under XNPR, for example, shows that the learner sentence, "There is also the possibility of influence other media," misses a preposition "on" and the correct sentence is "There is also the possibility of influence on other media."

- a. XNPR (Lexico-grammar, Nouns, Prepositions) Error Type: Missing.
There is also the possibility of (XNPR) influence 0 \$influence on\$ other media.
- b. XADJPR (Lexico-grammar, Adjectives, Prepositions) Error Type: Substitution.
It is not too much to say that cellular phones are (XADJPR) essential for \$essential to\$ our daily lives.
- c. XVPR (Lexico-grammar, Verbs, Prepositions) Error Type: Redundant.
We must (XVPR) contact with \$contact\$ people in other countries.
- d. XPRCO (Lexico-grammar, Prepositions, Coordinator) Error Type: Missing.
For a long time, there has been an argument in Canada (XPRCO) 0 \$over\$ whether or not Quebec deserves special recognition and particular powers.
- e. WR (Word Redundant) Error Type: Redundant.
I do not think that most (WR) of \$0\$ Japanese students understand the situation.
- f. WM (Word Missing) Error Type: Missing.
We have responsibility to do better (WM) 0 \$in\$ such cases.

(3) Semantic Domains

The chart below shows sample bound prepositions with verbs categorized by semantic domains designated in Biber et al. (1999). All prepositional verbs that occur over 40 times per million words in a 40-million-word corpus of *Longman Grammar of Spoken and Written English* have been listed. The

Examples of XVPR by Semantic Domains Based on Biber et al. (1999)

Meaning Categories	Example Phrase	
	Pattern 1	Pattern 2
Activity	look at	fill NP with
Communication	talk to	be expressed in
Mental	think of	be known to
Causative	lead to	be required for
Occurrence	look like	*
Existence or Relationship	depend on	be based on

(Notes: Pattern 1=verb+preposition+NP; Pattern 2=verb+NP+preposition+NP)

phrases are also categorized into two patterns as shown in the notes. The passive structure is grouped as pattern 2 here, since the original structure of passive includes object noun.

(4) Standardized TTR

First the TTRs on every 1000 words are counted and an average TTR is produced. If the first TTR on the first 1000 words is 10.00 and the second 1000 words, 20.00 and the third 1000 words, 30.00, the standardized TTR will be 20.00 in this case.

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Appendix

Questionnaire

① Fill in the missing words.

1. I'm (looking) (for) my glasses. [Meaning in Japanese]
2. The law has (gone) (through) Parliament. [Meaning in Japanese]
3. Her book (deals) (with) ecology. [Meaning in Japanese]
4. The children are (playing) (with) the dog in the garden. [Meaning in Japanese]
5. This rule is not (applied) (to) the present case. [Meaning in Japanese]
6. The experienced anglers (use) small fish (as) bait. [Meaning in Japanese]
7. The chair (is) made (of) plastic. [Meaning in Japanese]
8. His grandfather (sent) him (to) college. [Meaning in Japanese]
9. The word (is) (derived) (from) Spanish. [Meaning in Japanese]
10. She has (been) (accused) (of) stealing. [Meaning in Japanese]
11. Let's (look) (at) the mechanism of the machine. [Meaning in Japanese]
12. Mom (went) (for) a police officer. [Meaning in Japanese]
13. Please (wait) (for) your turn. [Meaning in Japanese]
14. The man (was) (charged) (with) domestic violence. [Meaning in Japanese]
15. The cake (was) (divided) (into) equal parts. [Meaning in Japanese]
16. The plan (is) (aimed) (at) achieving higher reputation. [Meaning in Japanese]
17. She (gave) it (to) him. [Meaning in Japanese]
18. I (filled) the glass (with) white wine. [Meaning in Japanese]

*Missing words have been filled in the brackets here for reference.

- ② How did you fill in the missing words for each of the above 18 sentences? Please choose from the following list:
- a. Couldn't remember at all.
 - b. Remember the verb and put it in the appropriate slot in the sentence.
 - c. Remember the verb first and put it in the appropriate place but later added a preposition.
 - d. Remember the combination of verb and preposition from the beginning and put them in the appropriate slot.
- ③ Write down what you found in answering this questionnaire.

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