The Development of Grammatical Competence of Japanese EFL Learners: Focusing on Dative Alternation

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Abstract

As a part of our serial studies in which we attempt to elucidate the development of grammatical competence across various grammatical features, this paper aims at examining the influence of cue dependencies on grammaticality judgment in respect to dative alternation. Data from 235 University-level Japanese EFL learners are used in the present study. These participants took three different tests, and our analysis of their scores suggests that learners with different cue dependencies employ different kinds of criteria in grammaticality judgment.

1. Purpose of the Present Study

1.1. A brief summary of the previous studies by the authors

Being cross-sectional in nature, our studies required us to have a reliable and valid tool to measure learners' overall grammatical proficiency. For this purpose, we first complied an overall grammatical proficiency test, which we call *Measure of English Grammar (MEG)*, using items from *Comprehensive English Language Test, Oxford Placement Test* and sample test items for TOEIC. Out of the total of 213 items from these tests, we have extracted 110 items employing the IRT-based analysis. This compilation process is detailed in Shimizu *et al*. (2003).

Prior to the present study, two sets of grammaticality judgment task were administered to Japanese EFL learners at seven universities in Japan. In both of these studies, as well as the present study, participants were categorized into four groups according to their performance in a cue dependency test (discussed below). Ohba *et al*. (in review) compared grammatical judgment on relative clause constructions among these cue dependency groups. The different tendencies in this task suggest that, as the learners' cue dependency shifts toward the dependency preferred in the target language, their grammaticality judgments approximated to those by the native speakers of English. However, if the participants are at the level where they still need to resort to the L1 cue dependency, their judgment appears to reflect whether or not they can 'make sense' out of the target sentences. Similarly, Yamakawa *et al*. (2003), focusing on the unaccusative/unergative distinction, reports that (a) the U-shaped development, as predicted by Oshita (2000, 2001), was not observed, and (b) the results of the grammaticality judgment on unaccusative/unergative distinction displayed a unique implicational order, which could be explained in terms of learners' cue dependency. In addition, it was

shown that different accounts could be applicable to different cue dependency groups. That is, among the two accounts proposed so far about the EFL learners' problems with unaccusative/unergative distinction, the results suggested that the performance of the syntax- dependent group fit better with the NP-movement account, while the performance of the meaning- dependent group was better explained by the lexical causativization account.

1.1. The present study

Following the previous two studies, the aim of this study is to investigate the influence of the cue dependency on grammaticality judgment of dative alternation. What can be predicted from the above is that different cue dependency groups would show different judgment tendencies which reflect their awareness of formal properties of the target sentences.

2. Cue Dependencies among Japanese EFL Learners

2.1. Predictions from the Competition Model

The Competition Model (Bates & MacWhinney, 1982) claims that (a) in interpreting a sentence, a language user employs various cues, such as syntactic cues (e.g. word order), semantic cues (e.g., the topicality hierarchy), and pragmatic cues (e.g. general knowledge), and (b) dependencies on these various types of cues differ among languages. For instance, an English speaker would depend more on syntactic cues than semantic or pragmatic cues, while a Japanese speaker would rely more on the semantic/pragmatic cues than syntactic cues. Further claims within this model include that (c) in interpreting L2 sentences, less proficient learners resort to their L1 cue dependency, but as their overall proficiency develops, their cue dependency shifts toward that preferred in the target language, and (d) even when this shift occurs, it is difficult to shift from the dependency on semantic/pragmatic cues to the syntactic cue dependency than vice versa.

From these tenets of the Competition Model, it could be predicted that (i) Japanese EFL learners with lower grammatical proficiency would show semantic/pragmatic cue dependency, (ii) as the overall proficiency develops, the learners would become more dependent on syntactic cues, and (iii) even those with higher proficiency would not succeed in totally shifting their cue dependency to syntactic cue dependency.

2.2. Method

Using Gass's framework (Gass, 1986, 1989), a test to examine participants' cue dependency was prepared. This test contained 48 sentences including 12 filler sentences, and the 36 target sentences had an identical sentence structure of "NP1 *asked/promised/told* NP2 to-infinitives". These sentences were controlled in terms of the likelihood of either NP1 or NP2 being the agent of the infinitival phrase, yielding the following three cue conditions.

(1) a. The patient promised the doctor to take the medicine. (Converging cues)
b. Ken told Peter to join the baseball club. (Neutral)
c. The patient asked the doctor to take the medicine. (Conflicting cues)

The participants in this study were instructed to choose the agent of the infinitival phrase from the following four choices; (1) NP1, (2) NP2, (3) both NP1 and NP2, (4) neither NP1 nor NP2. In English sentences, the agent of the infinitival phrase is determined by the main verb and the word order. If the main verb is either *ask* or *tell*, the agent of the infinitival phrase must be NP2, while in *promise* sentences, the agent is NP1. Thus, the word order is available in all three conditions as the syntactic cue. At the same time, also available is the general knowledge they have in interpreting a sentence, viz., which one of the two participants in the sentences is most likely to be the agent of the event expressed by the infinitival phrase. Such general knowledge is considered here as a pragmatic cue. For example, in both (1a) and (1c), the most likely agent of "to take the medicine" is "the patient". In (1a), the two types of cues both support that the agent of the infinitival phrase is NP1 (*the patient*) but in (1c), these cues are in conflict. In (1b)-type sentences, proper names are used so that pragmatic cue is not available.

The overall grammatical proficiency of the participants was measured using *MEG* mentioned above; *MEG* was divided into two parts so that each part could be answered in 30 minutes. Each test, as well as the grammaticality judgment test, was administered using the 30 minutes of class time as a part of the classroom activities, and the data from 235 students who took all of the four test (both parts of *MEG*, the Cue Dependency Test, and the Grammaticality Judgment Test) were used for the analysis.

2.3. Results of *MEG* and the Cue Dependency Test

The participants were classified into six proficiency groups according to their performance in *MEG*. Table 1 summarizes their test performance.

Table 1. Results of *Measure of English Grammar* (Total=110) and the Proficiency Groups

Proficiency Groups	*N*	*M*	*SD*	*Min.*	*Max.*
Lower Elementary	50	37.94	7.72	23	49
Elementary	16	53.75	2.67	50	59
Pre-Intermediate	37	65.38	2.77	60	69
Intermediate	51	74.24	2.83	70	79
Post-Intermediate	46	83.87	3.10	80	89
Advanced	35	95.09	3.28	90	102

As Figure 1 below shows, statistically significant correlation (r=0.683) was observed between *MEG* score and the score in the Cue Dependency Test. This confirms the second prediction, i.e., as the learners' overall proficiency develops, they would become more dependent on the syntactic cue.

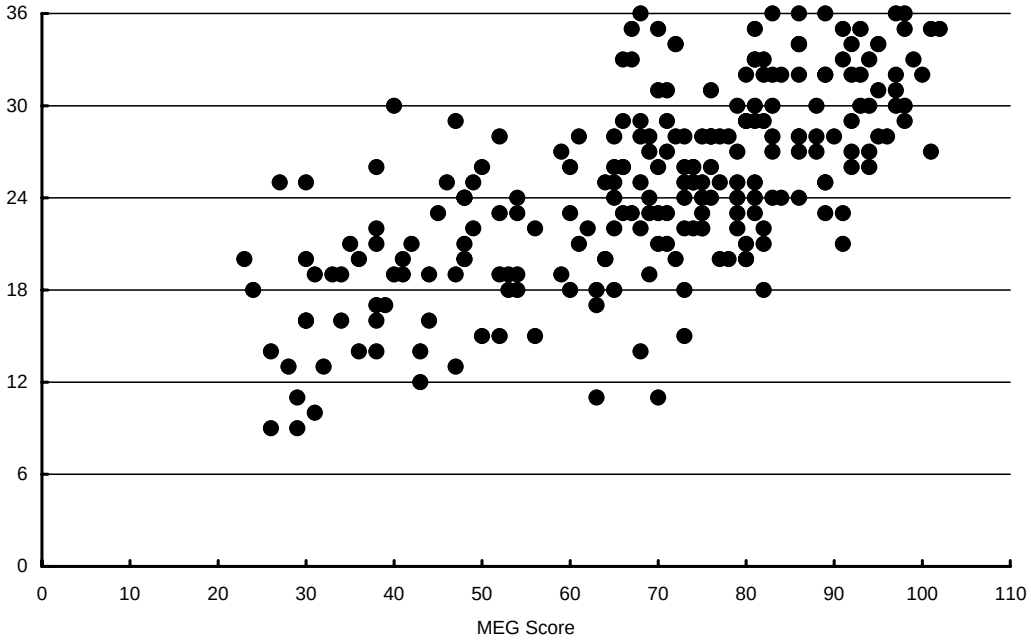

Figure 1. Correlation between *MEG* and the Cue Dependency Test Scores

Table 2 and Figure 2 below compares each proficiency group's performance in the Cue Dependency Test. A two-way ANOVA with two independent variables, i.e. the overall grammatical proficiency (six levels) and the cue conditions (three conditions), revealed the main effect of the overall proficiency ($F(5, 687)=56.469$, $p<0.0001$), that of the cue conditions ($F(2, 687)=275.181$, $p<0.0001$), and the interaction between these two factors ($F(10, 687)=5.296$, $p<0.0001$).

Tukey's HSD was used to seek for statistically significant differences among the proficiency groups in each of the cue conditions. When both types of cues supported the appropriate agent NP (the converging cue condition), the Lower Elementary group's performance was significantly lower than the other five groups. When only the syntactic cue was available, the Advanced and the Post-Intermediate groups outperformed the other four, and the Intermediate and the Pre-Intermediate groups outperformed the Elementary and Lower Elementary groups. Even when the two types of cues were in conflict, the performance of the Advanced and the Post-Intermediate groups were significantly better than the other four, and the Intermediate group's performance was significantly better than that of the Elementary group.

Within each of the proficiency groups, the Advanced and the Post-Intermediate groups showed a similar tendency; both groups succeeded in the agent identification equally in the converging and neutral cue conditions, but their performance in the conflicting cue condition dropped significantly. On the other hand, the Intermediate and the Pre-Intermediate groups showed significant drop in the neutral condition, and further decrease in the conflicting cue condition. The Elementary group displayed clearer decrease in the neutral and the conflicting cue conditions, and their performance in the conflicting cue condition was worse than the Lower Elementary group's

performance. The Lower Elementary group was not successful in any of the three conditions, although no significant difference was observed between the converging and the neutral cue conditions.

Table 2. Results of the Cue Dependency Test among the Proficiency Groups

		Conflicting			Neutral			Converging		
	N	*M*	*SD*	*Range*	*M*	*SD*	*Range*	*M*	*SD*	*Range*
Lower Elementary	50	4.46	1.94	1-8	6.54	2.38	1-12	7.78	2.80	1-12
Elementary	16	3.06	2.02	0-7	6.69	2.50	3-12	10.88	1.02	8-12
Pre-Intermediate	37	4.95	2.98	0-12	8.22	2.55	2-12	11.03	1.34	6-12
Intermediate	51	5.25	2.62	1-12	8.86	2.20	3-12	11.00	1.08	6-12
Post-Intermediate	46	7.30	3.02	0-12	9.96	1.79	6-12	11.13	1.24	8-12
Advanced	35	8.31	2.47	2-12	10.71	1.53	6-12	11.74	0.66	10-12

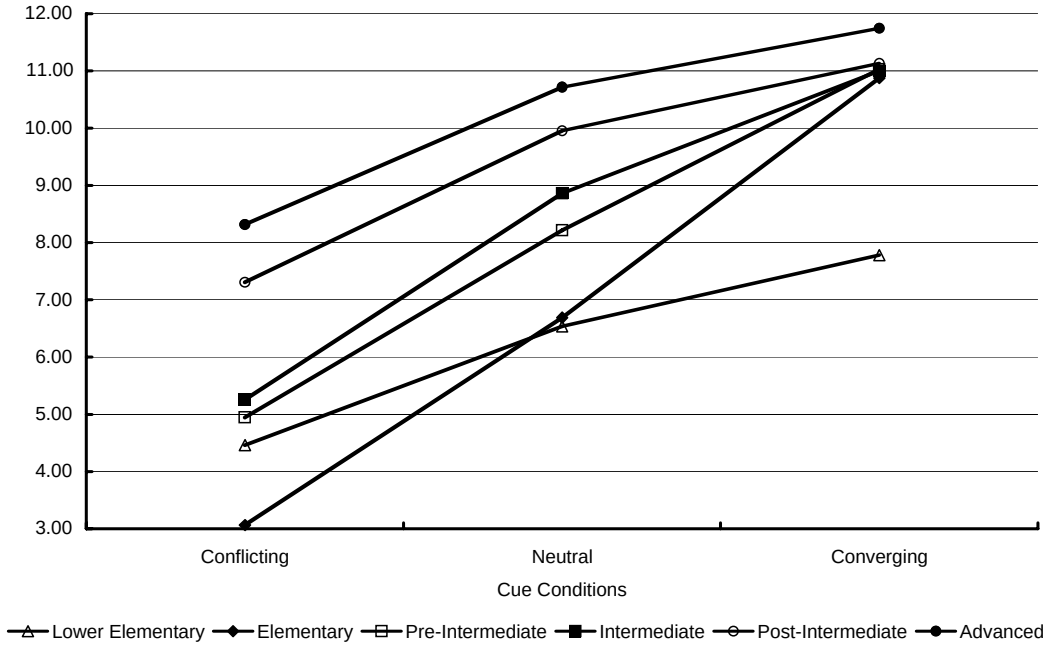

Figure 2. Cue Dependency Test Results by Cue Conditions

2.4. Cue Dependency Groups

Based on the above analysis, we have categorized the participants into four groups according to their cue dependency. The cue unconscious group was unsuccessful in all of the three cue conditions; their overall grammatical proficiency was at the Lower Elementary level (below 49 in *MEG*). The meaning-dependent group, whose overall grammatical proficiency was between 50-59, succeeded in agent identification only when the two cues converged, and when the pragmatic cue was not available, and especially when the pragmatic cue misled them to choose the wrong NP as the agent, their performance was severely deteriorated. This confirms the first prediction of the Competition Model, i.e., the Japanese EFL learners with limited grammatical proficiency will display dependency on semantic/pragmatic cues. The transitional stage group showed some evidence of shifting their cue dependency towards that in the target language, which is reflected in their better performance in the

neutral cue condition. They are at the Pre-Intermediate and the Intermediate level (60-79 in *MEG*) in the overall grammatical proficiency. The syntax-dependent group with the *MEG* score of above 80 displayed their dependency on the syntactic cues. However, their relatively poorer performance in the conflicting cue condition indicates that they are still experiencing difficulty in totally shifting their dependency to that preferred in English. This tendency supports both the second and the third predictions from the Competition Model. Table 3 and Figure 3 summarize the four cue dependency groups.

Table 3. Results by Cue Dependency Groups

		Conflicting			Neutral			Converging		
	N	*M*	*SD*	*Range*	*M*	*SD*	*Range*	*M*	*SD*	*Range*
Cue Unconscious	50	4.46	1.94	1-8	6.54	2.38	1-12	7.78	2.80	1-12
Meaning-Dependent	16	3.06	2.02	0-7	6.69	2.50	3-12	10.88	1.02	8-12
Transitional Stage	88	5.13	2.77	0-12	8.59	2.36	2-12	11.01	1.19	6-12
Syntax-Dependent	81	7.74	2.83	0-12	10.28	1.71	6-12	11.40	1.07	8-12

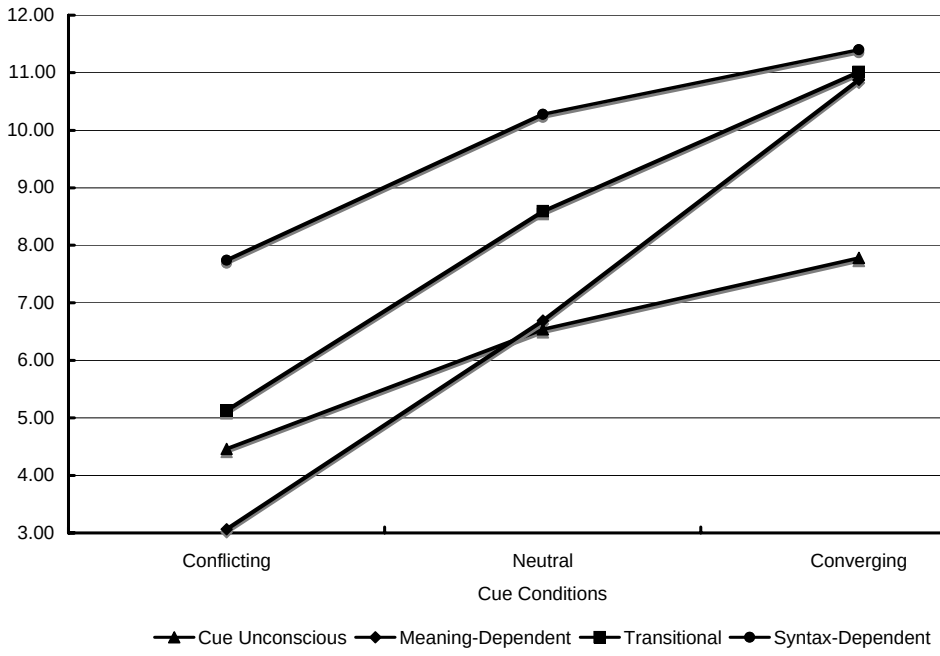

Figure 3. Results by the Cue Dependency Groups

3. Grammaticality Judgment on Dative Alternation

3.1. Method

In order to see how the learner's cue dependency would affect their grammaticality judgment on dative alternation, a grammaticality judgment test with the following nine types of target sentences was prepared (see Nakano *et al*., 2003, for the detailed discussion from the framework of LFG).

(2) Dative Construction

a. Mr. Jones gave some money to me. [to-dative]

b. John found a new dress for me. [for-dative]

(3) Ditransitive Construction

c. Mr. Jones game me some money. [ditransitive (to)]

d. John found me a new dress. [ditransitive (for)]

(4) Ungrammatical Ditransitive

e. *Mr. Jones reported me the accident. [*ditransitive]

(5) Grammatical Passive

f. I was given some money by Mr. Jones. [passive (to)]

g. I was found a new dress by John. [passive (for)]

(6) Ungrammatical Passive

h. *Some money was given me by Mr. Jones. [*passive (to)]

i. *A new dress was found me by John. [*passive (for)]

In addition to these nine types of target sentences, there were 8 filler sentences which had the sentence structure of "NP1 *verb* NP2 *to*/*for* NP3".

The participants were instructed to read the sentences and decide their grammaticality on a 5-point scale from "+2" (completely grammatical) to "–2" (completely ungrammatical). The "+1", "0" and "–1" in between these two extremes were used for the participants to express their degree of acceptability when they felt the sentence is more or less grammatical. The participants were given sample items prior to the actual testing so that they could be familiar with the judgment procedure.

In scoring the responses from the participants, we calculated the 'distance' of a response from the correct answer. In other words, if there were any discrepancy between the response and the correct answer, that discrepancy was reduced from the full mark of 4. For example, if a participant judged a grammatical sentence as "0", s/he would gain 2 points. If a grammatical sentence was judged "–2", that response was converted to 0 points. We believe this way of scoring would be more informative than the binary scoring.

3.2. Results of the Grammaticality Judgment Test

Figure 4 shows the mean judgment scores by the four cue dependency groups. Please note that the target sentence categories are sorted mainly according to the meaning-dependent group's judgment scores.

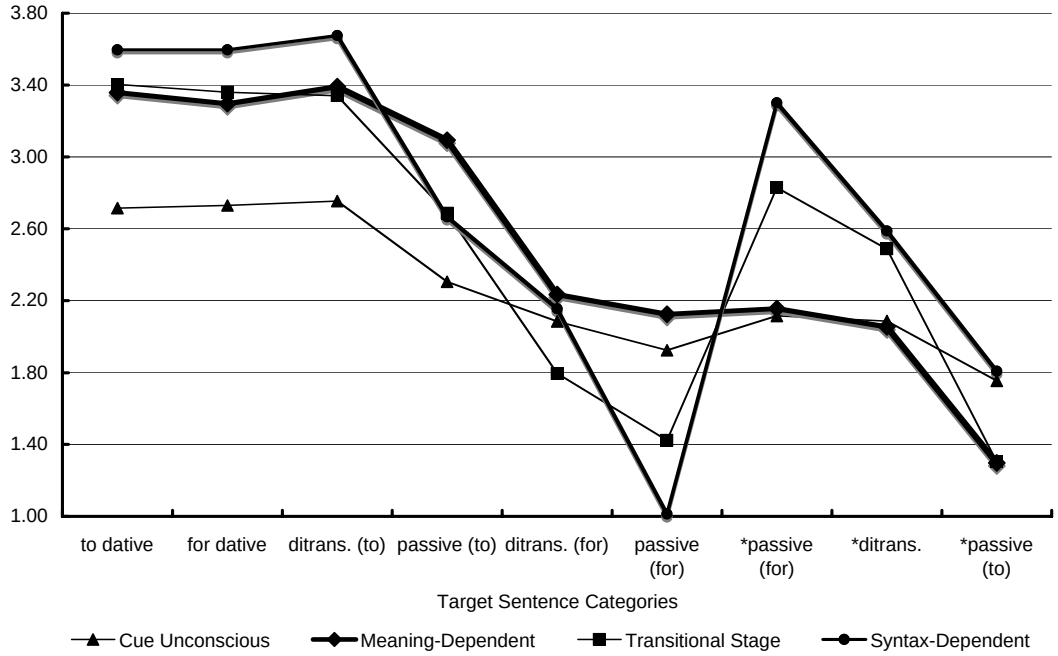

Figure 4. Mean Grammaticality Judgment Scores by the Cue Dependency Groups

A two-way ANOVA was conducted with two independent variables, i.e., the target sentence categories (10 categories including the filler) and the cue dependency (4 groups). As the result, the main effects of the cue dependency ($F(3, 2310)=28.454$, $p<0.0001$) and of the target sentence categories ($F(9, 2310)=83.100$, $p<0.0001$) as well as the interaction between the two factors ($F(27, 2310)=7.177$, $p<0.0001$) were observed. Tukey's HSD was then used to seek for statistically significant differences. For the "to dative", "for dative" and "ditransitive (to)" categories, there were no significant differences among the meaning-dependent, transitional stage, and syntax-dependent groups, although the cue unconscious group's performance in these three categories were significantly lower. The declines in the judgment score for the "passive (to)" category was not significant among the meaning-dependent and the cue unconscious groups, but those among the syntax-dependent and the transitional stage groups were significant. Further decline from the "passive (to)" to the "ditransitive (for)" categories was significant only for the transitional stage group; the declines from the first three categories to the "ditransitive (for)" category were significant for both the transitional stage and the syntax-dependent groups, but not for the other two groups. There were no statistically significant differences among the "ditansitive (for)", "passive (for)", "*passive (for), "*ditransitive" and "*passive (to)" categories for the cue unconscious and the meaning-dependent groups. For the transitional stage and the syntax-dependent groups, however, there were significant differences between the "passive (for)" and the "*passive (for)" categories, and between the "*passive (for)" and the "*passive (to)" categories. The differences between the meaning-dependent group and the syntax-dependent group were significant in the "passive (for)" and "*passive (for)" categories.

In sum, the meaning-dependent group and the cue unconscious group responded equally to the “to dative”, “for dative”, “ditransitive (to)” and “passive (to)” sentences, and showed less acceptability in the remaining five categories. However, this difference in their performance among the categories was rather vague. On the contrary, the transitional stage and the syntax-dependent group showed clearer differentiations among the categories. The syntax-dependent group tends to judge both grammatical and ungrammatical “passive (for)” sentences as “ungrammatical”, and grammatical “ditransitive (for)” sentences as “less acceptable”. On the other hand, the meaning-dependent group shows equal acceptability to those categories that are judged “ungrammatical” or “less acceptable” by the syntax-dependent group.

4. Discussion: Cue Dependency and Grammaticality Judgment

The results obtained in this study clearly confirm our earlier prediction that the differences in the cue dependency influence the grammaticality judgment of dative alternation. The meaning-dependent group, with less overall grammatical proficiency, does not clearly differentiate the predetermined target sentence categories as the syntax-dependent group does. This ‘equal level of acceptance’ tendency was more noticeable among the cue unconscious group.

This finding is in line with our previous findings that the meaning-dependent learners appear to be judging the grammaticality of a target sentence based on how much they can make sense out of the sentence, and thus blurring the syntactically determined categories among the target sentences. On the contrary, the syntax-dependent group seems to be more sensitive to the formal properties of the target sentences, reflected in their varied performance among the target sentence categories, and consequently, the categories have significance for the researcher. For example, in the present study, the syntax-dependent group judged the passive and ditransitive sentences with a “for” phrase as ungrammatical or less acceptable, while those with “to” phrase as grammatical. This tendency implies that the learners in this group had formed some kind of hypothesis about passivization.

These different tendencies seem to stipulate different ways to explain the performance of each group. In order to explain the performance of the meaning-dependent learners, accounts that well acknowledge the semantic features, such as the lexical causativization account on the unergative/unaccusative distinction (Yamakawa *et al*., 2003) or the LFG account on dative alternation (Nakano *et al*., 2003), may be more powerful. When the grammatical feature in question involves some kind of formal manipulations, such as *wh*-movement or NP-movement, syntax-oriented accounts are called for to explain the performance and possible interlanguage hypothesis by the syntax-dependent learners.

The above discussion also raises a methodological question about the grammaticality judgment task itself. What we have found so far imply that the grammaticality judgment task can measure learner’s competence only after they had reached a certain level of grammatical proficiency,

or, within the present framework, after they had started to depend more on the syntactic cues in sentence interpretation. At present, we are all aware that we cannot be conclusive on this point, having investigated only a few grammatical features so far. Further studies with other grammatical features are forthcoming.

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