Argument Selection with Psych Predicates of Adnominal Clauses in L2 English by Japanese-Speaking Learners

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Abstract
The present study examines the learnability problem experienced by Japanese-speaking learners in L2 acquisition of English psychological (psych) verbs. The main purpose of the study is to investigate whether Japanese learners know the properties of English Object Experiencer (OE) verbs, which previous studies have also reported as being problematic for learners. An experimental study was conducted to investigate this issue, in which two groups of learners (advanced and intermediate) and one group of English native speakers (control) participated. An English OE verb was presented in two different types of adnominal clauses: “-ed adjectives” and “-ing adjectives”, combined with two types of arguments (Experiencer/Theme), respectively.

The results revealed that the Japanese learners are not aware of the different properties between English OE verbs and Japanese Subject Experiencer (SE) verbs. A possible explanation for the results is discussed relating the difference between English and Japanese psych verbs.

1. Introduction
A: What are you doing here? Are you boring?
B: Am I a boring person?

This is a conversation which actually occurred at a party, between a non-native speaker (A) and a native speaker (B) of English. Of course, B said the words as a joke knowing what A really intended to say. As shown in this conversation, it is widely known among English teachers that psych verb is one of the items which Japanese-speaking learners often make an error in usage. This study explored why and how these errors are made by conducting an experimental study with psych adnominal clauses consisting of “-ed adjectives” and “-ing adjectives”, and attempts to provide a plausible account based on the results.

2. Theoretical Background
2.1 Psych verbs in English
Psych verb is basically a dyadic verb which possess two different arguments, Experiencer and Theme. Based on the position of the arguments, it has generally been assumed that there are two types of psychological verbs—one whose Experiencer appears in subject position as in (1a) and (1b), namely, “Subject Experiencer (SE) verbs” (ex. admire, dislike, envy, fancy, fear, like) and “Object Experiencer (OE) verbs” (ex. annoy,
bore, confuse, disappoint, embarrass, frighten).

(1) Experiencer Theme
   a. [Tom] enjoys classical music.
   Theme Experiencer
   b. Classical music amuses [Tom].

Here, the linking problem is exhibited by the fact that OE verbs have Theme in the subject position and Experiencer in the object position. This violates the claim presented by Uniformity of Theta Assignment Hypothesis (UTAH) that the relationship between thematically specified arguments and syntactic position is uniform.

(2) Uniformity of Theta Assignment Hypothesis (UTAH)
   Identical thematic relationships between items are represented by identical structure relationships between those items at the level of D-structure.
   (Baker 1988:46)

In addition, the choice of subject in (1a) and (1b) contradicts the thematic hierarchy as follows:

(3) (Agent (Experiencer (Goal/ Source/ Location (Theme))))
   (Grimshaw 1990:8)

In OE construction such as (1b), Theme is placed higher than Experiencer, though this is not supposed to happen according to the thematic hierarchy.

Based on all of these grounds mentioned above, psych verbs have been attracting much attention as an interesting phenomenon exhibiting irregular mapping (Belletti and Rizzi 1988; Grimshaw 1990; Jackendoff 1990; Pesetsky 1995).

2.2 Psych verbs in Japanese

Unlike English, OE verbs in Japanese are very rare; therefore an SE verb + (s)ase construction very often is used to make up for the lack of OE verbs in Japanese, as in (4a) and (4b).

(4) a. SE construction with Japanese SE verb, yorokobu (be pleased)
   Taro-ga sono kekka-o yorokon-da.
   Taro-NOM that result-ACC be pleased-PAST
   “Taro was pleased at that result.”

b. OE construction with Japanese SE verb, yorokobu (be pleased) + (s)ase
   Sono kekka-ga Taro-o yorokob -ase -ta.
   That result-NOM Taro-ACC be pleased-CAUSE-PAST
   “That result pleased Taro.”

Katada (1996) claims that SE verb + (s)ase construction in Japanese should not be
regarded as the equivalent of OE verbs in English, but rather as the equivalent of periphrastic *make*. If Katada’s claim is employed here, a more accurate translation of (4b) in English would be “The result made Taro pleased” rather than “The result pleased Taro”. Table 1 shows the list of SE, OE verbs and periphrastic construction in English and Japanese.

<table>
<thead>
<tr>
<th>SE verbs</th>
<th>OE verbs</th>
<th>Periphrastic make(s)ase construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Japanese</td>
<td>English</td>
</tr>
<tr>
<td>(become irritated)</td>
<td>iratuku</td>
<td>irritate</td>
</tr>
<tr>
<td>(become annoyed)</td>
<td>nayamu</td>
<td>annoy</td>
</tr>
<tr>
<td>(become disappointed)</td>
<td>otikomu</td>
<td>disappoint</td>
</tr>
<tr>
<td>(become frightened)</td>
<td>obiyak</td>
<td>frighten</td>
</tr>
<tr>
<td>(become pleased)</td>
<td>yorokobu</td>
<td>please</td>
</tr>
<tr>
<td>(become hurt)</td>
<td>kizutukku</td>
<td>hurt</td>
</tr>
</tbody>
</table>

As Table 1 shows, only a subset of SE verbs in Japanese correspond to those in English, and the rest are OE verbs in English. The list clearly reveals a difference between English and Japanese, in which Japanese psych verbs encode causativity with an overt morphology such as *sase*, while English psych verbs do not (zero-morphology). It can be predicted that this difference may cause a learnability problem for Japanese-speaking learners of English.

3. SLA Background

3.1 Previous studies on L2 acquisition of psych verbs

There are several studies which investigated the L2 acquisition of psych verbs (Chen 1996; Juffs 1996; White et al. 1999; Sato 2002). Juffs (1996) and Chen (1996) independently investigated the L2 acquisition of psych verbs by Chinese-speaking learners of English. Juffs’ results show a preference for the periphrastic “make” construction of psych verbs (ex. John’s news made me disappointed). Chen reports that Chinese learners of English failed to notice that some verbs such as *frighten* are OE verbs which denote causativity, and wrongly accepted the false sentence such as “*People frighten wars*” (Chen 1996:403). Similarly, White et al (1999) report that OE verbs in English are more problematic for Japanese learners than SE verbs, because they do not encode causativity with an overt morpheme unlike Japanese OE construction. Similar finding are also reported by Sato (2002)—considerable errors with OE verbs made by Japanese learners of English have been observed in the Longman Learner’s Corpus of which the majority are concerned with selection of the subjects such as “*I disappointed with the fact*” and “*I confused*”.

3.2 Learnability problem with psych verb and psych adjective

One of the possible learnability problems is that Japanese learners may experience
some difficulty in distinguishing between the two classes of psych verbs (OE/SE) in English, because Japanese technically has no OE-type psych verbs, which are replaced by SE verbs + causative morpheme (s)ase construction, and because English does not manifest causativity with morphology (zero-morphology). Thus it is assumed that Japanese learners treat English OE and Japanese SE verbs as parallel, which leads them to select Experiencer subject for English OE verbs without passive operation as shown in 3.1 (ex. *I confused). If this is the case, it can be predicted that Japanese learners also have a learnability problem with making a distinction between Experiencer and Theme arguments embedded in adnominal clauses as in (5a) and (5b).

(5) a. -ing adjective which modifies Theme

<table>
<thead>
<tr>
<th>Theme</th>
<th>Experiencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a fascinating [girl]</td>
<td>everybody.</td>
</tr>
</tbody>
</table>

b. -ed adjective which modifies Experiencer

<table>
<thead>
<tr>
<th>Experiencer</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>a fascinated [girl]</td>
<td>[The music] fascinates the girl.</td>
</tr>
</tbody>
</table>

If they are not aware of causativity inherently denoted in OE verbs, they would wrongly take the meaning of “a fascinating girl” as in (5a) for “a girl who is becoming fascinated” as in (5b), because -ing form tends to be connected with the progressive meaning “te-iru” by Japanese learners.

4. Method
4.1 Research questions
1. Will Japanese learners of English be aware that -ed adjective derived from OE verb modifies Experiencer, and -ing adjective derived from SE verb modifies Theme?
2. Will Japanese learners of English be aware that inanimate nouns cannot be modified by -ed adjectives but by an -ing adjectives?
3. Will there be any correlation between the proficiency levels and the performance in L2 acquisition of psych adnominal clauses?

4.2 Hypotheses
1. The lower proficiency level learners in particular will not be aware of the difference between the two different types of arguments, Experiencer and Theme, which are modified by -ed adjective and -ing adjective, respectively. They may wrongly select Experiencer as an argument modified by -ing adjective misunderstanding that -ing denotes progressive meaning like “te-iru”.
2. The lower proficiency level learners will not know the fact that an inanimate noun cannot be modified by -ed adjective but by -ing adjective, and will wrongly reject the correct item such as the inanimate noun modified by -ing adjective or wrongly accept the incorrect item such as the inanimate noun modified by -ed adjective.
3. The lower the learner’s proficiency level is, the worse s/he will perform in identifying
the roles of nouns modified by -ing and -ed adjectives.

4.3 Participants
A total of 50 participants took part in this study: a group of 19 university level Japanese-speaking learners of English who are at a high proficiency level (advanced group); a group of 18 adult Japanese-speaking learners of English who are at a lower proficiency level (intermediate group); and a group of 13 adult native speakers of English (control group).

Prior to the experiment, all the subjects except for the native control group took a vocabulary test to ensure their familiarity with the lexical items in the task, and a cloze test, designed to ascertain that the proficiency levels of the two groups were significantly different. The analysis of the results shows a significant difference between the two groups in the cloze test ($p<.007$) confirming that they are different in proficiency. No significant difference was found in the vocabulary test ($p<.07$ ns), on which both groups obtained high scores.

4.4 Test instruments
An acceptability judgment test with a 5-point scale (-2=least acceptable to +2=most acceptable, 0=not sure) was employed for the experiment. Each English sentence was read out once only on a tape following the reading of a context description in Japanese. All the subjects were asked to make their own judgments as to whether or not the English sentence matches what the Japanese context described and to indicate their judgments on the scale during the between-questions interval of 6 seconds.

4.5 Materials
A total of 10 English OE verbs were employed for this experiment (i.e. irritate, tire, amaze, disgust, annoy, horrify, fascinate, bore, disappoint, surprise). Each verb was presented as two different forms: “-ed adjectives” and “-ing adjectives”, combined with two types of arguments (Experiencer/ Theme), respectively. The arguments consisted of animate and inanimate nouns to examine the influence of the animacy. Each sentence was placed in two different contexts (correct and incorrect contexts), however, regarding inanimate nouns, each type of -ing and -ed adjectives was placed in one context, correct and incorrect contexts, respectively, because -ed adjectives usually cannot modify inanimate nouns, which makes it impossible to make the correct context where an -ed adjective modifies an inanimate noun.

Thus, a total of 60 Japanese sentences (10 psych verbs × 6 possible sentences) were presented to the subjects. The examples of one set of test sentences for tire are shown in Appendix.
5. Results

5.1 Animate nouns

The mean acceptability judgments of the three groups for each form of psych adnominal clauses is presented in Table 2 and Figures 1, 2, 3.

<table>
<thead>
<tr>
<th></th>
<th>correct</th>
<th></th>
<th>incorrect</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Advanced</td>
<td>Intermediate</td>
<td>Control</td>
</tr>
<tr>
<td>-ing</td>
<td>1.46</td>
<td>0.11</td>
<td>-0.15</td>
<td>-1.72</td>
</tr>
<tr>
<td>-ed</td>
<td>1.62</td>
<td>0.47</td>
<td>0.07</td>
<td>-1.85</td>
</tr>
</tbody>
</table>

Figures. Mean acceptability judgments on animate nouns:

Figure 1: Control Group  Figure 2: Advanced Group  Figure 3: Intermediate Group

If the participants make a judgment correctly, the figure for the correct context should be close to 2.0, and the bar for the incorrect context should be close to -2.0. Overall, the advanced group and the intermediate group do not display strong determination in their judgments, which is shown by the fact that all the values are placed between -0.23 to 0.47 for the advanced group, and between -0.15 to 0.35 for the intermediate group. On the other hand, the native control group differentiates between the correct context and incorrect context very clearly with confidence.

Although the degree of intensity in judgments is different from native control, the advanced learners group displays a similar trend to native controls, — they correctly accept the correct context for -ing and -ed adjectives (0.11, 0.47) and reject the incorrect context for -ing and -ed adjectives (-0.23, -0.12). On the contrary, the intermediate group wrongly accepts the incorrect context for -ing and -ed adjectives (1.44, 1.46), and wrongly rejects the correct context for -ing adjective (-0.15).

To look more closely into each item, the itemized data was also examined, which provides some interesting findings relating to Hypothesis 1 (see 4.2). Compare Figure 4 with Figure 5.
Table 3: Itemized mean acceptability judgments: animate -ing

<table>
<thead>
<tr>
<th></th>
<th>irritate</th>
<th>tire</th>
<th>amuse</th>
<th>disgust</th>
<th>annoy</th>
<th>worry</th>
<th>fascinate</th>
<th>bore</th>
<th>disappoint</th>
<th>surprise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>correct</td>
<td>incorrect</td>
<td>correct</td>
<td>incorrect</td>
<td>correct</td>
<td>incorrect</td>
<td>correct</td>
<td>incorrect</td>
<td>correct</td>
<td>incorrect</td>
</tr>
<tr>
<td>advanced</td>
<td>0.42</td>
<td>-0.42</td>
<td>-0.05</td>
<td>-0.53</td>
<td>-0.47</td>
<td>-0.32</td>
<td>0.11</td>
<td>-0.32</td>
<td>-0.11</td>
<td>0.21</td>
</tr>
<tr>
<td>intermediate</td>
<td>-0.22</td>
<td>0.28</td>
<td>-0.56</td>
<td>-0.06</td>
<td>0.39</td>
<td>0.50</td>
<td>0.00</td>
<td>-0.22</td>
<td>-0.33</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

Figures: Itemized mean acceptability judgments: animate -ing

Figure 4: Advanced Group

Figure 5: Intermediate Group

There is a clear picture that the advanced learners and the intermediate learners exhibit a totally opposite pattern—the advanced learners correctly accept the correct context with -ing adjectives, while the intermediate learners wrongly reject the correct context, and accept the incorrect context. These results seem to be closely related to the interpretation of -ing adjectives, which will be discussed later.

A three-way ANOVA consisting of form, context, and group was conducted for all groups. In order to see the main effects and the interaction effects attributed to the students' performance, mean responses on the five-point scale were transformed into the scores to represent the correctness to perform ANOVA. The overall ANOVA produces a main effect of form ($F(1,47)=6.094, p<.017$), and a main effect of group ($F(2,47)=113.818, p<.0001$), which shows that there was a significant difference on performance between the -ing adjective and -ed adjective, and also among the three groups.

In order to get a better picture, a post hoc scheffé test was performed. The results showed that all group pairs exhibit significant differences (control & advanced ($p<.0001$); advanced & intermediate ($p<.0001$); intermediate & control ($p<.0001$)), which confirms my first impression of the mean judgment data—each group performed very differently.

5.2 Inanimate nouns

Recall that each of the -ing adjectives and -ed adjectives has only one type of context, either correct or incorrect. Therefore, all the -ed adjectives attached to inanimate nouns
should be incorrect, while all the -ing adjectives attached to inanimate nouns should be correct. The main acceptability judgment of the three groups is presented in Table 4 and Figures 6, 7, 8.

Table 4. Mean acceptability judgments on animate nouns

<table>
<thead>
<tr>
<th></th>
<th>correct</th>
<th></th>
<th></th>
<th>incorrect</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Advanced</td>
<td>Intermediate</td>
<td>Control</td>
<td>Advanced</td>
<td>Intermediate</td>
</tr>
<tr>
<td>-ing</td>
<td>1.75</td>
<td>0.49</td>
<td>0.48</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>-ed</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-1.98</td>
<td>0.11</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Figures. Mean acceptability judgments on inanimate nouns:
- Figure 6: Control Group  
- Figure 7: Advanced Group  
- Figure 8: Intermediate Group

Similar to the results with animate nouns, overall, the advanced and the intermediate group do not display as strong determination as the native control group. In addition, both learner groups display a different pattern to the native control group. As shown in Figure 7 and Figure 8, learners accept both type of adjectives in spite of the fact that -ed adjective attached to inanimate nouns (ex. tired novel) is incorrect.

A two-way ANOVA consisting of form and group was performed. As explained in the previous section, in order to see the main effects and the interaction effects attributed to the students' performance, mean responses on the five-point scale were transformed into the scores to represent the correctness.

The overall ANOVA yielded a main effect of form ($F(1,47)=7.134, p<.01$), and a main effect of group ($F(2,47)=88.462, p<.0001$), and a significant interaction with form and group ($F(2,47)=4.792, p<.0001$), which reveals that there was a significant differences in performance between -ing adjective and -ed adjective, and also among the three groups. These results also confirm that there was a different trend displayed between the control and the learners groups.

To look more clearly, a post hoc scheffé test was conducted. The results showed that the control group and each learners group display significant differences (control & advanced ($p<.0001$); control & intermediate ($p<.0001$)), however, there were no significant differences between the advanced and the intermediate groups ($p<1.000$),
which confirms that both groups exhibit a similar trend in performance.

6. Discussion and Conclusion

The present study investigated whether Japanese learners are aware of the properties of English OE verbs, which are reported to be problematic for Japanese learners. It is assumed that such a learnability problem may come from the difference between English and Japanese psych verbs — OE verbs in Japanese are very rare, which is made up for by the alternative use of SE verb + *(s)ase construction, while English has many OE verbs which do not encode causativity with morphology. There are three main questions which have been addressed in this study.

1. Will Japanese learners of English be aware that -ed adjective derived from OE verb modifies Experiencer, and -ing adjective derived from SE verb modifies Theme?
2. Will Japanese learners of English be aware that inanimate nouns cannot be modified by -ed adjectives but by -ing adjectives?
3. Will there be any correlation between the proficiency levels and the performance in L2 acquisition of psych adnominal clauses?

Relating to the first question, it has been hypothesized that learners at lower proficiency levels will not be aware of the difference between the two different types of arguments (Experiencer/Theme), which are modified by -ed and -ing adjectives, respectively, and they may wrongly choose Experiencer for -ing adjectives by not understanding that -ing denotes progressive meaning. The results confirm the hypothesis, and show that the intermediate group wrongly accepted the Experiencer noun modified by -ing adjective, while the advanced group manage to reject it. However, the interesting point to note is that the intermediate group correctly accepted the Experiencer noun modified by -ed adjective at the same time. Furthermore, they wrongly accepted Theme modified by -ed adjective. In other words, the intermediate group allowed -ed adjective to modify both types of roles, Experiencer and Theme. What might be the implication from these results? The explanation may be that the intermediate learners are quite familiar with the psych verbs in the passive form, and they simply overextend the passive form to any animate noun without thinking about the theta role.

Concerning the second question, the hypothesis is that the lower proficiency level of learners will not know that inanimate nouns cannot be modified by -ed adjectives but instead by -ing adjectives, and will wrongly reject a correct item such as the inanimate noun modified by -ing adjective or wrongly accept an incorrect item such as the inanimate noun modified by -ed adjective. The results show that, contrary to the hypothesis, neither the advanced group nor the intermediate group was able to reject the inanimate noun modified by -ed adjective, and both groups wrongly accept the incorrect combination of inanimate and -ed adjective. This reveals that they do not know that an inanimate noun cannot be modified by -ed psych adjectives but by -ing psych adjectives because only the Experiencer, which is always a human-being (arimate), can be modified by -ed psych
adjectives. On the other hand, both groups had no problem with accepting the inanimate noun modified by -ing psych adjective, which is intriguing, because with respect to the animate noun, the intermediate learners wrongly accepted the Experiencer noun modified by -ing adjective. It is assumed that this happened due to the fact that they misunderstand that -ing denotes progressive meaning. If this is the case, however, they should have correctly rejected the inanimate noun modified by -ing adjective because it is hard to imagine that an inanimate noun takes the progressive form (ex. reading book), but they did not.

Finally, with respect to the third question, it has been hypothesized that the lower proficiency level learners will have more difficulty than the advanced learners group in identifying the roles of nouns modified by -ing and -ed adjectives. The overall results did not show any large difference in performance between the advanced and the intermediate groups with inanimate nouns, while with animate nouns, these groups displayed an opposite trend, and the advanced learners group showed more similar patterns to the native control group. However, the advanced and intermediate groups exhibit a similarity in determination—both groups were much less determinate with their judgments than the native control group.

The results of this study seem to have some useful implication for English language teaching. It has been empirically known among English teachers that English psych verbs are a problematic item for learners, but it has not been so common for teachers to raise their students' consciousness as to the difference between English and Japanese psych verbs. It seems to be worthwhile to present this item in a comparison of English and Japanese so that students can be aware of the difference. It also enables them to have a good understanding of the properties of English OE verbs, which do not morphologically encode causativity (zero-morphology).

References
Appendix

Examples of one set of test sentences ("tire")

<animate noun>

Type 1 (-ing-correct): メアリーは本当におしゃべりだ。
彼女はパーティーの間ずっと私に話し続けた。

A *tiring* person talked to me at the party.

Type 2 (-ing-incorrect): 一人の女の人がパーティーで話し掛けてきた。
彼女は眠そうに、パーティーにうんざりした様子だった。

A *tiring* person talked to me at the party.

Type 3 (-ed-correct): 一人の女の人がパーティーで話し掛けてきた。
彼女は眠そうに、パーティーにうんざりした様子だった。

A *tired* person talked to me at the party.

Type 4 (-ed-incorrect): メアリーは本当におしゃべりだ。
彼女はパーティーの間ずっと私に話し続けた。

A *tired* person talked to me at the party.

<inanimate noun>

Type 5(-ing-correct): 私は「意識の流れ」の手法を使った小説を読み始めた。
しかし途中で、著者の意図が全く分からなくなり途方くれてしまった。

I read a *tiring* novel.

Type 6(-ed-incorrect): 私は「意識の流れ」の手法を使った小説を読み始めた。
しかし途中で、著者の意図が全く分からなくなり途方くれてしまった。

I read a *tired* novel

---


*Appendix*

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I read a *tiring* novel.

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I read a *tired* novel