There is Hope for Japanese Learners of English: the Case of Telicity

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1. Introduction

This study looks into the acquisition of telicity by beginner and intermediate Japanese learners of English. In Japanese past predicates possess a neutral perfective reading, i.e. they can refer to either a past complete or an incomplete event, which makes them differ from equivalent predicates in English which largely entail event completion. We investigate whether Japanese learners of English learn to invalidate the neutral perfective reading in English given that it requires progress from a super-set to a sub-set interpretation for the simple past and given the absence of explicit instruction and/or negative evidence. The results show that beginners transfer their L1 Japanese telicity marking mechanism whereas intermediate level learners show progress toward the target-like interpretation of telicity. We discuss whether intermediate L2 learners’ progression is due to their gained understanding of the determiner phrase (DP) morphology which influences the computation of telicity. We also speculate on how prolonged exposure to the target language may affect the representation of telicity by L2 learners.

2. Telicity marking in English and Japanese and the neutral perfective

It has been argued that there are two major ways of marking telicity: via object morphology as, for example, in English or via verb morphology as in Russian (Verkuyl, 1993; Slabakova, 2001, among others). In this section we show that objects in English and Japanese encode critical information regarding the telicity of the predicate.

According to Verkuyl (1972, 1993), in English aspect should be considered as a compositional property of sentences and verb phrases but not a property of verb meanings. In other words, the telicity of a predicate critically depends on the type of determiner phrase (DP) that occupies the object position. Consider sentences in (1).

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(1)  a. Ken built houses.
    b. Ken built three/the houses.

    Only (1)a is true in a situation in which Ken built two houses completely and the third one incompletely. (1)b is false in this situation as it requires that all three houses (or all houses in question) be built completely. Note that the only difference between (1)a and (1)b is the type of object DP. Predicates such as those in (1)b which contain a bounded DP (*three/the houses*) are only compatible with a telic interpretation. When an object DP is unbounded (*houses*), as in (1)a, the resulting predicate is compatible with either a telic or an atelic interpretation. The same observation holds in Japanese, i.e., the object DP affects the telicity of a Japanese predicate as illustrated in (2).

(2)  a. Ken-wa ie-o tateta.
    Ken-Top house-Acc built
    *Ken build a/the house(s).

    b. Ken-wa san-gen-no ie-o tateta.
    Ken-Top three-Cl-Gen house-Acc built
    Ken built three/the houses.

    Only the sentence (2)a, but not (2)b, is true in a situation in which Ken built two houses completely and the third one incompletely. Thus, similarly to what was shown for English above, the boundedness of the object DP is crucial for the computation of telicity in Japanese.

    Critically for our study, English and Japanese simple past predicates differ with respect to the availability of the so-called neutral perfective reading. The term neutral perfective (Singh 1998) refers to the ability of perfective predicates in some languages to denote an event that did not reach completion. Consider the examples (3) and (4).

(3)  a. √ Lisa erased the star.
    b. # Lisa erased the star but some of it still remains.

(4)  a. √ Risa-wa hoshi-o keshita
    Lisa-Top star-Acc erased
    Lisa erased (a/the) star(s)

    b. √ Risa-wa hoshi-o keshita keredo mada nokotteiru
    Lisa-Top star-Acc erased but still remains
    Lisa erased (a/the) star(s) but it still remains.

    In (3)a, the past perfective predicate *erased the star* implies that the star is completely erased, as confirmed by the infelicitous continuation in (3)b. The Japanese equivalent (4)a, on the other hand, is compatible both with a telic scenario in which the star is completely erased and with an atelic scenario where the star is erased partially, as witnessed by a well-formed (4)b. Hence Japanese past perfective predicates have a neutral perfective reading.
The remainder of this paper is organized as follows. Section 3 presents an account of the neutral perfective reading and discusses potential pitfalls in calculating telicity of English predicates for Japanese learners of English. Section 4 presents our experiment, which investigates the representation of telicity by Japanese learners of English. Section 5 concludes.

3. Deriving the predicate telicity

We adopt the view whereby the difference in availability of the neutral perfective reading in English vs. Japanese results from differences at the level of DP (provided that the equivalent verbs are chosen). Specifically, the difference is derived from two properties: the initial setting of the nominal feature [boundedness] of bare nominals and the projection of the Det(terminer) and Num(ber) categories. Our account of telicity in Japanese is largely based on Soh and Kuo’s (2005) account of the telicity in Mandarin Chinese which in turn utilizes Jackendoff’s (1991) classification of nominal features.

Jackendoff classifies all nominal features in English in terms of a binary conceptual feature \textit{boundedness} ([+/-b]). The boundedness feature reflects whether or not boundaries of an entity are discernable and is exemplified in (5):

\begin{align}
(5) \quad [+b]: \text{individuals} \quad (a \text{ pig}) \\
[-b]: \text{substances} \quad (water) \\
[-b]: \text{aggregates} \quad (buses, cattle) \quad \text{[adapted from Jackendoff (1991)]}
\end{align}

A singular count noun \((a \text{ pig})\) and a mass noun \((water)\) differ in the value of the boundedness feature ([+b] vs. [–b] respectively). Singular count nouns are bounded because the boundaries of an entity are definable and visible whereas mass nouns are unbounded because their boundaries are not clear. Plural count nouns \((buses)\) are unbounded because the entity lacks precise limits.

(6) shows that changes in the setting of the boundedness feature are sufficient to yield differences in the telicity of the overall predicate. (6)a that contains a bounded object can only denote a complete event while (6)b with an unbounded object can refer to either a complete or an incomplete event.

\begin{align}
(6) \quad a. \text{Ken erased a star.} \\
& \text{Object DP: [+b]; Predicate interpretation: } \sqrt{\text{complete}} \quad \#\text{incomplete} \\
& \text{b. Ken erased stars.} \\
& \text{Object DP: [-b]; Predicate interpretation: } \sqrt{\text{complete}} \quad \sqrt{\text{incomplete}}
\end{align}

Furthermore Soh & Kuo’s (2005) proposal makes two important points. Firstly, various functional heads that project within a DP, e.g., determiners and plural markers, are considered to be functions that may change the value of the boundedness feature of their complement noun phrase. Secondly, Soh & Kuo

\footnote{For the reasons of space, we disregard the other nominal feature in Jackendoff (1991), \textit{internal structure}, which is not directly relevant for the present discussion.}
adopt Chierchia’s (1998) idea on cross-linguistic differences of bare nominals: English bare nouns may be either count or mass, whereas all nouns in Chinese (and, in our case, in Japanese) are mass. The first assumption is illustrated by the derivation for an English DP in (7)a. The bare noun star enters the derivation with the feature [+b]. In English (and other languages with overt determiners and number morphology; Déprez 2005) the number and the determiner-head projections are obligatory.  

We suggest that determiners are functions that change the feature [-b] on the complement phrase to [+b] whereas the plural marker -s in English has an opposite effect. In (7)a the feature [+b] on the bare nominal remains unchanged in the course of derivation: neither a Sg number or the Determiner has an effect because it merges with an already [+b] complement. Thus the resulting DP an/the star is [+b] at the uppermost level and when the DP merges with the verb erase, the entire VP denotes a complete event.

$$(7) \text{ Derivation of DPs } \textit{erase a/the star' } \text{ in English and 'kesu hoshi' in Japanese}$$

(a) an/the star in English

$$\text{VP } => \text{ complete}$$

$$\text{V} \text{ erase} \text{ DP } [+b]$$

$$\text{D an/the } <[-b] => [+b]> \text{ Num } [+b] \text{ NP}$$

$$\text{Sg}$$

$$\text{star } [+b]$$

(b) hoshi ‘star’ in Japanese

$$\text{VP } => \text{ complete or incomplete}$$

$$\text{V} \text{ keshu 'erase'} \text{ DP } [-b]$$

$$\text{NumP } [-b]$$

$$\text{NP}$$

$$\text{N}$$

$$\text{hoshi } [-b]$$

$$\text{ 'star'}$$

$$(7)b$$ shows the derivation for the Japanese DP hoshi ‘an/the/∅ star(s)’. The Japanese bare noun enters the derivation with a feature [-b]. The Det and Num projection is not obligatory in Japanese (as indicated by parentheses around these categories in $$(7)b$$). Consequently, no feature change takes place and the overall DP is still [-b]. Therefore the VP which results after the DP is merged with the verb keshu ‘erase’ can denote either a complete or an incomplete event.

This account explains why the neutral perfective reading is available with past predicates in Japanese but not in English. From the L2 learning perspective, in order to derive that the neutral perfective reading is not a licit interpretation.

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2 The original idea to apply Déprez’s (2005) analysis to the acquisition of telicity by L2 learners is due to Gabriele (2007).

3 In Soh & Kuo’s (2005) original analysis, determiners (a/the/this) change the feature [-b] to [+/+b], i.e., Det: [-b] \(\rightarrow\) [+/+b].
for a simple past predicate in English, Japanese learners need to know that
nominal features [+/-b], which are relevant in calculating the telicity of the
overall predicate, can be affected by the obligatory projections of the Det and
Num categories. Our experiment is designed to investigate how telicity is
calculated by adult Japanese learners of English and aims to answer the
following questions. First, what is a developmental profile of the L2 acquisition
of the semantics of telicity? If we assume a transfer model (e.g., the Full
transfer/Full Access hypothesis, Schwartz & Sprouse 1996), we would expect
L1 transfer at the beginner level and a progression toward the target-language
representation of telicity at the intermediate level. Second, if L2 learners do
show progress towards a target-like representation of telicity, which factors
contribute to this progression? In light of the analysis whereby Det and Num
categories affect the object boundedness, acquiring the DP morphology may be
important for developing correct representation of telicity in L2.

4. The Experiment

The study involved 156 Japanese learners of English (L2 English group) as
well as an English (L1 English) and a Japanese (L1 Japanese) monolingual
control group of 20 speakers each. Sixty out of 156 L2 participants were 2nd
year junior high school students in Japan and were classified as beginners. The rest of
the 96 L2 participants were categorized as intermediate based on the results of
the Quick Placement Test (published by Oxford University Press and the
University of Cambridge Local Examinations Syndicate 2001) that examines the
learners’ vocabulary, grammar and reading skills. The intermediate group
comprised speakers who resided and were tested in Ottawa (the Ottawa
subgroup, n=32, mean placement test score - 57%, range 42-67%) and in Tokyo
(the Tokyo subgroup, n=64, mean placement test score - 58%, range 42-68%).
The Ottawa and the Tokyo groups differed on their length of residence in an
English-speaking country. The mean length of residency (range) was 18 (6-55.2)
months for the Ottawa group and 1.3 (0-12) months for the Tokyo group. The
L2 English groups and L1 English group performed two tasks: a Morphological
task (MT henceforth) and a Truth Value Judgment Task (TVJ task; Crain &
Thornton, 1998). The L1 Japanese group performed a Japanese version of the
TVJ task.

4.1. Morphological Task (MT)

The aim of this task was to examine morphological knowledge of the
Number morphology on determiner phrases (i.e., singular vs. plural distinction).
The details of the task are available in Kaku & Kazanina (2007). The
participants had to change the word in parentheses into a correct form. A sample
sentence is given in (8).

(8) Lucy has ____ which likes to eat a lot. (cat)
Correct answer: Lucy has a cat/ the\textsuperscript{4} cat which likes to eat a lot.

The target word was always a count noun. The target occupied either the main object position as in (8) and had to match in number with the verb in the relative clause that modified the object or main subject position and had to agree with the main verb. Each participant saw 12 experimental items interspersed with 18 filler items. The correct answer was singular in half of the items and plural in the other half.

4.1.1. Results

Monolingual L1 English controls showed a ceiling performance on the morphological task. Participants from the L2 English group were divided into two groups based on their performance in the MT task: participants who made at most one error are considered to have attained a target-like level (n=26, ‘high MT’, mean error rate 4%) and participants who made 2 or more errors (n=130, ‘low MT’, mean error rate 55.7%). High MT group included 14 out of 32 members of the Ottawa group, 12 out of 64 members of the Tokyo group and none of the Beginners. The low MT group included all 60 beginners, 52 out of 64 participants from the Tokyo group and 18 out of 32 participants from the Ottawa group. Thus the Ottawa group performed better than the Tokyo group on the MT despite their comparable performance in the placement task. Almost all errors could be classified as one of two types. One was Bare-Singular (Bare-Sg) errors in which bare singular nouns (that are illicit in our contexts) were used in either singular or plural contexts. The other type was Number errors and refers to an incorrect use of a singular determiner \textit{a} in plural contexts or of the plural -\textit{s} (with or without the definite article) in singular contexts. Bare-Sg errors were more frequent than Number errors in all three L2 groups (beginners: 78.5\% vs. 17.6\%, Tokyo: 79.5\% vs. 19.5\%, Ottawa: 63.2\% vs. 35.6\%). Both types of errors are due to the L1 transfer, as in Japanese the Det and Num projections are not obligatory.

4.2 Truth Value Judgment Task (TVJ task)

The TVJ task investigated the semantic representation of telicity. Participants watched scenarios that were acted out in front of them by means of an animated Power Point presentation. Each story was a combination of a narrated text and actions depicting an event which happened either completely or incompletely. The participant’s task was to judge the truth-value of a target sentence in the given scenario. For example, in the \textit{star-erasing} scenario (Figure 1), a girl named Lisa has a drawing of a star on a piece of paper and wants to get rid of it (Figure 1A). She starts erasing the star with the eraser (Figure 1B), and

\textsuperscript{4} Despite their infelicity, responses with definite DPs (e.g., \textit{the cat} in this example) were scored as correct as long as the correct number marking was chosen.
does it either completely (Figure 1C) or incompletely. The target sentence Lisa erased the star then appears on the screen and the participant is asked to judge if the sentence is true in the given scenario.

![Figure 1](image)

**Figure 1. A sample scenario from the TVJ task: the predicate erase the star**

Figure 1 exemplifies one of four conditions from the TVJ task which were constructed in a $2 \times 2$ design with factors event type (complete vs. incomplete) and number of affected objects (singular vs. plural). In conditions A and B which involved a singular physical object, the critical event was performed either completely (condition A) or incompletely (condition B). Accordingly the target sentence contained a predicate with a singular object DP. Conditions C and D followed the same pattern with the difference that multiple objects (2 or 3) were involved in the event and the target sentence contained a plural object DP. Our initial assumption was that L1 English speakers would accept target simple past predicates with complete events (conditions A and C) and reject them with incomplete events (conditions B and D). L1 Japanese speakers, on the other hand, were predicted to accept Japanese equivalents of our target sentences with complete events (conditions A and C) and also with incomplete events (conditions B and D) due to the existence of the neutral perfective reading with past predicates in Japanese. Sixteen sets of four conditions were created based on 16 different predicates. Four presentation lists were created using a Latin Square Design and 16 fillers were added to each list. All target predicates were accomplishments and contained a bounded object DP (e.g., a/the star in the singular conditions and the stars in the plural conditions).

### 4.2.1. Results

Figure 2 summarizes the results of the TVJ task for all five groups of participants.
Figure 2. The truth-value judgment task results: percentage of acceptance of the predicate by condition by different participant groups.

Overall, the monolingual English group showed an expected performance i.e., they accepted simple past accomplishment predicates with bounded objects with complete events (100% acceptance in conditions A and C), but not with incomplete events (18.8% and 26.3% in conditions B and D respectively). The L1 Japanese speakers showed a similar performance to the L1 English speakers in conditions A and C (97.5% and 98.7% acceptance respectively). In conditions B and D, however, they accepted target sentences more often than the L1 English speakers (58.8% and 68.8% acceptance respectively). This relatively high acceptance rate in conditions B and D confirms the existence of the neutral perfective reading in L1 Japanese.5

Results from the L2 English groups indicated a high acceptance rate for target sentences in conditions A and C which were numerically close to the rates shown by the monolingual groups. Nevertheless, a 1-way ANOVA on the mean accuracy in conditions A and C between the five groups was significant (conditions A and C: $F(4,191) = 12.1, p < .001$). Post-hoc tests showed that the effect was driven by a difference between the L1 English and the beginner group ($p < .001$, this and all subsequent post-hoc tests involved Tukey correction for multiple comparisons). In the critical conditions B and D, a 1-way ANOVA performed with all five participant groups was significant (condition B: $F(4,191) = 17.7, p < .001$; condition D: $F(4,191) = 12.2, p < .001$). Post-hoc tests revealed that the beginner group was not significantly different from the L1 Japanese group (conditions B and D, both $p’s > .1$), but differed significantly from the L1

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5This claim is further supported more strongly by the data from the subset of predicates which yielded a clear difference between the L1 English and the L1 Japanese (Kaku & Kazanina, 2007). Variation in the degree of acceptance of the neutral perfective reading as a function of the verb is not predicted by many theories of aspect and calls for explanation.
English (conditions B and D, both $p's < .001$). On the other hand, the scores from the Ottawa and the Tokyo intermediate groups were greater than the L1 English and lower than the L1 Japanese speakers’ scores. Numerically, the Ottawa group’s scores were closer to those of the L1 English group than the Tokyo group’s scores (39.4% vs. 49.6% in condition B and 55.9% vs. 64.2% in condition D respectively). Post-hoc tests revealed that the performance by the Ottawa group was significantly different from the performance by the L1 English and L1 Japanese groups in condition B (both $p's < .05$). The Tokyo group significantly differed from the L1 English group ($p < .001$) but not from the L1 Japanese group ($p > .1$). For plural condition D, both intermediate groups were significantly different from the L1 English group (all $p's < .001$).

Summarizing, the beginners incorrectly accepted simple past sentences with incomplete events (conditions B and D). In other words, they apply their native language representations of telicity in their second language. The intermediate Ottawa group showed a clear progress towards the target-like interpretation of telicity, as shown by their significantly lower acceptance of the neutral perfective reading in condition B as compared to the L1 Japanese group. The Tokyo group showed a similar (albeit not statistically significant) trend.

4.3. What contributes to the development of semantics of telicity in L2?

The TVJ task results from the beginner group suggested a direct L1 transfer, whereas the results from the intermediate groups indicated progression towards the target-like representation of telicity in L2. The question is then: what allows Japanese learners of English to invalidate the neutral perfective reading with English simple past predicates in the absence of any explicit instruction?

As mentioned in section 3, the acquisition of the English DP morphology could be a trigger for invalidating the neutral perfective reading by Japanese learners of English. We investigated whether or not there were correlations in the performance on the MT and in the conditions B and D of the TVJ task A Pearson’s test performed on all L2 groups revealed a significant correlation between the correct use of the DP morphology in the MT and the rejection of the simple past sentences with incomplete events in the TVJ task ($r=.33, p<.001$ two-tailed). However, there were no significant correlations within each of the three L2 groups: beginners $r=.17, p=.19$, Ottawa group $r=.02, p=.92$, Tokyo group $r=.11, p=.41$ all two-tailed.

Tables 1A-D provide further evidence for the lack of a robust correlation between the correct production of morphology and the correct semantic

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6 In English plural DPs the number and determiner projections have an opposite effect on boundedness (the feature turns into [-b] when the plural -s is merged and then into [+b] when the Det phrase is projected). Hence, it is likely that the plural condition D should be more problematic for L2 learners than the singular condition B. Accordingly, the results from the Ottawa group revealed more progress in condition B. (Notably, the acceptance of the neutral perfective reading was higher in condition D than in condition B in both L1 groups).
representation of telicity in L2 speakers. These tables summarize the individual performance patterns of the intermediate-level learners across the MT and conditions B and D of the TVJ task. Recall that each participant was tested on four trials in each condition of the TVJ task and on 12 (6 singular and 6 plural) trials in the MT. Thus in the TVJ task a participant could either accept the target sentence in all trials (# acceptance=4), or consistently reject it (# acceptance = 0), or accept it on some trials (# acceptance=1, 2, or 3) (represented by each row in Tables 1A-D). Similarly, in either the singular or plural condition of the MT, a participant could always provide a correct answer (# correct=6) or always give a wrong answer (# correct=0) or be somewhere in between (# correct=5, 4, 3, 2 or 1) (represented column-wise in Tables 1A-D). Each cell indicates the number of participants with the corresponding scores in the TVJ task and the MT respectively. Shaded cells indicate target-like performance.

Table 1. Performance of individual participants: intermediate L2 groups

Ottawa group (n=32)

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Tables 1 A-D indicate that learners’ success in acquiring the DP morphology is not a reliable indicator of their acquisition of the semantics of telicity. For example, the last column in each table shows that participants with high scores in the MT task had a wide variation in the performance in the TVJ task. Furthermore, learners with very poor knowledge of the English DP
morphology (the first column) also showed a range of proficiencies on the TVJ task.

To conclude, although we found a correlation between the correct use of the DP morphology in the MT and the rejection of the neutral perfective readings in the TVJ task when all the L2 groups were pooled together, such a correlation was not found within each intermediate group. This suggests that an appropriate use of the DP morphology may not be a prerequisite for a correct interpretation of the predicate telicity by L2 speakers. It is important to highlight that the MT investigated the learners’ production of the DP morphology, which may only be an indirect measure of the degree to which the DP morphology has been internalized. Specifically, the learners may have a correct DP projection but fail to correctly instantiate it in production due to processing limitations (the Missing Surface Inflection hypothesis; Prévost & White 2000b). Alternatively, it may be that other factors besides the morphology contribute to a gradual divergence of the L2 predicate semantics from the original L1 representation (see Discussion).

5. Discussion and conclusion

This study examined how telicity is acquired by beginner and intermediate groups of Japanese learners of English. In particular, we investigated whether without explicit instruction Japanese speakers learn to reject English simple past predicates with incomplete events.

The results show that beginners directly transfer the semantics of the Japanese past to the English simple past. At the intermediate level, however, the semantics of the English simple past is dissociated from that of the Japanese past, i.e., Japanese learners of English learned to invalidate the neutral perfective reading with English predicates even though they accept this reading with their Japanese counterparts. We hypothesized that the acquisition of the DP morphology could be the trigger for such progression. However, although there was a correlation between the performances of the MT and the TVJ task in the overall L2 group data (beginners and intermediates), this correlation was absent from the individual group data. Hence, further investigation of the morphology-semantics correlation is needed to form an informed opinion on the subject.

Besides the DP morphology, another factor may be relevant in explaining how L2 learners learned to invalidate the neutral perfective reading in English. Tenenbaum & Griffiths (2001) proposed a computational model which rationalizes learning and generalization in a general Bayesian framework. A central idea is that the learner makes use of probabilistic inference to (dis)confirm a given hypothesis from a defined hypothesis space. A hypothesis becomes more probable as the learner encounters data instances that support the hypothesis. In our case the learner may initially consider two hypotheses on the semantics of the English simple past, e.g., H1 = “simple past predicates need not entail completion”, H2 = “simple past predicates entail completion”. During their exposure to their target language, the learners will encounter instances of
simple past predicates referring to a past complete event much more often than those in which they refer to a past incomplete event. Thus, the hypothesis that the English simple past entails completion will be reinforced as the one that is better correlated with the input. Furthermore, the more exposure the learner gets, the faster the learning process will be. This accords well with the finding that the Ottawa group who had more exposure to English than the Tokyo group also had a more target-like representation of the semantics of the English simple past. What is critical for this logic is that an appropriate hypothesis space can be originally outlined by the learner. This is conceivable in light of the fact that the learner’s L1 grammar has the ingredients that enable necessary generalizations: Japanese simple past predicates do not entail completion (H1), whereas the projection of the Number phrase as in (2b) ‘binds’ the DP as a result of which the predicate can only refer to a complete event (H2). The degree to which such high-level generalizations are available as ‘rough-and-ready’ recipes in second language acquisition awaits verification.

References


