

# Evaluating the Role of the L1 in the L2 Acquisition of Aspect: A Study of Japanese Learners of English

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## 1. Introduction

In the past decade, research in generative second language (L2) acquisition has focused primarily on issues of syntactic representation, investigating to what extent the principles and parameters of Universal Grammar constrain L2 acquisition. This body of research has closely examined the acquisition of the morphological and syntactic reflexes of L2 functional categories. Specifically, researchers have examined learners' comprehension and usage of L2 inflectional morphology as well as L2 learners' knowledge of feature strength, which is closely tied to constraints on syntactic movement (Epstein, Flynn & Martohardjono, 1996; Haznedar and Schwartz, 1997; Lardiere, 1998, 2000; Prevost and White, 2000; Schwartz and Sprouse, 1996; Vainikka and Young-Scholten, 1996, among others).

More recently, this focus has broadened to include questions of how knowledge at interface levels is acquired, and how knowledge of peripheral mechanisms interacting with, but outside of UG proper, are deployed to instantiate this knowledge (cf. Juffs, 1996, Juffs and Harrington, 1995; Klein and Martohardjono, 1999). Recent research has also begun to explore the semantic aspects of L2 acquisition, investigating the *interpretations* that learners assign to grammatical constructions in a second language (Dekydtspotter, Sprouse and Anderson, 1997; Montrul and Slabakova, 2002; Slabakova and Montrul, 2002). L2 researchers have taken particular interest in the acquisition of lexical semantics and its interaction with argument structure (Juffs, 1996; Hirakawa, 1999, 2001; Inagaki, 1997, Montrul, 1997, 1999; Sorace, 1995, 2000) as well as its interaction with grammatical morphology (Montrul and Slabakova, 2002; Slabakova and Montrul, 2002).

Research on the L2 acquisition of aspect falls within this domain. Aspect refers to the internal temporal properties of an event (Chung and Timberlake, 1985; Comrie, 1976; Smith, 1991). The aspectual properties of a phrase indicate whether an event is ongoing or whether it is complete. Aspect may be encoded in the lexical class of the verb phrase (lexical aspect) or in particular grammatical forms such as the progressive or simple past morphemes (grammatical aspect).

Lexical aspect usually refers to Vendler's (1967) well-established four-way classification of verb phrases. This classification distinguishes states such as *know* (which are ongoing in time but generally incompatible with the progressive), activities such as *paint* (which are also ongoing in time and have no set endpoint), accomplishments such as *run a mile* (which do have a definite terminus), and achievements such as *die*, (which happen instantaneously, with little or no duration).

Aspect can also be encoded in verbal inflectional morphology, for example by perfective and imperfective or progressive and non-progressive grammatical morphemes. The past tense in English encodes perfective aspect as in (1).

(1) *John ran a mile.*

Perfective aspect looks at the event as a whole, disregarding the internal structure of the event; the verb phrase denotes a completed event. In (1), it is the case that John has run the entire mile. In contrast, English employs the progressive as in (2) to encode imperfective aspect.

(2) *John was running a mile.*

Imperfective aspect does not specify either the beginning or endpoint of an event. In (2) the event of John running a mile was in progress at some point in time, but there is no indication of whether the action was actually completed.

It is well known that there is an interaction between lexical aspect and grammatical aspect so that particular grammatical forms yield different interpretations depending on the lexical class of the verb. In addition, there are very interesting crosslinguistic differences in how particular lexical classes interact with grammatical morphology. These particular facts are of central interest to the present study and will be explained further in our discussion of aspectual markers in English and Japanese.

## 2. Approaches to the L2 acquisition of aspect

A large body of research has investigated the L2 acquisition of aspect markers from a functional perspective, evaluating the observations of the Primacy of Aspect Hypothesis (Antinucci and Miller, 1976; Bloom, Liftner and Hafitz, 1980; Bronckart and Sinclair, 1973; Andersen, 1991; Shirai, 1991; Salaberry, 1997; Li and Shirai, 2000, among others). Proponents of the Primacy of Aspect (henceforth POA) model argue that lexical semantic classes guide early language learners in their production of inflectional morphology. Specifically, the POA model proposes the following four associations between the lexical class of the verb and grammatical marking:

- Learners will first use perfective or past morphology with achievement or accomplishment verbs and only later will extend its use to activity and stative verbs.
- In languages that have a progressive form, learners will first use progressive morphology with activity verbs and only later will extend its use to accomplishment and achievement verbs.
- Learners will not incorrectly extend progressive morphology to stative verbs.
- In languages that encode the perfective/imperfective distinction, imperfective past marking will appear later in development than perfective past marking. Learners will first use imperfective past marking with stative verbs and only later extend imperfective marking to activity, accomplishment and achievement verbs.

The explanation for the associations listed above is rooted in a theory of prototypes (Rosch, 1973). According to prototype theory, each given category has its best exemplars or prototypes, which share many characteristics with other members of the category. Each given category also has peripheral members, the non-prototypical exemplars, which have fewer features in common with other members of the category. Applied to language acquisition, the proposal is that children and second language learners begin to acquire a linguistic category by beginning with the prototype of that category and only later extending its application to the more peripheral members. For example, according to Li and Shirai (2000), the prototype for the category “progressive” is best described as “action in progress,” which means it denotes the semantic features [+dynamic, -telic]. If children and L2 learners restrict the semantic representation of the progressive to these features, then verbal predicates which do not fit this characterization will not be marked with the progressive. This would explain why early language learners might restrict their use of progressive marking to the class of activity verbs.

The POA model proposes that the associations outlined above will hold universally. Researchers have tested these associations in typologically different languages such as English, Spanish, Japanese and Chinese and have argued that their findings provide support for the claims outlined above (cf. Li and Shirai, 2000 for a review of this work). This research has focused primarily on learners’ production.

An important point for second language research is that hypotheses based on the POA framework do not usually take the L2 learners’ native language into account (cf. Slabakova, 2002 for discussion). Because the POA model does not predict that L1 transfer will play a role, typological differences between the L1 and L2 have not been taken into consideration in the formulation of research questions and predictions.

On the other hand, researchers working within the framework of generative L2 acquisition have paid a great deal of attention to the role of the native language in the acquisition of L2 lexical and grammatical properties. Slabakova and Montrul (2002) (see also Montrul and Slabakova, 2002) investigated the acquisition of the Spanish preterite/imperfective contrast by native speakers of English. Spanish encodes grammatical aspect morphologically: the preterite as in (3a) is used to mark perfective aspect and denotes complete or bounded events. On the other hand, the imperfect as in (3b) is used to mark imperfective aspect and denotes unbounded or incomplete events. English does not have a simplex past form equivalent to the Spanish imperfect. However, with event predicates (activities, accomplishments, achievements), the preterite in Spanish is roughly equivalent to the simple past in English and the imperfect can usually be translated into English with the past progressive. (The interpretation is heavily dependent on context.)

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|--|--|
| <p>(3a) <i>Julieta practicó tenis.</i><br/>         Juliette practice-PRET tennis.<br/>         Juliette practiced tennis.</p> | <p>(3b) <i>Julieta practicaba tenis.</i><br/>         Juliette practice-IMP tennis.<br/>         Juliette was practicing tennis.</p> |
|--|--|

(Slabakova and Montrul, 2002 cf. (6))

Stative verbs are generally incompatible in the progressive in both Spanish and English. However, Spanish morphologically distinguishes the perfective-imperfective contrast with stative verbs as in the examples in (4) whereas English does not, as is shown in the English glosses. The same form, *was*, is used in both cases.

- (4) a. *Pedro dijo que María estaba embarazada.* (imperfective)  
 Pedro said that Maria is IMP pregnant  
 Pedro said that Maria was pregnant. (She was pregnant at that time and she still might be pregnant.)
- b. *Pedro dijo que María estuvo embarazada.* (preterite)  
 Pedro said that Maria is PRET pregnant  
 Pedro said that Maria was pregnant. (Maria was pregnant and is no longer pregnant.)

(Slabakova and Montrul, 2002 cf. (13))

Slabakova and Montrul predicted that this mismatch in the morphology would cause difficulty for learners of Spanish. L2 learners would have to realize that while English neutralizes the bounded-unbounded distinction with stative verbs, Spanish does not.

Learners were given a Sentence Conjunction Task where they were asked to judge whether two conjoined clauses were possible together as in (5).

- (5) *La clase era a las 10 pero empezó a las 10:30.*  
 The class was-IMP at 10 but started at 10:30.

In (5) the verb is in the imperfect and therefore the two conjoined clauses are acceptable.

Following the theoretical framework of Giorgi and Pianesi (1997), Montrul and Slabakova assume a parametric difference between English and Spanish in the feature composition of the functional category AspP. In English all event predicates (not states) are marked with the feature [+perfective], which encodes boundedness. All event predicates in English must check this feature in AspP. In Spanish, on the other hand, verbs are not inherently associated with semantic features. Instead the features [+/- perfective] are associated with overt tense morphology and must also be checked in AspP. Montrul and Slabakova assume that in Spanish, the features (+) and (–) perfective are checked overtly in AspP through imperfective and preterite tense morphology. In this framework, the successful

acquisition of aspectual contrasts such as the perfective-imperfective distinction, is evidence of semantic feature assignment under the functional category, AspP.

In addition, Slabakova and Montrul also examined whether their results were compatible with the Primacy of Aspect hypothesis. Because the POA model is usually evaluated with learners' production data, this study is unique in that it tested the hypothesis with interpretation data. The authors acknowledge however that their learners may be too advanced to legitimately test the claims of POA.

Slabakova and Montrul found that learners were in fact sensitive to the preterite-imperfect contrast across all verb types, including statives. This is an interesting result that we will return to later in our discussion. In addition, they did not find that their results were compatible with the POA hypothesis. Learners were not more accurate judging the interpretation of achievements and accomplishments in the preterite nor were they more accurate judging the interpretation of stative verbs in the imperfect.

In general, they conclude that the L2 learners' ability to distinguish the semantic differences of the aspectual markers in the L2 provides evidence that L2 acquisition is constrained by Universal Grammar and that L2 learners can acquire features of functional categories that are not instantiated in their L1.

### 2.1 *The present study*

The present study, like the work discussed above, focuses on how knowledge at the interface between syntax and semantics and syntax and the lexicon is acquired. We are interested in the interaction between lexical and grammatical aspect. Similar to the studies conducted by Montrul and Slabakova, we are particularly interested in whether learners can assign target-like interpretations to inflectional morphology, such as the progressive, *be+ing*. In addition, we also would like to evaluate the role of the first language, particularly L1 lexical semantics, in the L2 acquisition of aspect.

However, we approach the question from a slightly different perspective. While it is true that aspectual differences across languages can be explained in terms of the semantic features of syntactic functional categories, we propose that certain aspectual differences can also be viewed from a purely lexical semantic perspective. Our study examines how Japanese learners acquire the English *verb+inflectional morphology* complex. We investigate whether existing knowledge of the lexical semantics of the first language will play a role through transfer. In doing so, we evaluate both the Primacy of Aspect model and a model of lexical semantic transfer, which make different predictions regarding the role of the native language.

## 3. Linguistic background: the progressive in Japanese and English

Our study focuses on a specific difference in the interpretation of the aspectual marker denoting the progressive in Japanese and English. While both languages have a grammatical form denoting the progressive, the two forms, *be+ing* in English and *te-iru* in Japanese, interact differently with the lexical semantics of the verb to which they attach. For the purposes of the present study, we will focus on the interaction with activity and change of state verbs. Change of state verbs fall into the class of achievement verbs in Vendler's (1967) classification.

### 3.1 *Japanese te-iru*

*Te-iru* is an aspectual marker, composed of the gerund *te* plus the verb of animate existence, or auxiliary *iru*. The construction has been widely discussed in the literature on Japanese aspect because it allows contradictory interpretations: progressive and perfective (Kindaichi, 1950; Fujii, 1966; Okuda, 1978; Jacobsen, 1992; McClure, 1993, 1995; Uesaka, 1995; Ogihara, 1998, 1999; Shirai, 2000). The particular interpretation that *te-iru* denotes is dependent on the lexical semantics of the verb to which it attaches. The preferred interpretation for activity verbs under *te-iru* is progressive as is shown in the example in (6).

- (6) *Tarō-ga hasit-te-iru.*  
Tarō-topic run-te-iru PRES  
Tarō is running.

There are other interpretations available for activity verbs under *te-iru* that we will return to later in our discussion.

Change of state verbs behave differently under *te-iru* as is shown in the example in (7); the interpretation of a change of state verb under *te-iru* is always perfective.

- (7) *Hikōki-ga kūkō -ni tsuite-iru.*  
plane-nom airport at arrive te-iru PRES  
The plane (arrived and) is at the airport.

(Hirakawa, 2001)

The example in (7) crucially does not allow the progressive reading, *The plane is arriving at the airport*.

### 3.2 English *be+ing*

Unlike Japanese, both activity and change of state verbs behave similarly under the English progressive form, *be+ing* (Vendler, 1967; Dowty, 1979; Landman, 1992). In both cases, the verbs denote ongoing, progressive interpretations as can be seen in (8) and (9).

- (8) *Adrian is running.*

- (9) *The plane is arriving at the airport.*

However, unlike activity verbs, change of state verbs in the progressive do not entail the perfective, so *The plane is arriving* does not entail *The plane has arrived* while *Adrian is running* does entail that *Adrian has run* at least a step or two (cf. Dowty, 1979 and Landman, 1992 on the Imperfective Paradox).

In summary, when we compare the grammatical forms denoting the progressive in Japanese and English, we see that Japanese *te-iru* allows both progressive and perfective interpretations, depending on the lexical semantics of the verb whereas English *be+ing* always denotes a progressive interpretation, regardless of the verb stem. The main difference is that change of state verbs under Japanese *te-iru* must focus on the *resulting state* of the event. In (7), for example, the focus is on the endpoint of the plane's arrival at the airport. In English, on the other hand, the focus in (9) is on the *process* leading up to the change of state or the events leading up to the plane's actual arrival (Kageyama, 1996).

## 4. Experimental study

### 4.1 Target structures

In our experimental study we tested the past progressive as our target structure. This choice was essentially required by our design. Ideally we would have targeted the present progressive and contrasted learners' performance on the simple present. However, because the simple present in English denotes such a wide array of interpretations, (such as the habitual or narrative interpretation) it was an unsatisfactory option for our contrast structure. Therefore we decided to target progressive aspect in the past tense (using the past progressive) and contrast learners' performance on the simple past. The simple past forms, *-ed* in English and *-ta* in Japanese, denote basically equivalent perfective interpretations regardless of the lexical semantics of the verb stem, as the examples in (10) and (11) demonstrate.

(10) *Adrian studied English.*

(11) *Akiko-wa eigo-o benkyo-shita.*  
Akiko-TOP English-ACC study-PAST  
Akiko studied English.

## 4.2 Research questions

We investigated whether L2 learners can assign target-like interpretations to inflectional morphology such as *be+ing* in English. We were especially interested in whether existing knowledge of the semantics of the first language, Japanese, would play a role through transfer.

We wanted to test whether Japanese learners' interpretation of the English progressive would interact with L1 lexical semantics. Specifically, we investigated whether Japanese learners transfer the L1 interpretation of change of state verbs onto their English equivalents.

## 4.3 Predictions

In this section we will outline the predictions of two competing models, the Lexical Semantic Transfer Hypothesis and the Primacy of Aspect Hypothesis, which does not predict a role for the native language in the L2 acquisition of aspect. We will outline predictions for learners' performance in the past progressive and in the simple past with regards to the two classes of verbs that were tested, activity and change of state verbs.

### 4.3.1 Lexical semantic transfer hypothesis

The Lexical Semantic Transfer (LST) model predicts that Japanese learners' interpretation of the English progressive will interact with existing knowledge of L1 lexical semantics. The model predicts that Japanese learners transfer the L1 interpretation of change of state verbs onto their English equivalents.

In the past progressive, the LST predicts that the L1 would facilitate acquisition of activity verbs because the interpretations are equivalent in both the first and second language. However, we predict that learners will have difficulty with change of state verbs because the L1 interpretation is perfective.

In the simple past, because the forms denote equivalent perfective interpretations in Japanese and English, we predict that the L1 will facilitate learners' acquisition of both activity and change of state verbs.

In summary, in the past progressive we expect to see better performance on activity verbs and in the simple past, we do not expect to see differences across the two verb classes.

### 4.3.2 Primacy of aspect hypothesis

As we discussed earlier, proponents of the POA model argue that lexical semantic classes guide early language learners in their production of inflectional morphology. Specifically, in languages that have a progressive form, progressive marking begins with activity verbs and then extends to achievement and accomplishment verbs. On the other hand, perfective morphology initially appears on achievement or accomplishment verbs and only later extends to activities and stative verbs. These associations are argued to apply to language acquisition universally; learners are not expected to recruit knowledge of the first language in acquiring aspectual distinctions in the L2.

With regard to the present study the POA model predicts that in the past progressive, learners will perform well with activity verbs, but will have difficulty with change of state verbs.

In the simple past, the POA model predicts difficulty with activity verbs, but facilitation with change of state verbs. In summary, POA predicts better performance on activity verbs in the past progressive and better performance on change of state verbs in the simple past.

Differences between the two models outlined above lie in the simple past. While the LST model predicts equivalent performance across the two verb types, the POA model predicts better performance with change of state verbs.

#### 4.4 Participants

We tested 83 native speakers of Japanese who were studying English as a foreign language in Japan. Based on responses given on the language background questionnaire that we administered, participants were placed in either the Intermediate (n=38) or the Advanced (n=45) group. Participants in the intermediate group were mainly adults who were studying English at conversation schools in rural areas of Japan. All participants in this group had studied English for the mandatory six years in junior and senior high school, but they had not continued their study of English at the university level. The mean age of the intermediate group is 41.

Participants in the advanced group were mainly junior and senior high school English teachers in rural areas of Japan. All Advanced participants had studied English for the mandatory six years in junior and senior high school and they had continued to study English at the university level for 2-4 years. The mean age of the advanced group is 44. For participants in both groups, contact with native speakers of English is limited to contact with foreign teachers (mostly from the U.S. and England) who are employed by the conversation schools and the public junior and senior high schools.

We also tested 20 native speakers of English, who were undergraduate students at a large public university in New York City.

#### 4.5 Design: interpretation task

Participants were given an interpretation task developed by Klein, Martohardjono and Valian (1999). Learners were tested on their interpretation of activity and change of state verbs in both past progressive and simple past contexts. The test included ten verbs: four activity verbs (*swim, dance, wash, sing*) and six change of state verbs (*fall, die, arrive, buy, borrow, lend*).

Learners were asked to judge pairs of sentences such as the ones in (12) and (13) and were instructed to decide whether or not the second sentence presented a possible continuation of the first sentence. The task was designed to evaluate how learners interpreted the simple past and the past progressive forms. The test was given as an untimed paper and pencil test. Participants were instructed to provide their first response and not to change any of their answers.

(12) My niece sang 2 Christmas songs at church. She left church after the first song. X

(13) My niece was singing 2 Christmas songs at church. She left church after the first song. ✓

Given the first sentence in (12) *My niece sang 2 Christmas songs at church*, participants had to decide whether it was possible that *She left church after the first song*. We expected that native speakers would say that the sentence pair in (12) is not possible. In this case, the simple past tense encodes perfective aspect and therefore the event of the niece singing 2 songs must have been completed in entirety.

However, given the first sentence in (13), *My niece was singing 2 Christmas songs at church*, we expected that native speakers would say it is possible that *She left church after the first song*. In this example, the progressive aspect does not entail completion of the event. It is possible that the niece did not finish singing the two songs that she intended to sing, and in fact, left the church after singing only one.

There were thirty test items in total. Each of the ten verbs appeared in three contexts: in a simple past context, in a past progressive context and in a filler sentence. There were nine sentence types in total; examples are given in (14)-(22). Sentence types were balanced across four test batteries. The judgements we expected from native speakers of English are given in parentheses following each sentence type.

### Examples of sentence types

(14) Activity Verb/ Past Progressive/ Contradictory (accept)  
The Olympic athlete was swimming the whole race. She stopped half way through.

(15) Change of state Verb/ Past Progressive/ Contradictory (accept)  
The plane was arriving in Hartford at 3:00. The plane exploded in midair.

(16) Activity Verb/ Simple Past/ Contradictory (reject)  
The Olympic athlete swam the whole race. She stopped half way through.

(17) Change of state Verb/ Simple Past/ Contradictory (reject)  
The plane arrived in Hartford at 3:00. The plane exploded in midair.

(18) Activity Verb/ Past Progressive/ Neutral (accept)  
The Olympic athlete was swimming the whole race. She won the race very easily.

(19) Change of state Verb / Past Progressive/ Neutral (accept)  
The plane was arriving in Hartford at 3:00. That day the plane had many passengers.

(20) Activity Verb/ Simple Past/ Neutral (accept)  
The Olympic athlete swam the whole race. She won the race very easily.

(21) Change of state Verb / Simple Past/ Neutral (accept)  
The plane arrived in Hartford at 3:00. That day the plane had many passengers.

(22) Filler (reject)  
Henry is lending a CD to his friend. Henry has no friends.

Our discussion, from this point forward, will focus only on the four target sentence types, given in (14)-(17). The other sentence types, presented in (18)-(22), were included to insure that the participants understood the task and to balance the number of items that were expected to be accepted and rejected.

#### *4.5.1 Predictions: target sentence types*

The first target sentence type in (14) includes an activity verb in a past progressive context. We expected that native speakers would accept this pair of sentences. Now we will outline the predictions for the Japanese learners based on the two models we presented earlier.

Given that the lexical semantic representation of activity verbs is equivalent in Japanese and English, the Lexical Semantic Transfer hypothesis predicts that Japanese learners will also accept this pair of sentences. The POA model makes the same prediction.

The second target sentence type in (15) includes a change of state verb in a past progressive context. We expected that native speakers would accept this pair of sentences. In this case, both models predict that Japanese learners will incorrectly reject this pair.

According to the predictions of Lexical Semantic Transfer, learners will transfer the L1 interpretation for change of state verbs. Therefore they will interpret the first sentence in (15) as *The plane arrived in Hartford at 3:00. The plane exploding in midair* is then not possible. POA also predicts difficulty with the pair in (15) because change of state verbs should be difficult in the progressive.

In order to contrast learners' performance on the past progressive, we also included activity and change of state verbs in the simple past. We expected that native speakers would reject the sentence

pairs in (16) and (17). Because the L1 interpretation is basically equivalent, the transfer model predicts that Japanese learners will not have difficulty rejecting them as well. On the other hand, the POA model predicts that learners will have difficulty with the pair in (16) but perform well on pairs of the type in (17) because they will easily associate the change of state verb with the simple past.

## 5. Results

Only learners and native speakers who were accurate on at least 70% of the filler sentences were retained for the analyses of performance on the four target sentence types outlined above. Overall results are reported in terms of mean percent correct. Standard deviations are given in parentheses.

### 5.1 Comparing verb classes

In order to test the predictions of the two models, we compared performance on the two verb classes in the past progressive and in the simple past. We first present results of learners' performance on the simple past.

#### 5.1.1 Activity and change of state verbs in the simple past

Figure 1 summarizes the results of performance on activity and change of state verbs in the simple past. In the simple past, the Lexical Semantic Transfer model did not predict any differences across the two verb classes. The results given in Figure 1 support the transfer hypothesis.

A repeated measures analysis of variance revealed that performance on activity verbs was not significantly different from performance on change of state verbs in the simple past,  $F(1,102)=.023$ ,  $p>.05$ . Learners treated change of state verbs the same way they treated the activity verbs.

These results also suggest that the Primacy of Aspect Hypothesis, which predicted better performance with change of state verbs, was not supported.

#### 5.1.2 Activity and change of state verbs in the past progressive

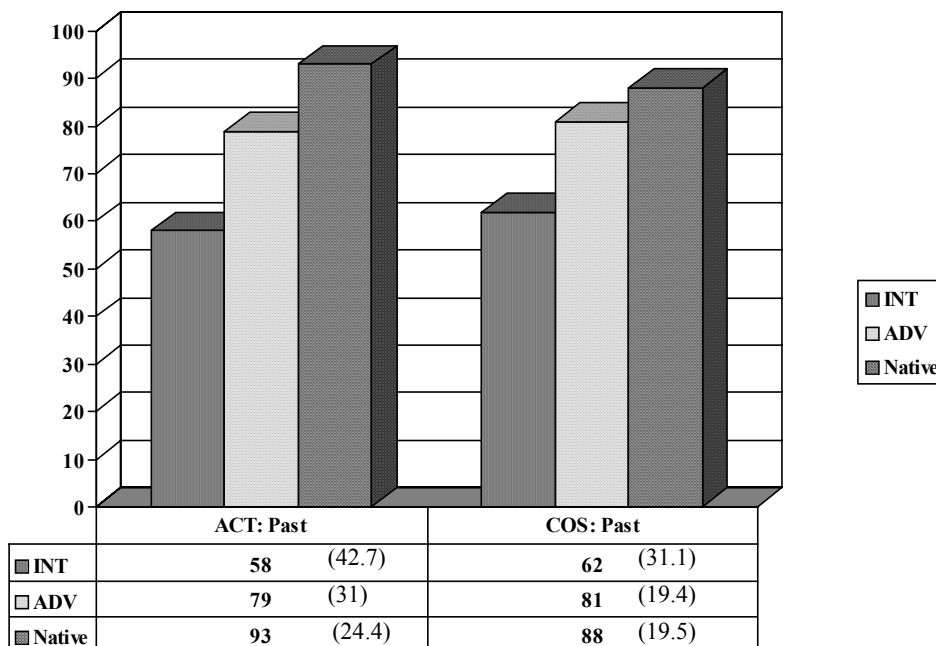
Next we present results for activity and change of state verbs in the past progressive. This analysis tests the main prediction of the Lexical Semantic Transfer model. The LST model predicted that learners would perform better on activity verbs than change of state verbs. However, the results summarized in Figure 2 show that the transfer hypothesis was not supported.

The graph in Figure 2 displays the same pattern across the two verb classes that is shown in Figure 1. Learners again treated activity verbs the same way they treated the change of state verbs. A repeated measures ANOVA revealed that the difference in performance on the two verb classes was not statistically significant,  $F(1,102)=.261$ ,  $p>.05$ . The Primacy of Aspect model, which also predicted better performance on activity verbs in the past progressive was not supported either.

These results generally answer our main questions. Japanese learners do not seem to transfer L1 lexical semantics because they perform at equivalent levels with both verb classes. It also does not seem that the POA model makes the correct predictions, although it is very possible that our learners are too advanced to see the predicted associations.

### 5.2 Comparing the past progressive and the simple past

While the patterns observed in Figures 1 and 2 are similar, it is clear that learners' accuracy rates are lower in the past progressive than in the simple past. In this section we look at each verb class independently and compare learners' performance in the past progressive and simple past.



**Figure 1.** Mean percent correct on activity and change of state verbs in the simple past

### 5.2.1 Change of state verbs in the past progressive and simple past

Figure 3 summarizes learners' performance on change of state verbs in the past progressive and simple past. A repeated measures analysis of variance revealed that performance on change of state verbs in the simple past was significantly better than performance on change of state verbs in the past progressive,  $F(1,102)=14.813$ ,  $p < .01$ . Learners had significantly more difficulty with change of state verbs in the past progressive.

### 5.2.2 Activity verbs in the past progressive and simple past

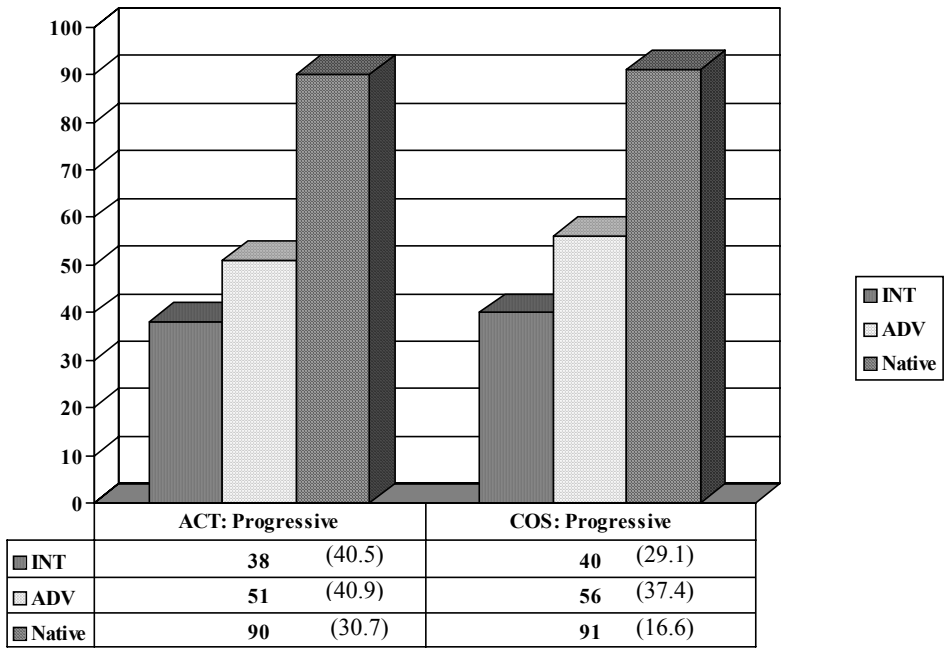
The results summarized in Figure 4 indicate that the same is true of activity verbs. A repeated measures ANOVA revealed that learners' performance on the simple past was significantly better than their performance on the past progressive,  $F(1,102)=9.658$ ,  $p < .05$ .

In summary, for both activity and change of state verbs, the past progressive was more difficult than the simple past.

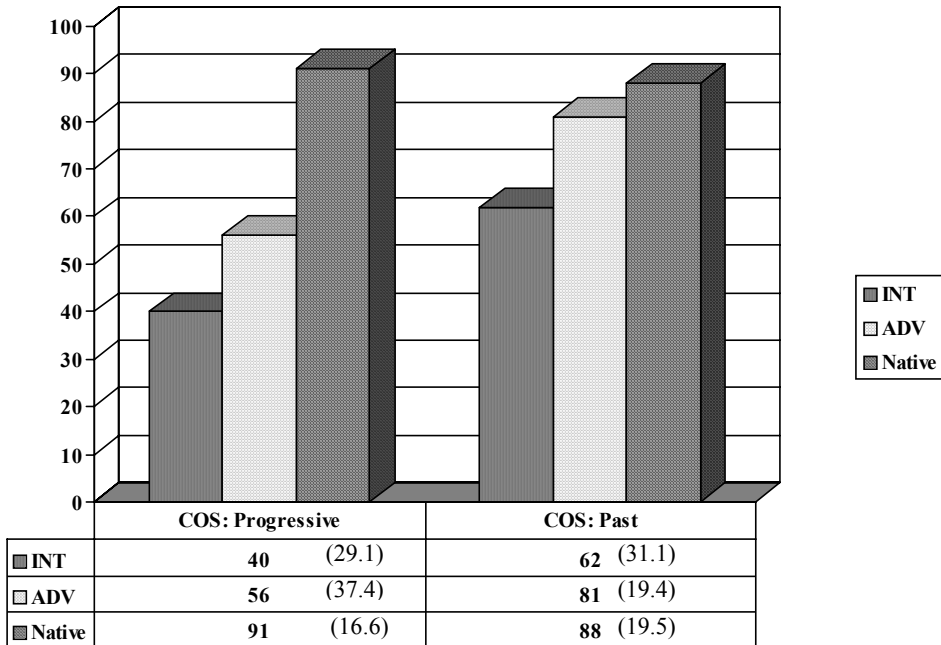
## 5.3 Summary of main results

The results presented above indicate that the Lexical Semantic Transfer Model was only partially supported. Contra the predictions of the transfer model, learners did not perform better on activity verbs in the past progressive. Supporting the predictions of the transfer model, learners did perform at equivalent levels with the two verb classes in the simple past.

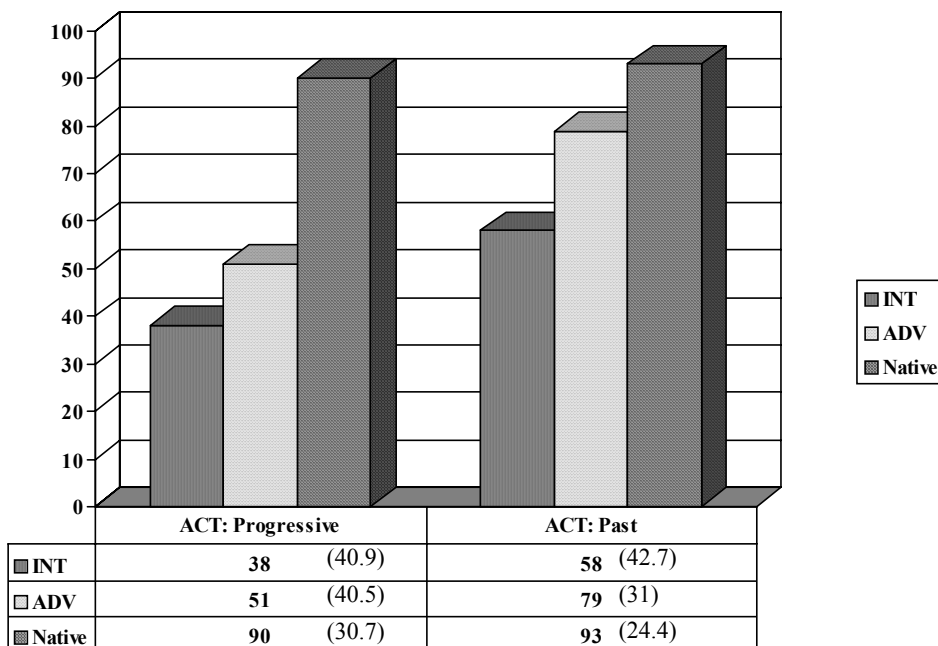
With respect to the Primacy of Aspect Hypothesis, results suggest that the model was basically unsupported in the interpretive domain, although we recognize that it is possible that our learners are too advanced.



**Figure 2.** Mean percent correct on activity and change of state verbs in the past progressive



**Figure 3.** Mean percent correct on change of state verbs in the past progressive and simple past



**Figure 4.** Mean percent correct on activity verbs in the past progressive and simple past

#### 5.4 Further analyses: unaccusative and transitive change of state verbs in the past progressive

Although the results presented in the previous section strongly suggest that learners do not transfer lexical semantics from the first language, we decided to conduct further analyses to investigate possible effects based on the argument structure of the change of state verbs that we tested. Within the class of change of state verbs, we tested three intransitive unaccusative verbs (*fall, die, arrive*) and three transitive verbs (*buy, borrow, lend*).

In the literature on Japanese aspect, researchers such as Okuda (1977) and Jacobsen (1992) have argued that there is a correlation between transitivity and the meaning that verbs take on under Japanese *te-iru*. In the example in (23) the interpretation of the unaccusative verb ‘*sinu*’ (*die*) under *te-iru* is strongly perfective and actually prohibits a progressive interpretation.

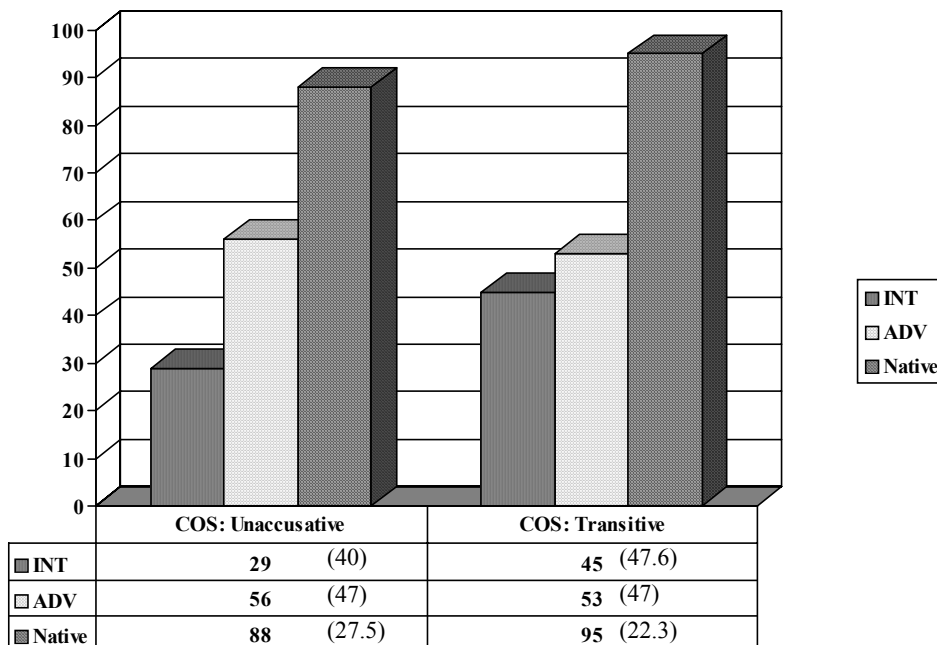
- (23) *Akiko-ga shinde-iru*  
 Akiko-TOPIC die te-iru PRES  
 Akiko has died.

However, the transitive verb in (24) is not as strongly perfective. While the *preferred* interpretation is perfective, a progressive or habitual interpretation may also be available, depending on the context.

- (24) *Akiko-ga hon-o katte-iru*  
 Akiko-TOP book-ACC buy te-iru PRES  
 Akiko bought a book.

Given the above differences between intransitive and transitive verbs, if there is an effect of transfer of the L1 lexical representation, then we would expect to see a difference between the two classes of change of state verbs that we tested. However, the results in Figure 5 suggest that there was

not a significant difference between unaccusative verbs and transitive verbs in the past progressive. A repeated measures ANOVA revealed that performance on transitive change of state verbs was not significantly better than performance on unaccusative change of state verbs,  $F(1,102)= 1.422, p>.05$ . These results further suggest that learners are not in fact transferring lexical properties from the L1.



**Figure 5.** Mean percent correct on unaccusative change of state verbs and transitive change of state verbs in the past progressive

## 6. Discussion

The most important finding of the results presented above is that independent of verb type, the past progressive was significantly more difficult than the simple past. We believe our results are compatible with the findings of Slabakova and Montrul's study, which we discussed earlier. In their study, learners were expected to have more difficulty with the class of stative because English does not distinguish the preterite and imperfect morphologically with stative verbs. However, this particular verb class did not cause increased difficulty for the L2 learners. These results provide further evidence that L2 learners do not transfer the lexical properties of particular verb classes. The L2 learners of Spanish were able to identify the semantic differences in the preterite and imperfect forms, and through positive evidence found that both grammatical forms are permissible with stative verbs.

Our results suggest that transfer does not proceed by verb class, however we must still explain why the past progressive caused our learners so much difficulty. We propose that there are at least two possible explanations for why learners had more difficulty with the past progressive across verb types. The first possible account we present is developmental. We will discuss research in first language acquisition that has shown that children learning a first language also have difficulty mastering the target interpretation of the past progressive. We will also present a second possible explanation that is based on a revised model of transfer from the first language.

### 6.1 Developmental account: tense and aspect in L1 acquisition

Based on data from studies of child L1 acquisition, Wagner (2002) and Valian (submitted) have independently concluded that children assume that the past is inherently perfective. In Wagner's

study, children watch a cat walk down a road and perform activities at different spots on the road. In half of the test sentences, the cat starts to do something at the first X but doesn't complete the activity and then moves to the second X, where the cat begins the activity again. In the other half of the test sentences, the cat completely finishes an action at the first X and then moves to the second X where the cat begins the activity again. In the middle of the cat performing the activity at the second X, the child is asked *Where is Kitty X-ing?* or *Where was Kitty X-ing?*

Children performed better on the test sentences in the past progressive (*Where was Kitty X-ing?*) in the second half of the test sentences where the first or past event referred to a completed action. Wagner suggests that children may be conflating tense and aspect; therefore they interpret any occurrence of a past marker, including the auxiliary *was*, as referring to completed action. Valian also reports depressed performance on the past progressive in her study.

The past progressive may be particularly challenging for both L1 and L2 learners because tense and aspect do not cohere, as they do in the present progressive. This developmental model suggests that learners would perform better on the present progressive than the past progressive. We will return to this prediction in the following section.

## 6.2 Revised transfer hypothesis

We propose that there is also a second possibility that is based on transfer from the L1. While it seems that transfer does not proceed on the basis of verb class, perhaps it proceeds on the basis of grammatical forms: When there is a match between form and meaning in the L1 and L2, as in the simple past, acquisition proceeds with relative ease. However, when there is a mismatch between form and meaning in the L1 and L2, as in the past progressive, even advanced learners have difficulty.

When our learners were given the sentence *My niece was singing two Christmas songs at church*, they rejected the possibility that *She left church after the first song*. Learners had difficulty assigning the correct interpretation to the progressive inflectional morphology. Their error strongly suggests that the learners actually interpreted the first sentence as perfective: *My niece sang two songs at church*. We propose that this error can be explained by transfer of the semantics of the L1 grammatical form.

In order to explain our proposal we must revisit the interpretation of the Japanese form *te-iru*. The sentence in (25) repeats example (6).

- (25) *Tarō-ga hasit-te-iru.*  
 Tarō-NOM run-te-iru PRES  
 Tarō is running.

As we mentioned earlier, the preferred interpretation for activity verbs plus *te-iru* as in (25) is progressive. However, in (26) we see that with an implied direct object such as the marathon, a perfective interpretation is also available.

- (26) *Tarō-ga hasit-te-iru.*  
 Tarō-NOM run-te-iru PRES  
 Tarō ran/ has run (the marathon).

*Tarō-ga hasit-te-iru* is ambiguous between a progressive reading as in (25) and a perfective or result state reading as in (26). The interpretation is dependent on context. Furthermore, an additional perfective reading such as the one in (27) is also available.

- (27) *Tarō-ga marason-o hasit-te-iru.*  
 Tarō-NOM marathon-ACC run-te-iru PRES  
 Tarō has had the experience of running a marathon.

(27) is an example of what is called the experiential reading. The sentence can best be interpreted as *Tarō has had the experience of running a marathon*. The examples in (26) and (27) show that while a progressive reading is preferred for activity verbs under *te-iru*, perfective readings are also available. Change of state verbs under *te-iru* generally only have a perfective reading available.

Given the availability of the perfective interpretations in (26) and (27), we propose that the Japanese learners overgeneralized the perfective interpretation of the L1 form *te-iru* onto its nearest equivalent in the L2, English *be+ing*. Therefore Japanese learners allow a perfective reading for the English progressive regardless of the lexical semantics of the verb and even in cases where the dominant L1 interpretation is progressive, as is the case with activity verbs. For example, they interpret *was arriving* as *arrived* but also *was running* as *ran*. Our proposal predicts that learners performance on the present progressive will not be significantly different from their performance on the past progressive. If our proposal is correct, the learners would transfer the perfective *te-iru* to English *be+ing* in both cases. This makes the very strong prediction that learners will interpret “is running” as *ran*. Future research on the present progressive is required and will help decide between the competing accounts presented above. Recall that the developmental account predicts better performance on the present progressive.

### 6.2.1 Implications of the revised transfer hypothesis

Our proposal has implications beyond the realm of L2 acquisition. First we must investigate why the perfective interpretation of *te-iru* would transfer across all verb classes. If the above proposal is correct, it would suggest that the perfective is actually a default interpretation in the mental representation of *te-iru* for Japanese speakers. Future research including a test of the present progressive will shed light on this issue. Secondly, we believe that our results may shed light on the locus of crosslinguistic differences between Japanese and English. We outline this particular issue in the following section.

## 6.3 What is the locus of difference between Japanese and English?

The contrast that our study investigated has been of particular interest to researchers working on aspect in Japanese. The question that arises is how we can account for the fact that change of state verbs, like *dying*, can denote a progressive interpretation in English, but not in Japanese. In the literature there are two ways of accounting for this contrast: either by placing the difference in the lexical semantics of the verb or in the semantics of the grammatical form itself.

### 6.3.1 The difference is in the verb

Proponents of the first hypothesis have posited a lexical semantic difference between change of state verbs in Japanese and English (Kageyama, 1996; Ogihara, 1998, 1999). According to Ogihara (1999), “achievements in English can describe preparatory stages but not result stages of events, whereas instantaneous sentences in Japanese are exactly the opposite” (Ogihara, 1999, p. 338-339).

Kageyama (1996) proposes that a Japanese change of state verb such as ‘*sinu*’ (die) in (28) has the semantic operator BECOME while the English equivalent in (29) has the semantic operator MOVE.

(28) [y BECOME [y BE DEAD]] ‘*sinu*’ Japanese

(29) [y MOVE [y TO DEAD]] ‘*die*’ English

Both structures imply a resulting state, however BECOME in (28) is telic while MOVE in (29) is atelic, and thus allows a progressive interpretation. Activity verbs, on the other hand, will have the same lexical semantic representation in both languages.

Following this proposal, Japanese learners should perform better with activity verbs because the verbs are equivalent in the two languages. Change of state verbs, on the other hand, will cause difficulty because learners must assign different lexical semantics to the equivalent verb in English. Results from the present study are not compatible with this prediction.

### 6.3.2 *The difference is in the progressive operator*

Under the second hypothesis, McClure (1995) has argued that change of state verbs are semantically equivalent in Japanese and English. McClure's proposal shifts the focus to the semantics of the grammatical form as the locus of crosslinguistic differences. McClure's (1995) work expands upon traditional analyses of the progressive form in English, such as Landman (1992), which analyze *be+ing* as a semantic operator PROG which interacts with the verb stem to which it attaches as in (30).

(30) PROG (verb)

In McClure's analysis, the differences in the interpretation between the progressive forms lie in the formal semantic properties of *be+ing* and *te-iru* as you can see in (31) and (32).

(31) *Be+ing*

PROG(P)=1 during the interval *i* iff

- [1]  $\exists \varepsilon$  s.t.  $\varepsilon \in P$  &  $\tau(\varepsilon) < i$  &
- [2]  $\neg[\forall \varepsilon^* \text{ s.t. } \varepsilon^* \in P, \tau(\varepsilon^*) \leq \tau(\varepsilon)]$  &
- [3]  $\forall \varepsilon' [[\forall \varepsilon^* \text{ s.t. } \varepsilon^* \in P, \tau(\varepsilon^*) \leq \tau(\varepsilon')] \rightarrow \tau(\varepsilon') > i]$

*Be+ing* is true during the interval *i* if [1] there is a segment  $\varepsilon$  of a predicate *P* which is manifested before *i*, the interval of evaluation; [2] it is not the case that this segment is later than all other segments of the predicate (i.e.  $\varepsilon$  is not a final segment); and [3] any segment which is a final segment is manifested after the interval of evaluation. The progressive is true for a particular interval of time if during that interval the eventuality has begun but is not yet complete.

(32) *Te-iru*

PROG(P)=1 during the interval *i* iff

- [1]  $\exists \varepsilon$  s.t.  $\varepsilon \in P$  &  $\tau(\varepsilon) < i$  &
- [2]  $\neg[\forall \varepsilon^* \text{ s.t. } \varepsilon^* \in P, \tau(\varepsilon^*) \leq \tau(\varepsilon)]$  &
- [3]  $\forall \varepsilon' [[\forall \varepsilon^* \text{ s.t. } \varepsilon^* \in P, \tau(\varepsilon^*) \leq \tau(\varepsilon')] \rightarrow \neg[\tau(\varepsilon') > i]]$

The *te-iru* construction is true during the interval *i* if [1] there is a segment  $\varepsilon$  of a predicate *P* which is manifested before *i*, the interval of evaluation; [2] it is not the case that this segment is later than all other segments of the predicate (i.e.  $\varepsilon$  is not a final segment); and [3] all segments which are final are also manifested at the time of evaluation or in the past. The progressive is true for a particular interval of time if during that interval the eventuality has begun and if possible, is also complete. All possible final segments must be realized during that interval.

The basic difference between the semantics for *be+ing* in (31) and *te-iru* in (32) can be summed up as follows: The semantics of *be+ing* require that *no final segment* of an eventuality is realized whereas the semantics of *te-iru* require that *all final segments* of an eventuality are realized (McClure, 1995).

According to this proposal, the goal of the Japanese learner of English would be to work out the formal semantic properties of the progressive operator. The difficulty would lie in the semantics of the operator itself but the model would predict equivalent performance across the two verb classes.

Our results provide support for McClure's proposal because we did not see an effect for verb type. Change of state verbs were not more difficult than activity verbs for Japanese learners of English. It seems that the difficulty for L2 learners lies in the semantics of the progressive operator.

## 7. Conclusion

Our main question was whether L2 learners can assign target like interpretations to inflectional morphology such as *be+ing* in English. Our results suggest that even advanced learners have difficulty assigning the correct interpretation to the past progressive, though they have little difficulty with the simple past. We have presented two accounts that could potentially provide an explanation for their difficulty. The first account is based on developmental data from first language acquisition. The second account presents a revised transfer proposal. We have argued that transfer may proceed on the basis of the semantics of grammatical forms.

We were also interested in whether existing knowledge of the semantics of the first language, Japanese, would play a role through transfer. Our results suggest that learners do not transfer the lexical semantics of particular verb classes from the L1. Independent of verb type, the past progressive caused more difficulty for L2 learners. However, it remains an open question whether there is a different form of transfer at work. The second account we presented, the revised transfer proposal, clearly implicates the semantics of the grammatical forms of the first language. However, the developmental account does implicate knowledge of the native language. We believe that further research on the present progressive will help decide between these competing accounts and provide insight into the role that the L1 plays in the L2 acquisition of aspect. This study is currently in progress.

Finally, we believe our results may help shed light on competing theoretical accounts of aspectual differences between Japanese and English. Our work suggests that differences do not seem to lie in the lexical semantics of the verb, as has been proposed by Kageyama (1996) and Ogihara (1998, 1999), but rather, in the semantics of the progressive operator.

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