The Acquisition of Tense-Aspect Marking in
Japanese as a Second Language

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Researchers have argued that the developmental sequence of tense-aspect morphology in second language (L2) acquisition follows a universal pattern (the Aspect...
Hypothesis; e.g., Robison, 1995). Although such a tendency fits the acquisition of typologically similar languages (English, French and Spanish), the universal claim requires testing against non-Indo European languages. This study tested the Aspect Hypothesis using L2 Japanese (JSL) data. Experiment 1 showed that in oral production data, 3 learners of JSL showed stronger association of achievement verbs and past marking (-ta), and of activity verbs and progressive/durative marking (-te i-), than native speakers. Experiment 2 showed that in an acceptability judgment test of tense-aspect forms, 17 learners of JSL had more difficulty correctly judging the acceptability of the progressive/durative marker (-te i-) with achievement verbs than with activity verbs. The results extend the applicability of the Aspect Hypothesis to a non-Indo-European language.

The acquisition of tense and aspect is an important component of second language acquisition (SLA). In most languages, a learner uttering a sentence containing a finite verb has to linguistically encode either tense or aspect (or both). Also, from a functional viewpoint, tense-aspect is an important communicative device to establish time reference as well as to express how the speaker views the temporal contour of a situation. Second language (L2) researchers have extensively investigated the development of temporality as a multi-faceted, complex phenomenon. One area of investigation concerns how L2 learners express temporal information; research has found that learners use various devices, such as calendric reference or time adverbials, to establish temporal reference (Bardovi-Harlig, 1992; Dietrich, Klein, & Noyau, 1995; Klein, 1986; Meisel, 1987; Schumann, 1987).

The other intensively investigated area of tense-aspect development, the acquisition of tense-aspect morphology, has shown an interesting universal pattern in both first (L1) and second language acquisition (e.g., Andersen & Shirai, 1996). Several researchers have claimed that the development of tense-aspect morphology in L1 acquisition of various languages is strongly influenced by the inherent semantic aspect of the verbs to which
the inflections are attached. This tendency, often referred to as the Aspect Before Tense Hypothesis or the Defective Tense Hypothesis, has been observed in French (Bronckart & Sinclair, 1973), Italian (Antinucci & Miller, 1976), Greek (Stephany, 1981), and English (Bloom, Lifter, & Hafitz, 1980; Shirai & Andersen, 1995), among others (although Weist, Wysocka, Witkowska-Stadnik, Buczowska, & Konieczna, 1984, present a conflicting finding in the acquisition of Polish). The same tendency has been observed in SLA. Robison (1990, 1995) and Bardovi-Harlig and Reynolds (1995) in the acquisition of English, Andersen (1991) and Ramsay (1990) in the acquisition of Spanish, and Bardovi-Harlig and Bergström (1996) in the comparative study of English and French have shown that the L2 learner’s acquisition of tense-aspect morphology is guided by inherent aspect. The present article reports a study on the acquisition of tense-aspect morphology in L2 Japanese. We argue that L2 learners of Japanese, despite the typological difference in the target language aspectual system, show the same tendency that has been observed in previous studies on other languages.

The Aspect Hypothesis

First, we describe the four categories of inherent aspect of verbs, defined in terms of the temporal properties of the situation the verb (phrase) describes.¹ This classification is derived from the work of scholars such as Vendler (1967) and Mourelatos (1981):

1. Achievement—that which takes place instantaneously, and is reducible to a single point in time (e.g., recognize, die, reach the summit, etc.).

2. Accomplishment—that which has some duration, but has a necessary endpoint (e.g., run a mile, make a chair, build a house, etc.).

3. Activity—that which has duration, but without a necessary endpoint (e.g., run, walk, play, sing, etc.).
4. State—that which has no dynamics, and continues without additional effort or energy being applied (e.g., see, love, hate, want, etc.).

In terms of semantic features, achievements are punctual whereas all other categories are durative. Achievements and accomplishments are both telic (i.e., having an inherent endpoint) whereas activities and states are atelic (non-telic). States are non-dynamic by definition whereas activities, accomplishments, and achievements are dynamic.

As mentioned above, studies on the acquisition of verb morphology that systematically investigated the relationship between verb morphology and inherent aspect have consistently indicated that children acquiring an L1 and adults acquiring an L2 are strongly influenced by the inherent aspect of the verb to which the morphology is attached. To take an example from the acquisition of English, learners initially give the past tense inflection predominantly to achievement verbs, and rarely to state verbs. Both L1 children and L2 adults initially restrict the progressive inflection to activity verbs; L1 children rarely overextend it to state verbs (Brown, 1973; Kuczaj, 1978), whereas adult L2 learners sometimes do (Robison, 1990).

Research has observed this tendency, with some variation due to language-specific differences, in the acquisition of French, Italian, Polish, Spanish, Portuguese, Greek, Chinese, and other languages in L1 acquisition, and in Spanish, English, and French in SLA. The generalization, which we call the Aspect Hypothesis (following Andersen & Shirai, 1994; Robison, 1995), can be summarized as follows (Andersen & Shirai, 1996; Bardovi-Harlig & Bergström, 1996; Shirai, 1991):

1. Learners use (perfective) past making on achievement/accomplishment verbs, eventually extending use to activity and state verbs.

2. In languages that encode the perfective/imperfective distinction morphologically, imperfective past appears later than
perfective past, and imperfect past marking begins with stative and activity (i.e., atelic) verbs, then extends to accomplishment and achievement (i.e., telic) verbs.

3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment/achievement verbs.

4. Progressive marking is rarely incorrectly overextended to stative verbs (in L1 acquisition).

Although there appear to be some disagreements (Klein, Dietrich, & Noyau, 1995; Meisel, 1987), recent studies have established a solid empirical basis for the Aspect Hypothesis in both naturalistic and classroom SLA in English, Spanish and French (Andersen, 1994; Bardovi-Harlig & Reynolds, 1995; Robison, 1990, 1995; see Andersen & Shirai, 1996; Bardovi-Harlig, 1995a for review). The tendency occurs not only in frequency counts of oral and written production data but also in paper-and-pencil-tests (e.g., Bardovi-Harlig & Reynolds, 1995), in which learners have more difficulty in supplying appropriate forms in obligatory contexts and where the pattern of their response is consistent with the Aspect Hypothesis (e.g., more accurate use of past tense form with achievement verbs than activity or state verbs). The generalization is so robust that Bardovi-Harlig and Bergström (1996) stated that “we can conclude that untutored second language learners, foreign language learners, and instructed second language learners all show remarkably similar sequences” (p. 323). This developmental sequence (i.e., past tense form starts with achievement verbs, and progressive starts with activity verbs) arguably has the status of a universal in SLA.

However, the studies concerning the Aspect Hypothesis have investigated only typologically similar languages (English, Spanish, and French); to claim universal status for the Aspect Hypothesis, research must cover the acquisition of non-Indo-European languages, too. Bardovi-Harlig and Bergström (1996) stated:
Although the studies have been limited to European (target) languages, the Vendler categories are arguably universal and have been used to describe non-Indo-European languages such as Japanese. The broadest description of the core of SLA would necessarily include languages from a variety of language families. (p. 323)

The present paper reports two experiments on the acquisition of tense-aspect morphology in L2 Japanese (JSL). Experiment 1 used conversational data to examine the relationship between morphology and inherent aspect; Experiment 2 investigated longitudinal development of the learners’ knowledge regarding a Japanese aspectual marker by using acceptability judgment tests. As we will show below, examining the acquisition of the Japanese tense-aspect system addresses an important question concerning the mechanism behind the acquisitional pattern discussed above; that is, the effect of input versus universal linguistic constraints on acquisition.

The Tense-Aspect System in Japanese

We briefly describe the tense-aspect system of Japanese. However, we first describe how grammatical aspect interacts with inherent aspect by illustration from English, a language with which many readers are familiar. (We discuss English for expository purposes only; the present study does not involve acquisition of Japanese by English native speakers, NSs.) The Japanese aspectual system resembles that of English in many respects, but differs in some important ways.3

In English, the progressive marking “be-ing” normally4 has the following meanings when combined with different types of inherent aspect:

(1) Activity: Action in progress
    
    He’s running. She’s playing the guitar.

(2) Accomplishment: Action in progress
    
    He’s making a chair. He’s running a mile.

(3) Achievement: (a) Process leading up to the endpoint
He’s reaching the summit. He’s leaving.
(b) Iterative action in progress
He’s jumping. He’s knocking on the door.
(c) Anomaly
*I’m noticing an error. *She’s recognizing John.

(4) State:
(a) Vividness; temporariness
I’m liking it! I’m thinking that he might be sick.
(b) Anomaly
*I am owning a car. *I am knowing him.

The progressive is a type of imperfective aspect, which imposes an internal view (Comrie, 1976), whereas the perfective imposes an external view. An external view disregards the internal structure and presents a given situation as a whole, while an internal view (i.e., imperfective) presents a situation focusing on the temporal structure from within. In order to focus on internal structure, one needs “duration” on which to impose an internal view. This is why both activity and accomplishment, which have dynamic duration, have the meaning of action in progress—the basic meaning of progressive; that is, dynamic imperfective. Achievement, which is instantaneous and non-durative, cannot normally be viewed from within, since it does not have an internal structure. Therefore it needs somehow to find a durative component in the situation it describes. In (3a) above, it is the process leading up to the punctual point of achievement that is focused upon. In (3b), since a single punctual action cannot have duration, it finds duration through repetition. In (3c), it is impossible to impose a duration, and anomaly results. Finally, state cannot have an “action in progress” meaning, since state is non-dynamic, and does not constitute an “action,” and therefore progressive is often anomalous, as in (4b). However, when progressive marking is possible, the meaning obtained is “state viewed as dynamic event” (Smith, 1983, 1991) as in (4a), by dint of the dynamic meaning of the progressive marking.
The Japanese imperfective/durative marker -te i- similarly interacts with inherent aspect, except for one important difference.

(5) Activity: Action in progress
Ken-ga utat-te i-ru.
Ken-Nom sing-Asp-Nonpast
“Ken is singing.”

(6) Accomplishment: Action in progress
Ken-wa isu-o tukut-te i-ru.
Ken-Top chair-Acc make-Asp-Nonpast
“Ken is making a chair.”

(7) Achievement: (a) Resultative state
Booru-ga oti-te i-ru.
ball-Nom fall-Asp-Nonpast
“The ball has fallen and it is there.”
(b) Iterative action in progress
Ken-wa doa-o tatai-te i-ru.
Ken-Top door-Acc bang-Asp-Nonpast
“Ken is banging on the door.”

(8) State: (a) Vividness; temporariness
Huzisan-ga mie-te i-ru
Mt. Fuji-Nom be.visible-Asp-Nonpast
“We can see Mt. Fuji (at this moment).”
(b) Anomaly
*Okane-ga it-te i-ru
Money-Nom be necessary-Asp-Nonpast
(intended meaning: “Money is being needed.”)

An important difference between English and Japanese is that Japanese can refer to a resultative state using the imperfective -te i-, but not to “process leading up to the endpoint.” In imposing an internal view, English can focus on the process leading up to the punctual point of achievement, whereas Japanese cannot; instead, Japanese focuses on the duration of resultant state that obtains as a result of the punctual action. Thus, the literal equivalent of
Ken is dying in Japanese (Ken-wa sin-de i-ru) means “Ken is dead.” This contrast can be schematically represented as follows:

```
<table>
<thead>
<tr>
<th>English</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>(die)</td>
<td>time axis</td>
</tr>
</tbody>
</table>
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“Ken is dying.” Ken-wa sin-de i-ru “Ken is dead.”

Some achievement verbs that are anomalous with progressive marking in English (e.g., notice, find) are compatible with -te i- in Japanese because their combinations refer to resultative states. For example, the direct translation of *Ken is noticing the picture (Ken-wa sono e-ni kizui-te i-ru) is not anomalous, and means he has already noticed (the existence of) the picture. Therefore, “Achievement (c) anomaly” is missing from Japanese.

Another related point is that the same notion is not always lexicalized with the same inherent aspectual value in different languages. Situations typically described in English by state verbs (e.g., Ken knows John) are often described in Japanese with achievement verbs (e.g., siru “come to know” + -te i-ru : Ken-wa John-o sit-te i-ru). This in fact is the most common way of referring to states in Japanese (cf. Kageyama, 1996).

Japanese and English are similar in that progressive marking is obligatory in both. Unlike Romance and other languages, English and Japanese cannot use simple present form to refer to action in progress at speech time. Only state verbs can refer to an on-going situation in simple present/nonpast form. This of course excludes special uses of the present tense, such as “performatives” (I declare . . .) or “sportscaster’s present” (Smith passes to Jones . . .). The tense systems in English and Japanese are also similar in the sense that any finite indicative sentence has to be either past or non past. Both in Japanese and English, the past tense marker can be attached to any verb without any systematic restriction.
Because the informants of Experiment 1 were Chinese learners of Japanese, we briefly describe the aspectual system of Mandarin Chinese as well. Mandarin is a tenseless language with a rich system of aspectual markings, such as -le (perfective), zai (progressive), -zhe (durative imperfective), and guo (experiential) (Smith, 1991). Zai is more similar to the English progressive than to Japanese -te i- in that it cannot focus on the resultative state. It is not identical to the English progressive, however, because it cannot be used to refer to a process leading up to the endpoint (e.g., He's winning the race). (For more detailed discussion of imperfective markers in these languages, see Shirai, in press.)

The Redundant Marking Hypothesis

Although previous investigations have shown a similar trend in the acquisition of tense-aspect in various languages at the level of description, the explanation for this phenomenon is still an open issue. One account is that learners initially use tense-aspect morphology to encode inherent aspect rather than grammatical aspect or tense (Andersen, 1991; Bloom et al., 1980). In other words, learners initially use the past tense marker not to encode its “pastness,” but rather to “redundantly” encode the inherent aspect of the verb, which is already marked by the lexical items.

The claim that learners redundantly encode inherent aspect in their early use of tense-aspect morphology appears to hold as far as the acquisition of English (and other languages that have been studied thus far) is concerned, but it appears to run into a problem if it is applied to the acquisition of Japanese.

In English, learners can initially form straightforward associations between inherent aspect and verb morphology, such as the following:
Here, “situation” refers to the real world situation, to be described by linguistic expressions (i.e., inherent aspect and the morphology). For learners, State would be static situations that do not involve change, and Process and Event situations that involve change. Among those that involve change, situations that have already resulted in a different state at the reference time would be Event, and situations actually going on at the reference time and not involving a culmination point of change would be Process.

In English, State is typically referred to by state verbs with the third person singular -s or zero morpheme (i.e., simple present tense), Process by activity verbs with -ing, and Event by achievement verbs with past morphology (see Andersen & Shirai, 1994). Therefore, -s and state, -ing and activity, past and accomplishment/achievement are the standard associations that learners will create in acquiring English. This natural relationship, basic in ongoing discourse, results in higher frequency counts in NS discourse for these unmarked combinations than for more marked combinations, such as state verbs with past marking (Andersen & Shirai, 1994; Bybee, 1985).

However, as may be clear by now, such simple associations do not hold in Japanese. In Japanese, the durative imperfective marker -te i-, used to refer to action in progress, can also be used to denote resultative state when combined with achievement verbs, as discussed above. Because of this, the association pattern of situation, inherent aspect, and morphology in Japanese would be as follows:

<table>
<thead>
<tr>
<th>English: inherent aspect</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>state</td>
<td>Process</td>
</tr>
<tr>
<td>activity</td>
<td></td>
</tr>
<tr>
<td>achievement</td>
<td></td>
</tr>
</tbody>
</table>

Zero/-s and state, -ing and activity, past and accomplishment/achievement are the standard associations that learners will create in acquiring English. This natural relationship, basic in ongoing discourse, results in higher frequency counts in NS discourse for these unmarked combinations than for more marked combinations, such as state verbs with past marking (Andersen & Shirai, 1994; Bybee, 1985).
As can be seen, in Japanese, achievement verbs can be associated with both -ta (past tense) and -te i- (progressive as well as resultative). Because Japanese has this kind of aspectual system, if JSL learners used tense-aspect morphology to redundantly mark inherent aspect, they would have a hard time deciding whether to use -te i- for achievement verbs or activity verbs, because -te i- is associated with both. They would also have difficulty associating achievement with -ta, because achievement is associated with both -ta and -te i-. Therefore, JSL learners may not be able to rely on a simple mapping between morphology and inherent aspect in the input.

The studies we report here investigate whether the Aspect Hypothesis is supported by Japanese SLA data. The guiding research question is the following:

Do learners of JSL follow the pattern observed in the L2 acquisition of other languages? Specifically, are there strong associations between achievement verbs and the past marker (-ta), as well as between activity verbs and the durative imperfective marker (-te i-)?

The pattern of distribution in Japanese input, discussed above, is not very conducive to the acquisitional pattern predicted by the Redundant Marking Hypothesis. If JSL learners only relied on the distribution in the input, they would associate the imperfective marker -te i- with both achievements and activities. In that case, as the Distributional Bias Hypothesis (Andersen & Shirai, 1994) predicts JSL learners would not show the phenomenon of redundant marking. Evidence from JSL is therefore important in that it can shed light on the causal explanation of the acquisitional pattern referred to as the Aspect Hypothesis; that is, the results from the acquisition of tense-aspect in JSL will address the ques-
tion of whether the learners’ behavior is primarily driven by input frequency or is governed by something else.

In the area of L1 Japanese acquisition, the picture seems inconclusive in this regard. Shirai (1993) reported that a child indeed followed a pattern predicted by the Redundant Marking Hypothesis—early restriction of *-te i* imperfective to activity verbs, and strong association of *-ta* to achievement verbs. On the other hand, Rispoli (1981, 1990) suggested there was no such predominance regarding the emergence of *-te i* (see Shirai, 1993, for discussion).

Many studies on inherent aspect have focused on distributional analysis; that is, they reported the pattern of use of tense-aspect morphology without regard to whether the use was target-like, finding a strong relationship between past and achievement, and between progressive and activity. However, because the distributional pattern observed in learners also occurs in native speech, it could be argued that learners are not showing deviant behavior but are only using the morphology in the same natural manner as native speakers, as Weist (1989) argued for L1 acquisition and Rohde (1996) for SLA.

There are two ways to test whether L2 learners are behaving differently than NSs. First, one can compare learners’ speech with NSs’ in terms of distributional patterns. If the learners’ behavior is more congruent with the Aspect Hypothesis, using more unmarked combinations, then the learners are behaving differently from NSs. Experiment 1 uses this approach. The other way is to test whether learners can successfully supply appropriate morphology in obligatory contexts. Bardovi-Harlig and Reynolds (1995) and Bergström (1996) did this using cloze-type tests, and showed that learners have more difficulty supplying appropriate morphology with marked combinations (e.g., past and state) than with unmarked combinations (e.g., past and achievement). Experiment 2 uses a similar method for L2 Japanese.
Experiment 1

Method

Informants. The informants for the study were 3 Chinese learners of JSL. The length of stay in Japan was approximately 8 months for all 3 learners, during which time they had been studying JSL in an intensive program at a Japanese university in a course designed to prepare overseas students to be enrolled in a regular academic program after one year of JSL study. (All 3 students were later accepted, 1 by a graduate school, 2 by an undergraduate program of the university.) Their previous exposure to Japanese was minimal when they arrived in Japan; they had improved considerably during the 8 months of their stay. All 3 were women in their 20s.

Data Collection. We collected the data in a recording studio at the university, using a regular audio-cassette tape recorder. Each interview was about 60 minutes long. A Japanese NS with experience in teaching JSL conducted the interview. The topics ranged from the participants’ daily activities, and their past experience in China and Japan, to their future plans. The interviewer controlled the choice of topic, in order to include topics about the present, past and future, although taking care that the conversation flowed as naturally as possible. A research assistant trained in linguistics transcribed and computerized the data using the Mini-JCHAT format (Oshima-Takane & MacWhinney, 1995).

Analysis and Results

The data analysis used linguistic tests to categorize verb (phrase) tokens into 4 inherent aspectual categories: state, activity, accomplishment, and achievement. We first coded all the verb tokens with -ta or -te i- morphology used by the learners and the interviewer for their morphological forms (i.e., -ta or -te i-) and inherent aspectual values then quantitatively analyzed these using the CLAN program (MacWhinney, 1995). The tests used to
classify verb tokens into 4 inherent aspectual classes appear in the Appendix.

The overall results appear in Table 1. (In this and Table 2, the cells that the Aspect Hypothesis predicts to have higher percentages are underlined for emphasis.) The results show a pattern consistent with the Aspect Hypothesis. Learner C showed the pattern most congruent with the hypothesis; 92% of her use of -ta (past) was on achievement verbs, and 62% of her use of -te i- (imperfective) was on activity verbs. The other 2 learners used the past marker -ta most often with achievement verbs (around 70% of use), but used only 46% and 58% of -te i- morphology on activity verbs.

The average percentages for the 3 learners and the interviewer are in Table 2. The learners are shown as NNS and the interviewer (a Japanese NS) is shown as NS-1. We discuss NS-2 below. As can be seen, NS-1 shows less conspicuous tendency to associate certain inflections with certain verb classes. Although the learners attached 78% of the past inflection -ta to achievement verbs, the NS did so with only 54%. In the case of the durative/

Table 1

<table>
<thead>
<tr>
<th>Form</th>
<th>State</th>
<th>Activity</th>
<th>Accomplishment</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ta</td>
<td>2% (1)</td>
<td>6% (3)</td>
<td>0% (0)</td>
<td>92% (47)</td>
</tr>
<tr>
<td>-te i-</td>
<td>0% (0)</td>
<td>62% (13)</td>
<td>10% (2)</td>
<td>29% (6)</td>
</tr>
<tr>
<td>Learner T</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ta</td>
<td>3% (1)</td>
<td>19% (6)</td>
<td>6% (2)</td>
<td>72% (23)</td>
</tr>
<tr>
<td>-te i-</td>
<td>0% (0)</td>
<td>46% (13)</td>
<td>7% (2)</td>
<td>46% (13)</td>
</tr>
<tr>
<td>Learner K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-ta</td>
<td>24% (10)</td>
<td>7% (3)</td>
<td>0% (0)</td>
<td>69% (29)</td>
</tr>
<tr>
<td>-te i-</td>
<td>7% (4)</td>
<td>58% (35)</td>
<td>0% (0)</td>
<td>35% (21)</td>
</tr>
</tbody>
</table>

Note. Raw token frequency in parentheses. Underlined cells are where the Aspect Hypothesis predicts higher percentages.
imperfective marker -te i-, the learners put 55% on activity verbs, but NS-1 only 37%. Thus, the NNSs showed a distribution skewed in the direction consistent with the Aspect Hypothesis.

Further support for the Aspect Hypothesis comes from the observation that the learners used past morphology with state verbs much less frequently than NS-1; the Aspect Hypothesis predicts that learners are least likely to inflect states for past. As shown in Table 2, the percentage of -ta used with state verbs by NS-1 is 33%, but that for the learners is only 10%. In particular, learner C and learner T used -ta for state verbs only once (2% and 3%, respectively; see Table 1).

One might wonder about the generalizability of the distribution shown by NS-1; that is, how representative of Japanese NS discourse this set of data was. The data might be idiosyncratic or topic-dependent. Besides, this discourse, strictly speaking, was a type of “foreigner talk,” because the interviewer was talking to NNSs. To address these issues, we also analyzed another corpus, “One week’s discourse data of a housewife” (Ide, Ikuta, Kawasaki,

Table 2

Comparison of Average Percentages of Inherent Aspect for the Learners (NNS) and the Native Speakers (NS)

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Activity</th>
<th>Accomplishment</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNS</td>
<td>10%</td>
<td>11%</td>
<td>2%</td>
<td>78%</td>
</tr>
<tr>
<td>NS-1</td>
<td>33%</td>
<td>11%</td>
<td>2%</td>
<td>54%</td>
</tr>
<tr>
<td>NS-2</td>
<td>36%</td>
<td>8%</td>
<td>4%</td>
<td>52%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>State</th>
<th>Activity</th>
<th>Accomplishment</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>NNS</td>
<td>2%</td>
<td>55%</td>
<td>6%</td>
<td>37%</td>
</tr>
<tr>
<td>NS-1</td>
<td>3%</td>
<td>37%</td>
<td>0%</td>
<td>59%</td>
</tr>
<tr>
<td>NS-2</td>
<td>4%</td>
<td>32%</td>
<td>0%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Note. Underlined cells are where the Aspect Hypothesis predicts higher percentages.
aNS-1 = interviewer; NS-2 = housewife’s discourse data
Hori, & Haga, 1984). We randomly sampled 50 tokens each of -ta and -te i- from the corpus, which consisted of conversations of various types on various topics recorded during a one-week period. We then classified the tokens, which included utterances not only from the housewife but also from her interlocutors, into 4 categories of inherent aspect. The results of this analysis form the data for NS-2 in Table 2. As can be seen, the distribution is quite similar to that for NS-1 (the interviewer). We therefore assume that the distribution pattern for NS-1 and NS-2 in Table 2 represents the distribution of the inherent aspect for -ta and -te i- for Japanese NS conversational discourse.

We conclude that the Chinese JSL learners tended to restrict their use of verbal morphology in the direction predicted by the Aspect Hypothesis; their use of the past marker and the imperfective marker was skewed toward achievement verbs and activity verbs, respectively, in comparison to NSs' use, which attached -ta and -te i- more evenly to other classes of verbs.

Experiment 2

Method

Study 2 was designed to test the learning difficulty of particular combinations of verb morphology and inherent aspect. We conducted a longitudinal study, using acceptability judgment tests, to investigate the acquisition of finite verb forms -ru (non-past), -ta (past), -te i-ru (non-past durative), and -te i-ta (past durative). The data were part of a larger study (Kurono 1994, 1995) testing different types of uses of -ru, -ta, -te i-ru, and -te i-ta.

Informants. The informants were 17 learners of JSL who had visited Japan either to engage in research or to obtain a degree. Fifteen of the 17 had not studied Japanese at all before their arrival in Japan. At the time of their first test, they had stayed in Japan only for 2 or 3 months and had had instruction in an intensive JSL course for about a month. When they took the
second and third tests (3 and 6 months later, respectively), their learning environments were not uniform; some had continued receiving formal instruction at the university, but some had continued studying Japanese on their own. Their L1 backgrounds were: Chinese (6), Bengali (4), Marathi (2), Indonesian, Nepali, Sinhala, Tamil, and Thai (1 each).

Materials and Procedure. The learners took multiple-choice acceptability judgment tests on 3 different occasions—approximately 3, 6, and 9 months after their arrival in Japan: Tests 1, 2 and 3. Each test examined the acquisition of the 4 finite verb forms discussed above. Tests 1, 2, and 3 were all different, with no overlap in test items, although they tested the same type of target structures. Each item consisted of a short dialog with a verb phrase deleted; the learners were to choose appropriate forms from among 4 (or 2) choices.10 The sentences were given both in Japanese orthography and in Romanized equivalent, as in this example:

The context here is: J says, “Last week, I bought a word processor in Sakae”; and F says, “Really. Let me have a look again.” The four choices are: A-nonpast, B-past, C-nonpast durative, D-past durative. Therefore, the correct answer is the past tense form kaimasita (B).11 This particular item had only one correct answer, but some items had more than one. We asked learners to mark the four choices O, X, or Δ, for “correct,” “incorrect,” and “not sure,” respectively; they could choose more than one “correct” response. Hence, they had to give acceptability judgments for all 4 (or 2) choices. To make sure the learners understood the meaning of the sentences, we gave a vocabulary note with English glosses for most content.
words. Each of the 3 tests consisted of 50 to 60 items altogether; in this paper we focus on the results for -te i-. We individually administered the tests in various places, such as the learner’s home or office or a classroom. They were not timed; each lasted 60 to 90 minutes. The examiner was present throughout the administration and told the informant to feel free to ask clarification questions.

Analysis and Results

We scored for whether the learner judged the target structure (i.e., the correct form in context) as “correct.” As noted earlier, each test item had one (or more) target structure. For example, when the target structure was -teiru used to denote action in progress, if the learner judged -teiru as correct, we treated this as a correct response regardless of whether the learner judged other choices correctly or not. We did not count the “unsure” category (where the informants gave Δ) as a correct response.

We discuss the judgments of -te i- used for two different meanings—progressive and resultative. Table 3 compares the accuracy levels of -te i-, for non-past and past forms.

Table 3

Accuracy of Acceptability Judgment in Percentages at 3 Different Times

<table>
<thead>
<tr>
<th></th>
<th>-teiru (non-past durative)</th>
<th></th>
<th>-teita (past durative)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test 1</td>
<td>Test 2</td>
<td>Test 3</td>
</tr>
<tr>
<td>Progressive</td>
<td>55.9% (38/68)</td>
<td>75.3% (64/85)</td>
<td>69.4% (59/85)</td>
</tr>
<tr>
<td>Resultative</td>
<td>29.4% (25/85)</td>
<td>31.4% (16/51)</td>
<td>25.9% (22/85)</td>
</tr>
</tbody>
</table>

Note. Raw data in parentheses.
The results clearly show that learners had more difficulty recognizing correctness for the resultative use of -te i- than for the progressive use. Particularly striking, for both non-past and past tenses, the learners’ resultative use of -te i- did not show much progress through the 9 months of their stay in Japan, fluctuating around the 30% level. This 30% accuracy means that they rejected 7 out of 10 grammatical uses of -te i- with the resultative sense. In contrast, the progressive use of -te i- showed good progress in both cases: for nonpast, 55.9% → 75.3% → 69.4%, and for past, 29.4% → 40.2% → 52.9%.

Although accomplishments and iterative achievements also denote progressive meaning, most progressive verbs included in the tests were activity verbs, except for 4 cases of accomplishments in nonpast progressive (i.e., -teiru). Exclusion of accomplishments, however, did not change the overall trend (Test 1, 49.0% → Test 2, 79.4% → Test 3, 76.5%).

The findings support the Redundant Marking Hypothesis. As discussed above, -te i- denotes progressive when attached to activity verbs and resultative state when attached to achievement verbs. Thus, JSL learners found it easier to recognize the correctness of -te i- with activity verbs—the unmarked combination—than with achievement verbs.

General Discussion

These 2 experiments show that a sample of JSL learners followed the universal tendency predicted by the Redundant Marking Hypothesis, despite the fact that in Japanese NS speech the association is not simple, achievement being associated with both past and durative imperfective morphology. Experiment 1 showed that the JSL learners followed the Aspect Hypothesis, using the past tense form -ta for achievements and the imperfective form -te i- for activities. In addition, NSs associated -ta with achievement, but not as strongly as JSL learners, because the former had more flexibility in using verb morphology freely. The
learners showed much greater association of -te i- with activities than did NSs; that is, the learners conformed more closely to the prediction of the Aspect Hypothesis. Experiment 2 showed that the learners accepted the progressive meaning of -te i-, which the Aspect Hypothesis predicts would be acquired earlier, more frequently than the resultative meaning in their obligatory contexts.

Andersen and Shirai (1994, 1996) argued that L1 and L2 acquisition of tense-aspect morphology in various languages starts with the prototype for each aspectual morpheme; that is, with achievement verbs for past morphology, and with activity verbs for progressive morphology. Then, use of each morpheme spreads to other classes of verbs as the learner’s language approximates the adult NS norm. Our results can be interpreted along this line. The JSL learners’ use of the morphemes was restricted to the prototypes compared to that of the NSs, who could use the morphology in non-prototypical ways (Andersen & Shirai, 1994).

Accepting Andersen and Shirai’s claim still requires addressing the question of where the prototypes come from—the question of causal explanation. One theory, the Distributional Bias Hypothesis (Andersen & Shirai, 1996), argued that learners acquire the prototypes from the input. For example, in English, the majority (approximately 60%) of progressive and past inflections are attached to activity verbs and achievement verbs respectively in speech addressed to children (Shirai & Andersen, 1995); thus, children can create the initial prototypes from the input. However, this scenario may not work for JSL with respect to the acquisition of the -te i- inflection; our results (see Table 2) reveal that Japanese NSs more frequently attached -te i- to achievement verbs than to activity verbs. This casts doubt on the universality of the Distributional Bias Hypothesis.

In Experiment 1, the JSL learners used -te i- more often with activity verbs, even though NSs used it more often with achievement verbs. Where, then, did this prototype (i.e., -te i- with activity verbs) come from? One interpretation would be that it came from the influence from L1. Probably the Chinese JSL learners found a close affinity between the Chinese progressive marker zai and
Japanese -te i-.\textsuperscript{12} Zai can mostly be translated into Japanese -te i- when it denotes progressive meaning, but not for resultative meaning. In other words, there is a straightforward mapping between Chinese zai and Japanese -te i- for progressive meaning, but not for resultative meaning. Possibly this explains the learners' early acquisition of progressive -te i-.\textsuperscript{13}

Another possibility is that the prototype was an effect of instruction. Often, when Japanese -te i- is introduced in classrooms, the sequence is from progressive meaning to resultative meaning; in fact, for the learners in Experiment 1, this had been the case. If the progressive meaning was introduced first, it is no surprise that the learners treated the progressive meaning as the prototype of -te i-. However, the learners in Experiment 2 had not yet studied -te i- at the time of Test 1, and only 8 of them had continued with formal instruction. Therefore, the effect of instruction seems minimal.\textsuperscript{14}

The results from Experiment 1 regarding the NS's use of -te i- also present a puzzle for the L1 acquisition of Japanese, and in particular the Distributional Bias Hypothesis (Andersen & Shirai, 1994, 1996). If children start to use -te i- with its progressive meaning by attaching it to activity verbs (Shirai, 1993), adult NSs' higher percentage of -te i- with achievement verbs is problematic, because children cannot induce from the input that the prototype of -te i- is action in progress. There are four possible solutions to this puzzle. First, there may be a particular conceptual/linguistic predisposition on the part of the learner to map morphology onto "action in progress" (or Process) rather than onto "states," other things being equal. That is, these notions have special status and are highly "grammaticizable" (Slobin, 1985). Second, learners may tend to attach to a verb the morpheme that is conceptually congruent with the verb's meaning (the Congruence Principle; Andersen & Shirai, 1994). Because activity is [+duration], it is conceptually more congruent with the Japanese imperfective marker -te i-, whose most important feature is [+continuation] (Ando, 1986, Ch. 8), than is achievement, which is [−duration]. This may then predispose the learner to attach -te i- to activity verbs.
Third, the distribution of tense-aspect forms in child-directed speech may be different from those in adult-directed speech. Shirai (1993) looked at a portion of adult speech addressed to a child acquiring Japanese, and 78% of the tokens of -te i- were attached to activity verbs. However, the data only recorded the adult utterances that triggered the child’s speech. More Japanese L1 acquisition data need to be examined to determine whether this explanation is valid.

Fourth, as Shirai (1993) noted, the initial restriction of -te i-to activity is due to the alternative form (-ta) in Japanese for referring to result-state. Japanese past tense form -ta, which used to be a perfect suffix -tari, still retains its old function and is sometimes used to refer to resultative perfect. Because both L1 and L2 learners generally prefer to assign one form to one meaning/function (the Principle of Contrast, Clark, 1987; the One-to-One Principle, Andersen, 1984), Japanese learners could well associate -ta with achievement to denote past and resultative perfect, and -te i- with activity to denote progressive.

These four possible explanations are not mutually exclusive. In fact, in L1 acquisition (a) universal predisposition for grammaticization, (b) the Congruence Principle, (c) input distribution, and (d) the Principle of Contrast could all contribute to the observed phenomenon. In the case of the acquisition of JSL by Chinese learners in Experiment 1, the effect of L1 transfer, in addition to (a), (b), and (d) above, might have contributed to the acquisitional patterns observed. The task for future research is to tease out which factors, if any, are irrelevant and which are important.

The Current State of the Aspect Hypothesis

Previous studies have established a solid empirical ground for the claim that development of tense-aspect morphology in SLA is strongly influenced by the inherent aspect of the verb. The present study adds to this body of research and extends the applicability of the Aspect Hypothesis to a non-Indo-European
language. Our results make it apparent that this hypothesis’ prediction is quite robust and can be considered a universal of SLA. However, this is not the whole story of L2 morphological development of tense-aspect; there are some problematic issues that merit further research.

First, is there a difference between L1 and L2 acquisition? Although Andersen and Shirai (1994, 1996) emphasized the similarities between the two, that does not mean there are no differences. One difference, noted above, is the overuse of progressive on stative verbs in L2 acquisition, which is rarely observed in L1 acquisition (Kuczaj, 1978). Andersen and Shirai speculatively attributed this overuse to a possible effect of L1 transfer, but their claim requires further empirical investigation. Also interesting in this regard are the differences between an untutored learner (Robison, 1990) and tutored learners (Bardovi-Harlig & Bergström, 1996; Robinson, 1995) of English. The former showed an extensive use of stative progressive, including incorrect use, but the latter showed a very low rate of stative progressive. It may be that untutored learners tend to overuse progressive marking (see also Wagner-Gough, 1978).

Another difference between L1 and L2 acquisition, obviously, is conceptual development. Buczowska and Weist (1991) claimed that children, because of their cognitive immaturity, start out with what Weist (1986) called a “Speech Time System,” bound to the here and now, whereas adult L2 learners can rely on their developed L1 temporal system, and start out with a “Reference Time System.” Their claim, however, rested on a comprehension study. Bardovi-Harlig (1992, 1994) showed that the use of past perfect, which learners should be capable of using once they have a Reference Time System, comes very late for most adult L2 learners. Therefore, when it comes to production, it is difficult to claim that adults start out with a Reference Time System. The relationships between conceptual system and linguistic performance need further investigation.

Another difference between L1 and L2 acquisition concerns learning strategies or mechanisms. Although in L1 acquisition
underextension of verb morphology (i.e., omission in obligatory contexts) predominates and overextension is rare, SLA shows overextension (i.e., overuse in inappropriate context) quite often (e.g., Robison, 1995). Perhaps L2 learners tend to use the lexical item as an unanalyzed chunk, without really knowing the function of morphological marking. A strong relationship between inherent aspect and morphology could be an artifact of this rote lexical learning; as Klein, Dietrich, and Noyau (1995) put it, “the aspect hypothesis has to be weighted against competing strategies for mimicking input” (p. 271). Andersen (1994), however, presented a preliminary finding that learners attend not just to the form but also to the dimension of meaning. In Spanish, the form fue is used either for copula or the verb “go.” Andersen checked the use of fue in Spanish learners’ speech, and showed that when they used it as copula it was less likely to be past-marked. Copula is stative; hence, the learners were not only using the form they heard based on frequency but also attending to inherent aspectual characteristics of the verb form. Furthermore, Huang (1993) reported that her ESL learners past-marked achievement verbs more often in reference to single unitary events in the past (i.e., prototypical past) than to repeated, habitual past events (non-prototypical past). So the pattern of use compatible with the Aspect Hypothesis rests not only on lexical imitation but also on semantic reorganization of the data available in the input.

Another important line of research is the relationship between morphological development and the discourse notion of “foreground” versus “background” (Hopper & Thompson, 1980) in SLA. The Discourse Hypothesis (Bardovi-Harlig, 1992, 1995b) predicts a strong correlation between foreground clauses and past marking. Bardovi-Harlig’s SLA studies have provided clear support for this hypothesis. However, a few case studies showed more past marking in background clauses. Especially problematic, Kumpf’s (1984) results went against both the Discourse Hypothesis and the Aspect Hypothesis. Her informant, Tamiko, a Japanese speaker acquiring English, tended to use base forms for completed actions in the foreground, but frequently used past tense markers
for stative verbs and marked activity verbs with -ing in the background in her personal narrative.

This possible counterexample, however, is consistent with the Aspect Hypothesis as well as the Discourse Hypothesis. Although Tamiko past-marked stative verbs more often than non-stative verbs, most of the former were be (copula or auxiliary), with was being particularly predominant. Also, she often marked past habitual by useta (= used to). Thus, her inflectional past morphology was quite limited. More specifically, she used 61 tokens of base forms and 11 tokens of past-marked forms in foreground clauses. Among the 11 past forms in foreground, 6 were achievements, 3 were statives, and for the remaining 2, their inherent aspects were unclear. This is consistent with the Aspect Hypothesis. Tamiko’s pattern of tense marking on stative verbs resulted in 37 clear cases of past tense marking for stative verbs. However, 33 out of the 37 were copula, and 1 was useta. In contrast, she produced 18 tokens of base forms (i.e., failure to give past inflection), and only 3 cases of inflectional past, in this case regular. Based on these observations, we interpret Tamiko’s tense marking thus: Her inflectional past-marking on verbs was basically missing, as shown in the high percentage of base forms in the foreground clauses of past narratives. Most past-markings were given by was used as copula, or auxiliary for past progressive (was ...ing), both of which tend to appear in background clauses universally, because background correlates with imperfective (progressive) and stative (copula; see Hopper & Thompson, 1980). Being uninstructed, Tamiko did not develop much inflectional past marking on verbs, consistent with SLA findings that instructed learners do better than uninstructed learners at inflectional morphology (Pica, 1983).

This interpretation nicely reconciles the contradiction between Kumpf’s (1984) study and Bardovi-Harlig’s (1995b) study, in which past marking was highly correlated with foregrounding.15 Bardovi-Harlig’s informants, being instructed ESL learners, had rich morphology available; once they acquired inflectional past morphology, their past tense marking correlated with foregrounding. Apparently, once learners have past forms of lexical verbs
available to any substantive degree in the form of inflectional morphology, their pattern of marking follows the Discourse Hypothesis as well as the Aspect Hypothesis. Finally, as Bardovi-Harlig (1995b) suggested, how the discourse function of grounding interacts with inherent aspect in the acquisition of tense-aspect marking is an important area for further research (Bardovi-Harlig, in press; Housen, 1994).

Another important issue is the “universality” of the Aspect Hypothesis. Rohde (1996) presented the most problematic result for the Aspect Hypothesis in this regard. He investigated the longitudinal acquisition of two German children acquiring English in the United States, and showed clearly that progressive marking correlated not with activity (as the Aspect Hypothesis predicted) but with achievement verbs. His methodology of quantification was quite comparable to Andersen and Shirai’s (1994) and Bardovi-Harlig and Bergström’s (1996) studies, and therefore presents a genuine counterexample to the hypothesis. He showed that the 6- and 9-year-old children used progressive marking with achievement verbs right from the beginning, often to denote immediate future. Therefore, his study suggested that the Aspect Hypothesis may not be a universal. With other mediating factors, learners could go against its predictions.

Further research will have to test (a) whether all child learners of English in naturalistic settings show a similar pattern and (b) whether all German learners of English show a similar pattern. Rohde (1996) suggested that his results stemmed from these learners regarding tense distinctions as more important than aspect, which he claimed to support Buczowska and Weist (1991). However, we would suggest that the children probably exhibited the general tendency for untutored learners of English to overuse progressive inflection, which is phonologically salient, frequent in the input, and phonologically stable (i.e., has no phonologically conditioned allomorph; Wagner-Gough, 1978). Given the need for these children to tell others about their intentions or what was going to happen, futurate use of progressive probably came in quite handy until they acquired the use of the
periphrastic future (be going to) or modal future (will). Indeed, Wagner-Gough reported a child acquiring English in a naturalistic setting who used the futurate progressive more frequently than the action in progress meaning. Furthermore, the child used all the progressive forms for future reference with first person pronoun I as subject, to describe intention. The use of progressive in this case was modal, rather than deictic tense. Further research is needed to test whether child L2 learners show early use of progressive because tense is important for them.

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Notes

1Inherent (lexical) aspect is also known as “situation aspect” or “aktionsart.”
2Research can only verify the claims of the Aspect Hypothesis by quantitative analysis of verb morphology with respect to inherent aspect of the verb. However, neither Meisel (1987) nor Klein et al. (1995) provided such data.
3This comparative description of English and Japanese aspectual systems is our extension of Smith’s (1991) 2-component theory of aspect, which relies on the interaction of situation type (i.e., inherent aspect) and viewpoint aspect (grammatical aspectual marking).
4This does not include more marked cases of futurate (e.g., we are eating out tonight) and habitual (e.g., I’m going to school by car these days), which can be used for any of these verb types. (Japanese, however, does not have futurate use of -te i-.)
5This coincides with the fact that English progressive can denote futurate meaning, whereas Japanese-te i- cannot.
6-de i- is a phonologically conditioned allomorph of -te i-.
7In addition to “punctual verb + -te i-,” Japanese can of course refer to stative situations by the use of “stative verb + -(r)u” (simple present form, or non-past form; e.g., aru “exist(s),” mieru “is visible”), which corresponds to “stative verb + -s/zero” in English. We did not include this here for the sake of simplicity, the focus of the present study being the acquisition of the -te i- and -ta forms.
8We excluded the following items from the analysis: (a) uninterpretable items, (b) clear lexical errors, (c) items that could not be coded for inherent aspect (e.g., Nani sita? “What did you do?”) and (d) highly idiomatic expressions (e.g., Sigure simasita “I’m sorry.”). The form -te i-ta (i.e., past imperfective) was classified as -te i-, because our focus was the association patterns between verb type and morphology; that is, the analysis focused on the question of what verb types were associated with the imperfective marker -te i- in the learners’ speech.
One had studied Japanese for 8 months 10 years earlier, and another for 3 months just before coming to Japan.

When a stative verb was the target structure there were only 2 choices (past and nonpast), because state verbs in general, and particularly those used here, are incompatible with -te i--; thus, the form itself is ungrammatical, regardless of context.

The actual verb-ending forms are -masu, and -masita, polite forms for nonpast -ru and past -ta. The learners were more familiar with this form, polite style being preferred in instructional settings, especially at the elementary stage.

A few Chinese learners of JSL studying at the same university confirmed this interpretation: they said they associate -te i-ru with zai in Mandarin.

All the L1s of the learners in Experiment 2 (i.e., Chinese, Bengali, Marathi, Indonesian, Nepali, Sinhala, Tamil and Thai) have a progressive form, which may have contributed to the early acquisition of the progressive meaning of -te i-.

One possibility for testing the effect of instructional sequence would be an experiment in which different groups were taught 2 meanings of -te i- in different order.

Our interpretation is consistent with Bardovi-Harlig's (1995b) claim that variability between studies result from the function of L2 proficiency (cf. Bardovi-Harlig, in press).

However, Rohde (1996) reported only type count, not token count.

References


**Appendix**

*Tests for Inherent Aspect in Japanese*

(Each test was used only on the clauses remaining after the preceding test.)

**Step 1: State or Non-State?**

Can it refer to present state in simple present tense without having a habitual or vivid-present interpretation?

If yes → State (e.g., *Tukue no ue ni hon ga aru* “There is a book on the table.”)

If no → Non-state (e.g., *Boku wa gohan o taberu* “I will eat rice” or “I [often/usually etc.] eat rice.”) → Go to Step 2

[N.B.] Since Japanese has two types of adjectives, which are inflected for tense (e.g., *atui* “is hot” vs. *atukatta* “was hot”), and both adjective types pass the test for stativity, adjectives are included in the category of stative verbs. Also included are the nominal followed by the copula, because they have exactly the
same conjugation pattern as one of the two adjective types (nominal adjectives).

Step 2: Activity or Non-Activity?

If you stop in the middle of the action, does that entail that you did the action?

If yes → Activity (e.g., aruku “walk”)
If no → Non-activity (e.g., eki made aruku “walk to the station”) → Go to Step 3

*If it is difficult to distinguish between “punctual verbs denoting resultative state” and “activity verbs denoting action in progress,” use the following tests (a), (b) and/or (c).

(a) Is it possible to say “X wa Y (=place) de V-te i-ru,” and if so, is it more natural than to say “X wa Y ni V-te i-ru”?

If yes to both questions → Activity (e.g., John wa soko de neteiru. “John is sleeping there.”)
If no → Resultative State (and therefore the verb is achievement) (e.g., John wa soko ni/*de sundeiru. “John lives there.”)

(b) Is it possible to say “V-hazimeru” without iteration involved?

If yes → Activity (e.g., hanasi-hazimeru “start talking”)
If no → Resultative State (and therefore the verb is achievement) (e.g., suwari-hazimeru “start sitting”)

(c) Does it have a “simultaneous activity” reading in the frame “V-nagara”?

If yes → Activity (e.g., hanasi nagara “while talking”)
If no → may be Resultative State (e.g., siri nagara “although knowing”)—but not necessarily, since this test also involves “agency”

Step 3: Accomplishment or Achievement? (Punctual or Non-Punctual)

If test (a) does not work, apply test (b), and possibly (c).
(a) If “X wa Y de V-ta” (Y=time; e.g., 10 minutes) is possible, does that entail X was involved in V-ing (i.e., V-te i-ta) during that time?

If yes → Accomplishment (e.g., Kare wa go hun de itimai no e o kaita. “He painted a picture in five minutes.”)

If no → Achievement (e.g., Kare wa go hun de itimai no e ni kizuita. “He noticed a picture in five minutes.”)

(b) Can “V-te i-ru” have the sense of “action-in-progress”?

If yes → Accomplishment (e.g., Kare wa oyu o wakasiteiru. “He is heating water until it boils.”)

If no → Achievement (e.g., Kare wa sono e ni kizuiteiru. “He has noticed the picture.”)

(c) “X wa Y de V-daroo” (Y=time; e.g., 10 minutes) = “X wa Y goni V-daroo”

If no → Accomplishment (e.g., Kare wa itizikan de e o kakudaroo “He will paint a picture in an hour” is different from Kare wa itizikan go ni e o kakudaroo “He will paint a picture after an hour,” because the former can mean he will spend an hour painting a picture, whereas the latter does not.)

If yes → Achievement (e.g., Kare wa nihun de utai-hazimeru daroo “He will start singing in two minutes” can have only one reading, which is the same as in Kare wa nihungo ni utai-hazimeru daroo “He will start singing after two minutes,” with no other reading possible.)