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第二言語学習者のテンス・アスペクト形態素使用におけるインプットの役割

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L2 learner's use of tense/aspect morphology: The role of input

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Abstract

The learners' initial use of tense/aspect morphology to denote inherent lexical aspect of verbs has been consistently observed in both first and second language learners' interlanguage (Bronckart and Sinclair, 1973; Antinucci and Miller, 1976; Bloom et al., 1980 on first language acquisition: Andersen, 1986; Robison, 1993 on second language acquisition). Among several candidate factors contributing to the phenomena, the current study tests the Distributional Bias Hypothesis (Andersen, 1986, 1989, 1990), which claims that the predominant use of a particular inflection with certain type of verbs in the input is what leads the learners to adopt a restricted hypothesis regarding the use of that inflection. The results demonstrate a clear correlational relationship between the native and non-native speakers' use of the past and progressive inflections through a functional analysis of their spontaneous speech. The contribution of the current results to the POA hypothesis and the core meanings of past and progressive categories are discussed.

0. Introduction

The Primacy of Aspect (Andersen, 1989)— the learners' initial use of tense/aspect morphology to redundantly mark inherent lexical aspect of the verbs— has been consistently observed in both first and second language learners' interlanguage across various languages. The observed phenomena (e.g., strong associations between the English past morpheme and verbs with inherent punctuality,

and the English progressive morpheme and verbs with inherent durativity) was interpreted as a manifestation of universal cognitive/linguistic constraints in language use and acquisition of verb morphology; and therefore it was assumed to be unique to learners' speech. More recent studies, however, speculate that the influence of the input is the source of such phenomena (Andersen, 1986, 1989, 1990; Shirai, 1991), as a number of studies have shown that a similar tendency in the use of verb morphology is also observed among adult native speakers. The purposes of the current study is to test the Distributional Bias Hypothesis (Andersen, 1986, 1989, 1990), which claims that the predominant use of a particular inflection with certain type of verbs in the *input* will lead the learners to adopt a restricted hypothesis regarding the use of that inflection. The study draws upon naturalistic discourse samples of three adult non-native speakers of English and one native speaker which were collected through interviews conducted by native speakers of English.

1. Tense, Grammatical Aspect and Lexical Aspect

The issue of Primacy of Aspect in language acquisition assumes three temporal categories: tense, grammatical aspect and lexical aspect. Tense is defined as " grammaticalized expression of location in time " (Comrie, 1985: 9). The choice of the past form instead of the present form is caused by the observation that the event described by the verb precedes the time of speech; thus tense morphemes locate an event on the time axis. Grammatical aspect refers to " the different ways of viewing the internal temporal constituency of a situation " (Comrie, 1976: 3). For example, perfective aspect is used when the speaker takes an external view of the event, seeing it as completed; whereas imperfective aspect is used when the speaker takes internal view of the event, focusing on the process of the action. Whereas grammatical aspect refers to the aspectual distinctions which are encoded by certain linguistic devices (usually auxiliaries or inflections), inherent lexical aspect refers to the internal nature of the situation or event denoted by the lexical item itself. This is based on the assumption that each individual verb has an aspectual meaning of its own, independent of the context or the grammatical aspect imposed by the speaker. For instance, the verb *have* denotes a state, whereas *break* denotes a punctual event.

Vendler (1967) proposed a four-way classification of the inherent aspects of verbs: state, activity, accomplishment and achievement. The table below lists the definitions of each category followed by several examples of verbs belonging to each category.

Table 1 The four-way classification of inherent lexical aspect (Vendler, 1967)

(The definitions are from Shirai,1991: 5)

	definition	examples
State	that which continues without adding effort or energy, and has no dynamics	see, love, want
Activity	that which has a duration, but without a clear endpoint, and is homogeneous in structure	run, play, walk
Accomplishment	that which has some duration, but has a single clear endpoint	make a chair, run a mile, write a letter
Achievement	that which takes place instantaneously, and is reducible to a single point in time	break, drop, find

These four categories can be defined by the semantic features proposed by Comrie (1976). The figure below is a mapping, devised by Andersen (1989), of Comrie's semantic features onto the four inherent lexical aspects.

Figure 1 Semantic features for the four categories of inherent lexical aspect (Andersen, 1989)

	state	activity	accomplishment	achievement
dynamic	-	+	+	+
telic	-	-	+	+
punctual	-	-	-	+

The first row of this chart shows that all categories except "state" share the property of dynamicity. From the second row, we understand that "state" and "activity" are both devoid of telicity; in other words, lack a clear endpoint; and both "accomplishment" and "achievement" have a clear endpoint. It is clear from the third row that only "achievement" is punctual and has no durativity.

2. The Primacy of Aspect (POA) Hypothesis

2.1 Evidence for POA

The fields of both first and second language acquisition have built up firm empirical evidence for the claim that learners initially use verbal inflections to denote aspectual distinctions before using them to mark tense. Studies on the initial use of verbal morphemes among young children acquiring their first language in various languages agree that children's use of verbal morphemes is

concentrated in certain semantic classes of verbs: past and perfective morphemes occur predominantly with verbs of inherent punctuality, and progressive and imperfective morphemes occur typically with verbs of inherent durativity (Bronckart and Sinclair, 1973 in French; Antinucci and Miller, 1976 in Italian; Bloom *et al.*, 1980 in English; De Lemos, 1981 in Portuguese; Jacobsen, 1986 in Spanish).

Weist *et al.* (1984) argued against the "aspect before tense" or "defective tense" hypothesis (DTH) using Polish data collected by longitudinal and cross-sectional studies. They claimed that children started to express both deictic tense and perfective/imperfective distinction from a very early stage of acquisition. However, Andersen (1989) points out that this result does not serve as a counter-evidence to the "aspect before tense" hypothesis, which does not claim that grammatical aspect is acquired before tense nor children initially cannot express tense, but claims that learners are strongly influenced by semantic aspect of the verb in the use and acquisition of verb morphology; although they provide good evidence to claim that children are not at all cognitively immature to express tense. He also points out that Weist *et al.* base their argument on an "absolute" defective tense hypothesis, which focuses on whether children can express the notion of tense or not; whereas other researchers are arguing for a "relative" defective tense hypothesis, which focuses on how the inherent lexical aspect influences children's use of verb morphology. He shows that a re-analysis of their data supports the "relative" defective tense hypothesis. He further emphasizes the weakness of the "absolute" approach to language acquisition, that is, the approach could fail to capture the true nature of the acquisitional phenomena.

Several interlanguage studies have also found that redundant marking of lexical aspect holds true for second language learners (Andersen, 1986; Robison, 1990, 1993; Yoshitomi, 1992; Huang, 1993). Andersen (1986) provided support for the Primacy of Aspect hypothesis using his longitudinal data of English-speaking children learning Spanish. Robison (1990), Yoshitomi (1992) and Huang (1993) provide further evidence by studying the interview data of English interlanguage. Robison (1993) is a cross-sectional study of Spanish-speaking children learning English. The fact that not only very young children but also adult second language learners' use of verb morphemes is governed by the semantics of the verb alters the traditional interpretation of such linguistic behavior among learners; it erases the possibility of "cognitive deficiency" explanation for the phenomena suggested by the first language acquisition researchers (Antinucci and Miller, 1976; Bronckart and Sinclair, 1978). That is to say, it requires explanations from other perspectives.

2.2 The Contribution of input— Distributional Bias Hypothesis

A logical source of the redundant marking of lexical aspect among learners' language is the nature of input or native speakers' discourse. Despite the general agreement on the influence of input on first/second language learning, the significance of input was not recognized until recently in a series of studies concerning aspect acquisition. Andersen (1986, 1989, 1990) proposes the Distributional Bias Hypothesis, which claims that the dominance of certain inflections with certain event types in native speaker's discourse will mislead the learners to adopt a set of restricted hypotheses about how the inflection is to be used. In other words, this hypothesis predicts a resemblance between native speakers' and learners' distributions of verb morphology. This hypothesis has been supported by a number of studies (Shirai, 1991 for first language acquisition; Huang, 1993 and Robison, 1993 for second language acquisition).

Shirai (1991) is a thorough investigation of the relationship between children's use of verb morphology and that of their mothers. His analysis of the speech of three young children (1;2 to 4;9) and their mothers' speech directed to them provides strong evidence for the Distributional Bias Hypothesis. Both the children's and the mothers' distribution of verb inflection across the inherent aspect of verbs showed a strong skewing toward the combination of past *-ed* and punctual events, and progressive *-ing* and activity verbs stood out in contrast to other combinations which were much less frequent. He concludes that this resemblance between the distributions in the children's and mothers' speech is evidence for the effect of input frequency on language acquisition. He also provides a prototype theory explanation of the initial strong skewing of distribution in young children's discourse, claiming that children pick up the most frequent type of combination (*-ed* and punctual events, *-ing* and activity) as the prototypical usage of inflection from the input .

Thus, the characteristics of adult native speakers' speech seems to be a significant factor accounting for Primacy of Aspect in language acquisition, serving as the input and also as a model of natural spoken interaction. There are, however, few studies that compare the use of verb morphology in adult native speakers and adult second language learners. The present paper therefore investigates the relationship between interlanguage and native speaker discourse in order to confirm the possible effect of the biased input to the Primacy of Aspect in second language acquisition.

3. Research Questions and Hypotheses

The research questions for the current study are stated as follows:

(1) How do native and non-native speakers of English use English verb morphology? Is there a strong association between the choice of morpheme and the inherent lexical meaning of the verb?

(2) If there are some similarities/differences between native and non-native speakers' use of particular morphemes, how can these be explained?

The specific hypotheses are:

(1) There are strong associations between 1) past morphemes and achievement verbs and 2) progressive morphemes and activity verbs in both non-native speaker and native speaker's use of verbal inflection.

(2) The association between verb morphemes and the inherent aspect of a verb is weaker in native speaker's speech than in that of non-native speakers"; i.e., native speakers show more flexibility in the use of morphemes.

First, I will confirm the skewed distribution in both native and non-native speakers' speech. Then, through comparison between the distribution patterns of native speakers of English and non-native speakers, I will discuss the effect of native speaker's speech, and also the origin of the similarities and differences between the two types of discourse.

4. Method

4.1 Data

The data analyzed in this study were collected by previous UCLA students at the department of TESL/ Applied Linguistics for the Interlanguage Analysis course project. They conducted audiotaped interviews with each of the subjects, which ranged from 45 to 90 minutes. The interviews were all conducted by native speakers of English, and were audiotaped, transcribed and then coded according to the conventions developed for interlanguage analysis by Andersen (1991).

4.2 Subjects

Three Japanese learners of English, Tomo, Taro, and Fumiko, and one native speaker of English, Syd, are the data sources. [1] Tomo, at the time of the interview, had been in the United States for

one and a half years, and worked as a sushi chef. Taro was a middle-aged man in his late fifties, who lived in this country for quite a long period and had raised children here. Fumiko was a middle-aged woman who had lived in this country for 15 years, and also had raised her children here. The native speaker, Syd, was a 20-year-old professional musician living in Hollywood.

The non-native speakers' level of proficiency varied: Tomo is the least proficient; Taro is intermediate; and Fumiko has the best command of English among the three. This ranking was determined by their use of negation in do-support contexts and their performance in anterior reference marking.

Negation

The learners' use of negation in do-support contexts is summarized in Table 2. The first row in the table shows the actual forms learners used, and the second row indicates the forms required in the context. According to Andersen (1992), learners of English go through the same stages of development regardless of their first language background: The placement of *no* before the clause, preverbal *no/not*, and unanalyzed *don't*, auxiliary *not*, and finally reach the target system of analyzed do-support negation (*don't, doesn't and didn't*), using forms which carry tense and agreement. These stages can serve as an indicator of language ability since the attainment of the final stage manifests full control of verb phrase morphology (i.e., tense and agreement)(Stauble, 1981).

Table 2 Negation forms used in do-support context (number of supplied forms)

used forms	no		not		don't			doesn't	didn't
required forms	don't	didn't	don't	didn't	don't	doesn't	didn't	doesn't	didn't
Tomo	1	5	2	2	14	9	12	-	-
Taro	-	2	-	-	8	-	-	1	3
Fumiko	-	-	-	-	29	-	12	-	13

The negation patterns of the three non-native subjects are attributed to different developmental stages. Tomo's negators in *do*-support contexts are restricted to *no, not* and unanalyzed *don't*, which is the typical pattern of negation observed in the early stages of interlanguage development. It is clear that his *don't* is not a combination of the auxiliary *do* and the negator, judging from his complete replacement of *don't* instead of *doesn't* and *didn't*, and 10 cases of "I don't..." phrases out of the 14 correct uses of *don't*. Thus, his negation pattern indicates that he has not yet acquired agreement or tense.

Although there are very few contexts for main verb negation in Taro's speech, some features of his performance allow us to determine the level of his verb system. He still uses *no* in place of *didn't*, but less often than Tomo. There are 12 instances of do-support negations, all of which are native-like. The three instances of *didn't* in his speech do not provide enough data to decide on his mastery of the form; however, he once restates *don't* to *didn't*, in an anterior context (..I *don't*, I *didn't* want..). This implies that Taro has started to make a distinction between *don't* and *didn't*. In sum, Taro's use of negation is in the transition stage, where he is not consistent in the use of primitive negation, but only in the entry stage to the more complex system.

It is very clear from the table above that Fumiko's negation system is more native-like compared with the other two subjects, since she never uses *no/not-* verb constructions. She uses *don't* and *didn't* contrastively, but the switch does not seem to be fully acquired yet, for she still uses *don't* approximately half of the time when *didn't* is required (12 times out of 25 required contexts for *didn't*). We cannot make any generalizations concerning her mastery of agreement because there are almost no obligatory contexts for the use of *doesn't*. In sum, Fumiko has started recognizing the function of *do* as a tense carrier, but the contrastive use is still unstable.

Anterior Reference

Table 3.1 shows the accuracy of past marking in required contexts, and Table 3.2 displays the ratio of the correct forms used over the forms supplied for the three subjects. The numbers represent the percentage of the target-like use of the past tense form in required contexts.

Table 3.1 Anterior reference—percentage of past marking supplied in required context

	cop.* was	cop. were	aux. was	aux. were	past irregular	past regular	perfect have	past would	past could
Tomo	0 [0/12]	-**	(0) [0/3]	(0) [0/2]	33 [31/94]	0 [0/81]	0 [0/5]	(0) [0/3]	-
Taro	35 [13/37]	13 [1/8]	(100)*** [1/1]	(0) [0/2]	35 [33/90]	8 [6/89]	-	-	18 [2/11]
Fumiko	21 [16/93]	0 [0/14]	75 [3/5]	(33) [1/3]	66 [96/144]	31 [27/81]	0 [0/7]	0 [0/6]	-

*cop.: copula; aux.: auxiliary

** '-' indicates that there were no required contexts for the use of each form in the subject's speech.

***The parentheses indicate that the required context was too small (less than 5) to make the percentage valid.

Table 3.2 Anterior reference —percentage of target-like forms among the forms supplied

	cop. was	cop. were	aux. was	aux. were	past irregular	pas regular	perfect have	past would	past could
Tomo	-*	-	-	-	100 [31/31]	-	-	-	-
Taro	68 [13/19]	(100) [1/1]	(100) [1/1]	(0) [0/1]	100 [33/33]	100 [6/6]	-	-	(100) [2/2]
Fumiko	100 [16/16]	-	(75) [3/4]	(100) [1/1]	100 [97/97]	84 [27/32]	-	-	-

* '-' indicates that the subject did no produce the form at all.

In general, Tomo has a limited command of past marking. The only type of past marking he used in the entire interview was past irregular, which was supplied in 33% of obligatory contexts. These forms were never used in a non-target like manner. The absence of the copula *was* where 12 were expected, and the absence of past regular in over 81 required contexts illustrate that Tomo does not have a systematic control of tense, which was also predicted from his negation patterns. For the rest of the cases, there were not enough required contexts to draw any conclusions.

Taro's performance on past marking is slightly advanced compared with Tomo's. He supplied the copulas *was* and *were* in 35% and 13% of required contexts, respectively. He extended the use of *wasn't* to other contexts, which lowered the ratio of target-like use to 68%. We cannot draw any conclusions about the use of *were* since there was only one form supplied. Taro marked past irregular and regular verbs in 35% and 8% of the obligatory contexts respectively. They were both used in a target-like manner. He used *could* 18% of the required context. For the rest of the cases, the lack of relevant data does not allow us to make any generalizations.

Fumiko seems to have the most advanced verb system among the three learners in this study. Her accuracy of past irregular and past regular inflections in obligatory contexts were 66% and 31% respectively. Past irregular was used in a target like manner in all instances, but the past regular forms were extended to past irregular contexts 16% of contexts. She supplied the copula *was* in 21% of required contexts and the forms used were all native-like. Copula *were* was not supplied at all. The accuracy of the use of the auxiliary *was* was 75%, and it was used in a target like manner 75% of the time. There is insufficient data to draw any conclusions about the use of auxiliary *were*. The rest of the forms were not used by the speaker.

Thus, the overview of the learners ' control of negation and past tense marking indicates that they are in different stages of interlanguage development.

4.3 Procedure of Analysis

The procedures of this study have been adopted from Shirai (1991).

Selected verb phrases

The analysis started with the selection of verb phrases relevant to the focus of the study. First, all of the clauses containing simple verbs with past marking or *-ing* marking (including those in negative constructions, questions, and following modals) were selected. The following cases were excluded from the analysis: 1) those sentences that were hard to interpret, 2) those containing verbs that do not conjugate for past tense, 3) proforms, such as "I *did* it." , and 4) emphatic, such as " I *did* go. "

Categorization of verbs

The next step is the classification of verbs into inherent lexical categories. Following Shirai (1991), I adopted the Vendlerean four-way classification which was introduced in the earlier section of this paper. All instances of verbs marked with past or progressive inflection underwent the operational tests presented below, in order to categorize them into one of the four classes. Finally, the percentage of each type of verb out of the total use of the verbs was calculated for each speaker, for both token and type counts. The figures will be presented in the next section.

Operational tests for inherent aspect (Shirai, 1991: 63-64)

<Step 1: State or non-state?>

Does it have a habitual interpretation in simple present tense?

If no -------> State (e.g., *I love you*.)

If yes-------> Non-state (e.g., *I eat bread*.) ------> Go to Step 2.

<Step 2: Activity or non-activity?>

Does "X is Ving" entail "X has Ved" without an iterative/habitual meaning? In other words, if you stop in the middle of Ving, have you done the act of V?

If no--------> Activity (e.g., *run*)

If yes-------> Non-activity (e.g., *run a mile*) -----> Go to Step 3.

<Step 3: Accomplishment or achievement?>

If test (a) does not work, apply test (b), and possibly (c).

(a) If "X Ved in (Y time; e.g., 10 minutes)", then "X was Ving during that time."

If yes-------> Accomplishment (e.g., *He painted a picture.*)

If no--------> Achievement (e.g., *He noticed the picture.*)

*It is possible to say X was Ving even right after X began the action that led to the goal.

(b) Is there ambiguity with "almost"?

If yes-------> Accomplishment (e.g., *He almost painted a picture* has two readings; i.e., "he almost started to paint a picture" and "he almost finished painting a picture.)

If no--------> Achievement (e.g., *He almost noticed the picture* has only one reading.)

(c) "X will VP in (Y time; e.g., 10 minutes)" = "X will VP after (Y time)."

If no--------> Accomplishment (e.g., *He will paint a picture in an hour* is different from *He will paint a picture after an hour*, because the former can mean he will spend an hour painting a picture, but the latter does not.)

If yes-------> Achievement (e.g., *He will start singing in two minutes* can have only one reading, which is the same as in *he will start singing after two minutes*, with no other reading possible.)

5. Results

5.1 Past Marking

Tables 4.1 and 4.2 display how past marking was distributed among the four classes of inherent semantics. As was expected, achievement verbs were marked with past most conspicuously among the four classes—an average of 74% in non-native speaker speech, and 54% in native speaker speech in token counts; and an average of 60% in non-native speaker and 42% in native speaker speech in type counts. This supports the first hypothesis that past morpheme and achievement verbs show a strong association with each other. Further, the observed skewing in native speaker's speech confirms the existence of distributional bias in the input. In this case, it can be inferred that the predominant use of past marking on achievement verbs in the target language model may be the determining factor for the learners' restricted use of past inflection.

Table 4.1 Distribution of inherent aspect — past marking (token count)

		STA*	ACT	ACC	**ACH**
Non-native	Tomo	9(3)**	13(4)	6(2)	**72(24)**
	Taro	20(5)	0(0)	4(1)	**76(19)**
	Fumiko	14(18)	9(11)	5(6)	**72(91)**
Native	Syd	24(20)	18(15)	4(3)	**54(45)**

* STA = stative verbs ACT = activity verbs ACC = accomplishment verbs ACH = achievement verbs

** percentage (number of occurrences)

Table 4.2 Distribution of inherent aspect — past marking (type count)

		STA	ACT	ACC	**ACH**
Non-native	Tomo	22(2)	11(1)	11(1)	**56(5)**
	Taro	25(4)	0(0)	6(1)	**69(11)**
	Fumiko	10(3)	19(6)	13(4)	**58(18)**
Native	Syd	29(12)	24(10)	5(2)	**42(17)**

This tendency to skewed distribution in the native speaker's discourse is also supported by Huang (1993). [2] The distributions of the three native speakers in her study turn out to be very similar to that of Syd in the current study. Refer to Tables 5.1 and 5.2 below.

Table 5.1 Distribution of inherent aspect — past irregular marking (token count) (Huang, 1993: 19)

	STA	ACT	ACC	**ACH**
Rachel	24(14)	12(7)	5(3)	**59(35)**
June	26(26)	14(14)	1(1)	**59(58)**
Syd	26(11)	29(12)	5(2)	**40(17)**
Syd(in this study)	24(20)	18(15)	4(3)	**54(45)**

Table 5.2 Distribution of inherent aspect — past irregular marking (type count) (Huang, 1993: 19)

	STA	ACT	ACC	**ACH**
Rachel	7(2)	27(7)	7(2)	**59(16)**
June	23(5)	14(3)	4(1)	**59(13)**
Syd	23(5)	30(6)	5(1)	**40(8)**
Syd (in this study)	29(12)	24(10)	5(1)	**42(17)**

However, if we compare the distribution pattern of native speakers and that of non-native speakers, we find a number of differences, which may suggest that these two do not have exactly the same quality. Non-native speakers' distribution patterns display an extreme skewing, which means that the learners are restricting their use of past morphemes to achievement verbs in a very extreme manner. In the native speaker's distribution, the use of past marking with achievement verbs is not as frequent as that found in non-native speakers' data; instead, state verbs and activity verbs get past marking more often than in the non-native speakers' discourse (24% for state verbs as opposed to 9 to 20% in non-native speakers' data; 18% for activity verbs as opposed to 0 to 12% in non-native speaker's data). Thus, the distribution among native speakers is not as skewed as that of non-native speakers. This confirms the second hypothesis, indicating that native speakers are

less influenced by the semantics of verbs and therefore can use verbal inflections more flexibly.

In sum, in both non-native speaker and native speaker's speech the past marking co-occurs predominantly with achievement verbs. This means that past is dominantly marked on achievement verbs in the input, indicating that there is a distributional bias in the input to the learners. The less skewed distribution observed in native speaker's speech reflects the native speakers' capability of using inflections independent from the semantics of the verbs.

5.2 Progressive Marking

It was predicted that progressive marking will co-occur most frequently with activity verbs. However, this was not always true for the native speakers, as illustrated by the frequency data reported in Tables 6.1 and 6.2.

Table 6.1 Distribution of inherent aspect — progressive marking (token count)

		STA	**ACT**	ACC	ACH
Non-native	Tomo	2(1)	**47(24)**	24(12)	27(14)
	Taro	0(0)	**86(6)**	0(0)	14(1)
	Fumiko	12(7)	**53(33)**	3(2)	32(20)
Native	Syd	31(14)	**33(15)**	7(3)	29(13)

Table 6.2 Distribution of inherent aspect — progressive marking (type count)

		STA	**ACT**	ACC	ACH
Non-native	Tomo	10(1)	**60(6)**	20(2)	10(1)
	Taro	0(0)	**75(3)**	0(0)	25(1)
	Fumiko	17(4)	**65(15)**	9(2)	9(2)
Native	Syd	31(14)	**41(12)**	3(1)	28(8)

The outcome for non-native speakers is consistent with the hypothesis, although the percentages are all lower than those observed in the achievement-past relationship (Tomo 47%, Taro 86%, and Fumiko 53% for token counts). However, if we take a closer look at the achievement verbs used—which constitute approximately one-third of the *-ing* marked verbs—the majority were *come* and *go* (i.e., verbs of moving, which are not purely achievement verbs since they have durative senses). In Tomo's speech, *coming* was the only type of achievement verb combined with a progressive marker, occurring a total of 14 times. Fumiko's use of *-ing* was predominantly with the verb *go*,

which occupied more than 90% of her use of achievement verbs (19/21). Therefore, *ing* restricted to this type of verb within the category of achievement verbs may add evidence to the expectation that *-ing* has an affinity with verbs with durative meaning. Another point to note is that there is a possibility of L1 transfer. Approximately half of both Fumiko's *comings* and Tomo's *goings* could be interpreted as an overextention of *teiru*, which is partially equivalent to English *-ing* but can have a habitual meaning in certain contexts [3]; and this habitual sense was transferred to their use of *-ing*. This implies that their use of *-ing* is not associated with punctuality; hence this analysis also supports the claim that the subjects' use of *-ing* is restricted to durative aspect.

However, in the case of the native speaker, his use of inflection was almost evenly distributed across verb classes, which was unexpected and goes against hypothesis 1. In token counts, the frequency of activity verb with *-ing* was almost identical to that of state verb with *-ing* (33%, as opposed to 31%) and achievement verbs with *-ing* was also close to these two (27%). In type counts, activity verbs inflected with *-ing* attained the highest frequency (41.4%), but were not as skewed as the achievement verbs inflected with past marker. Again, I cite Huang (1993), who reports mixed results as illustrated in Tables 7.1 and 7.2 below. [4]

Table 7.1 Distribution of inherent aspect — progressive marking (token count) (Huang, 1993: 20-21)

	STA	**ACT**	ACC	ACH
Rachel	38(5)	**31(4)**	8(1)	23(3)
June	13(4)	**64(19)**	0(0)	23(7)
Syd	21(14)	**49(33)**	5(3)	25(17)
Syd (in this study)	31(14)	**33(15)**	7(3)	29(13)

Table 7.2 Distribution of inherent aspect — progressive marking (type count) (Huang, 1993: 20-21)

	STA	**ACT**	ACC	ACH
Rachel	33(4)	**33(4)**	9(1)	25(3)
June	12(3)	**61(16)**	0(0)	27(7)
Syd	29(10)	**43(15)**	3(1)	25(9)
Syd (in this study)	28(8)	**41(12)**	3(1)	28(8)

The distribution of progressive markers which June used was consistent with the predictions. In both token and type counts, the percentage of activity verbs was above 60 percent. However, Rachel's distribution resembles that of Syd in this study: The progressive markings are almost equally distributed across state, activity and achievement categories in both token and type counts.

Thus, unlike the case of past marking, there is significant variability in the distributions among the speakers. Therefore, we cannot conclude that the native speaker's use of *-ing* forms is highly restricted to activity verbs: There may be less distributional bias in the target input for the learners. This may account for the more scattered distribution of the progressive marking as compared with that of the past marking in non-native speakers' speech. They will be rather flexible from the start since the input does not skew the learners' concept of progressive marker.

We must account for the two cases of deviation among the distributions of progressive marking in native speakers' discourse. I speculate that the relatively evened out distribution is due to the frequent use of certain kinds of stative verbs with the progressive marker. One common characteristic among the distributions with less dramatic skewing is that the stative verb attracts as many *-ing* markings as activity verbs. Among all the stative verbs used with progressive morpheme in Rachel's and Syd's speech, we find that the majority of them are non-prototypical statives [5] (*sit, try, live, stay, stand, wear, think* [6])— the state referred to by these verbs is not permanent, as in *to know* or *to like*, but there is a certain limit to how long the state lasts. That is, they refer to 'temporary duration' of a state, and this sense of durativity allows them to be congruent with the meaning of progressive markers. Thus, these two cases do not run counter to our hypothesis that a particular morpheme tends to co-occur with the verbs which have inherent semantics congruent with the basic meaning of the morpheme; and the use of these type of stative verbs allows some room for variability in the distributions of progressive markings.

To sum up, a significant association was observed between progressive morphemes and activity verbs, in both native speakers and non-native speakers' speech, although the association was weaker than that between past morpheme and achievement verbs. The predicted correlation was not always observed in native speakers' discourse; however, it was argued that the deviations are still consistent with the initial hypothesis since they were caused by the use of stative verbs which have a sense of durativity. Thus, the results of the progressing marking also supports the Distributional Bias Hypothesis.

6. Discussion

6.1 The Distributional Bias Hypothesis and POA

The findings concerning the Distributional Bias were the following. The first hypothesis was supported by the current results: Both past morphemes and achievement verbs, and progressive morphemes and activity verbs show strong associations with one another in both native and non-native speakers' use of the inflections. In both cases the results serve as evidence for the claim that

the learners are affected by the input, as the distributions of both past and progressive morphemes in native speakers' discourse resemble those of non-native speakers' speech. The second hypothesis was also confirmed in both cases: The correlation between verb morphemes and the inherent aspect of a verb is weaker in native speakers' speech than in that of non-native speakers'.

Thus, it seems that we have good reasons to believe that the input may have biased the learners' hypotheses regarding the use of the inflections. What makes the argument stronger is the case of progressive marking, in which the skewness was weaker than predicted in both native and non-native speakers' distributions (i.e., over-extension of the progressive forms to stative verbs was observed). Interestingly, this contrasts with the data on first language acquisition (Shirai, 1991), in which both the care-takers' and the children's use of the marker was highly restricted to activity verbs. In other words, in both cases the learners' distribution is identical to the model speakers' distribution. Therefore, the more flexible use of progressive markers in adult non-native speakers' speech suggests that their use of verbal morphemes is a reflection of the input.

Although the main goal of the study was to confirm the contribution of input to the POA phenomena, the results also imply that input alone cannot provide a satisfactory account of the phenomena. The fact that native speakers use verb morphology in a similar manner tells us that the nature of the use of verb morphology must play an important role. Furthermore, although the non-native speakers are exposed to native speaker input and both the native and non-native speakers share the principles of the use of verb morphology, non-native speakers are always more strongly biased to one particular association between an inflection and a verb type. This suggests that certain learning mechanisms are also in play. Hence the results are consistent with the previous findings that we need to integrate a number of factors to explain why learners use verb morphology in this particular manner.

6.2 **The Discrepancy between Native Speaker and Non-Native Speakers' Distribution**

A notable tendency observed throughout the distributions is that the predicted association is always relatively higher for learners than for native speakers (i.e., non-native speakers' use of verb morphology is highly restricted, whereas native speakers exhibit greater flexibility). This result is consistent with several other studies which analyzed adult native speakers' discourse in various forms such as oral narratives or interviews (Gonzales, 1990; Yap, 1990). This flexibility appears to consist of two aspects which seem to be dependent on each other: The content or topic of speech, and the native speaker's control over the use of morphology to impose their perspective on the event. Shirai (1991: 39), drawing from Andersen (1990), suggests that topic affects distribution and therefore contributes to the native/non-native discrepancy. He speculates that adult native

speakers are more likely than non-native speakers to refer to past habitual situations, which leads to an increase of state and activity verbs in past tense; whereas learners tend to limit the content of their speech to unitary events, which would result in a more selective use of verb morphology. In other words, the topic of the discourse may be a strong determining factor in the distribution of verb morphology across semantic categories of verbs.

However, the discourse of one of the learners in this study, Fumiko, appears to show a different tendency: It seems to contradict the previous observation that reference to past habitual episodes tends to result in the frequent use of activity and state verbs. Fumiko expresses past habituals as often as Syd does. In Fumiko's discourse, there are 12 tokens of past habituals expressed with achievement verbs, and 4 with activity verbs; Syd uses 4 achievement verbs, 5 activity verbs, and 11 stative verbs when referring to past habitual situations. Some of the examples are as follows:

(1) oh i i went to ah dentist (= I went to the dentist several times)
(2) that time we took a train (= I used to take the train)

This suggests that reference to habitual events in the past may not necessarily mean that the use of achievement verb will decrease. Fumiko is able to talk about past habituals but is still restricting her use of verbal inflections to achievement verbs. Thus, it may be true for the non-native speakers that topic does not influence their flexibility in the use of verb morphology. This is a mere speculation based on one speaker's performance, but there may be a possibility that frequent reference to past habitual events itself is not the direct cause of the native speaker's relatively flexible use of verb morphology. The fact that native speakers vary in the types of verbs used in reporting habitual events in the past seems more likely to be another manifestation of their flexibility or capacity to use verb inflections intentionally. Therefore the difference between native and non-native speaker's patterns in the use of verb morphology may be explained solely by native speaker's capacity to manipulate the morphemes independent of the inherent meanings of the verbs, which learners have yet to acquire. In sum, the discrepancy between native and non-native speakers is a reflection of their difference in the ability to manipulate verb morphemes as grammatical aspectual markers, not in the selection of what to talk about, but how to talk about it and express their ideas. This is consistent with Andersen and Shirai's (1994) analysis of native/non-native differences. Further function-to-form analysis of a variety of non-native speakers discourse would clarify this issue.

6.3 The Difference in the Degree of Skewing between Achievement-Past Marking and Activity-Progressive Marking

In most of the studies which have analyzed the distribution of past and progressive morphemes across the inherent aspect of verbs, it turns out that the association between the past marker and achievement verbs is always stronger than that between the progressive marker and activity verbs, in both native and non-native discourse (Shirai, 1991; Huang, 1993). This difference may be accounted for by the basic meanings of the two morphemes. The past morpheme seems to restrict itself to the notion of punctuality alone. If punctuality is the only determining factor, it is logical to assume that punctuality occupies the first association between form and function. On the other hand, the progressive morpheme has one core meaning but that central meaning is congruent with almost any type of verb category (i.e., temporary duration is applicable to not only activity verbs but also to achievement, accomplishment, and even to stative verbs). Therefore the association between form and meaning is flexible.

7. Summary and Future Research

The results of this study confirmed the predicted biased distribution in both native speakers' and non-native speakers' use of past and progressive markers, with less dramatic skewing in native speakers' distribution, especially in the case of progressive marking. Thus, the Distributional Bias in the input may be one crucial factor underlying the Primacy of Aspect. However, it should be noted that a firm conclusion concerning the Distributional Bias Hypothesis cannot be reached until we further investigate the tendencies found in "foreigner talk", the simplified speech register used by native speakers directed towards non-native speakers, since there is a possibility that such modified speech qualitatively resembles learners' speech and therefore exhibit a distribution closer to that of the learners' (Shirai, 1991).[78] Thus, studies of native speakers' speech addressed to learners in spontaneous interactions are awaited, which will provide us with a more precise picture of the relationship between the input and redundant lexical marking in interlanguage.

With respect to the discrepancy observed between native and non-native speakers' manipulation of inflections, I attempted to exclude the effect of what speakers tend to refer to, and argued for the claim that native speakers have enough control over the morphemes to impose their perspectives, an ability learners have yet to acquire. The relationship between the content of the speech and the event types used requires further investigation.

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Notes

1 The names of the subjects are pseudo-names.

2 Huang's (1993) data was also audiotaped interviews. She used the same criterion I used for categorizing the verbs into four event types. In the analysis of past marking, she only included the past irregular verbs, whereas I also included past regular verbs. Some differences between her analysis and that of mine on the same subject (Syd) is due to this difference in scope of analysis.

3 *-teiru* (te-form of verb + auxiliary *-iru)* expresses the continuation of an action or a state. Its function overlaps only partially with the English progressive morpheme. There are two different basic functions depending on the semantics of the verb to which it is attached. When *-teiru* follows intransitive verbs with punctuality which have no iterative sense, or when it follows change-of-state verbs such as shiru (to get to know), *Vteiru* expresses a resultative state: e.g., kowareru (to break) + *-teiru* = kowa*reteiru* (broken), shiru (to get to know) + *-teiru* = shit*teiru* (the state of knowing something after the change-of-state action); on the other hand, when *-teiru* is attached to transitive/intransitive verbs with duration, it expresses a progressive sense: e.g., taberu (to eat) + *-teiru* = tabe*teiru* (is eating), hashiru (to run) + *-teiru* = hashit*teiru* (is running). Furthermore, in special cases of repeated actions, it may have a habitual reading: e.g., kare wa nikki wo tsuke*teiru* (he keeps diary), Mari wa gakkoo ni it*teiru* (Mari goes to school).

4 Huang's study and this study offer different results of the analysis of Syd, especially in terms of activity verbs (49% in Huang's and 33% in this study). This is due to the fact that Huang counted *do* in *doing* as an activity verb, whereas I did not. My reason for excluding these proforms was that these forms themselves do not have specific inherent aspect since they are dummy forms, and even if we consider the verb for which the *do* stands in for, in some cases a number of actions with different semantics are referred to by a single *doing*, or it does not refer to any particular action but merely stands in for some action in general; therefore I decided it was safer not to include this type of verb in the analysis.

5 This was suggested by Andersen through personal communication.

6 Andersen (through personal communication) pointed out that this verb has two different meanings: it could mean 'to believe', as in '*I think he's right*', which is a permanent state; it could also refer to the mental activity in general, as in '*I'm thinking of you*', which is a temporary duration.

7 Shirai draws this idea from Hatch (1983) and Andersen (1990).

8 Such a resemblance is observed in motherese. Stephany (1981) reports that mother's speech addressed to children exhibited a strong association between inflection and the semantics of the verb, whereas their speech directed to other adults was less skewed.

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