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IN THE NAME OF GOD

Acquisition of Tense and Aspect by Persian Learners of English as a Second Language

by

Ali Akbar Jabbari

A thesis submitted in partial fulfilment of the
Requirement for the degree of
Doctor of Philosophy

University of Durham

Department of Linguistics and English Language

February 1998

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- 2 JUL 1998

To my family

with love

ABSTRACT

Acquisition of Tense and Aspect by Persian Learners of English as a Second Language

Ali Akbar Jabbari, University of Durham, 1998

This dissertation is a cross-sectional study of the acquisition of tense and aspect by 45 Persian speakers as the experimental group and 15 native English speaking children as the control group. This study specifically investigates the hypothesis of Primacy of Aspect (POA) that claims there is: (1) a strong association of past/perfective morpheme with achievement and accomplishment verbs, (2) a strong association of progressive morpheme with activity verbs, (3) no overextension of progressive inflection to stative verbs, and (4) strong association of the present morpheme '-s' with stative verbs. The study also argues for the semantic implications of the present data for the Distributional Bias Hypothesis (Andersen 1990), that the distinction of verb type in the input is skewed so as to create the acquisitional pattern found in studies of the POA in language acquisition, and for the Language Bioprogram (Bickerton 1981), that aspectual values are the knowledge a child is born with as the sources of the POA in SLA. The study also examines the syntactic implications of the data for the 'initial state' hypotheses in SLA: The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), The Full Transfer/Full Access hypothesis (Schwartz & Sprouse 1996) and The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). The results supported the findings of the POA and the Minimal Trees Hypothesis.

Declaration

I declare that this thesis, which I submit for the degree of Doctor of Philosophy at the University of Durham, is my own work and is not the same as any which has previously been submitted for a degree in this or another university.

Ali Akbar Jabbari

University of Durham

Department of Linguistics and English Language

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CHAPTER 1

INTRODUCTION

1.0 Introduction

In both L1 and L2 acquisition there have been extensive attempts to find universals of language acquisition. The seemingly unorganized acquisition of language is indeed systematic and follows quite distinct patterns involving universals. What are the universals of language acquisition in both first language (L1) and second language (L2) acquisition? In the last two decades, much attention has been focused on the role of Universal Grammar (UG), the innate capacity that children are born with, in L1 and L2 acquisition. The aim has been to determine whether the UG that constrains L1 also guides L2 acquisition. One of the areas investigated in the search for universals is the acquisition of tense and aspect. Before I provide an overview of L1 and L2 acquisition of tense and aspect, I will define briefly the universal properties of inherent aspect and tense.

1.1 Background

1.1.1 Inherent aspect

What is inherent aspect? The idea is that every predicate has an internal temporal property (Comrie 1976; Dowty 1979; McClure 1995; Vendler 1976; Verkuyl 1993). For example, in the propositions 'John ran' and 'John arrived', the temporal property of the verbs 'ran' and 'arrived' are not the same. The former denotes a process, while the latter denotes an instantaneous change of state (i.e. punctual). Inherent aspect consists of telic and atelic (or non-telic) aspects. Telic events (or telic aspects or telic verbs) indicate an action with a final goal. They are further subdivided into two groups: achievement (e.g. *recognize his mother*) and accomplishment (e.g. *make a cake*) aspects. For accomplishment aspect both *time 1* as onset time and *time 2* as final conclusion are part of universal entailment of the aspect, while for achievement aspect, only *time 2* is part of the essential universal entailment of the aspect. Non-telic (or atelic) aspects or verbs are also subdivided into two groups: activity and stative aspects. Activity aspect has just the onset time (or *time 1*) without final conclusion (or *time 2*) (e.g. *run*). Stative aspect has neither *time 1* nor *time 2* (e.g. *know*).

There are several syntactic and semantic tests to distinguish aspectual classes. The one of that I mention is a progressive entailment test (i.e. a syntactic test); (Dowty 1979; McClure 1995; and Vendler 1976 among others):

(1) If an activity verb: e.g. 'walk' then:

John is walking ------entails ---→John has already walked

(2) If a stative verb: e.g. 'belong' then:

*The chair is belonging to me.

(3) If an achievement verb: e.g. 'recognize' then:

John is recognizing his mother -------entails ---→ John has not yet recognised his mother.

(4) If an accomplishment verb: e.g. 'build' then:

John is building a house ----------entails ---→ John has built (part of a house) & John has not built yet a house.

The idea is all verbs (stative, activity, achievement, and accomplishment) or all verbs are constrained by three universal aspectual values: [punctual], [telic], and [dynamic]. Stative verbs are [-dynamic], activity verbs are [+dynamic] and [-telic], achievement verbs are [+punctual] and [+telic], and accomplishment verbs are [-punctual] and [+telic]. In addition to the universal semantic values of verb types, they are syntactically instantiated by aspectual projections. Telic verbs (achievement and accomplishment) are syntactically instantiated by the aspectual projection of measurer, activity verbs are instantiated by the aspectual projection of originator, and stative verbs are instantiated by neither the aspectual projection of measurer nor the aspectual projection of originator because they are aspect-less (for detailed discussion of the semantic interpretation and syntactic instantiation of aspectual verbs see Chapters 2 and 5).

1.1.2 Tense and inherent aspect

Both tense and inherent aspect are terms that refer to the notion of temporality. Tense locates a situation in relation to some other time such as the time of speech or utterance; it is a category that signifies temporal deixis. On the other hand, aspect is not concerned with relating a situation with some other time, i.e., it is non-deictic. Inherent aspect is a linguistic property, while tense is deictic. For example, the difference between *he is walking* and *he was walking* is that of tense since the contrast of *is* and *was* signifies the difference between the two in relation to the speech time. The difference between *he was eating* and *he was eating a sandwich*, on the other hand, is that of aspect since the contrast of *was eating* and *was eating a sandwich* indicates the way the action of eating is viewed by the speaker; the former views the situation as a process without an end-point (i.e. activity), while the latter views the situation with an end-point (i.e., for the accomplishment aspect 'eat a sandwich', the direct object 'a sandwich' provides an end-point or 'measures out' (Tenny 1992) the action described by the verb 'eat'). In other words, the former has the universal aspectual values [+dynamic] and [-telic], the latter has the universal aspectual values [-punctual] [+telic]. POA hypothesis claims that L1 and L2 learners genetically know the aspectual values, and they are part of UG since the learners employ these values to mark aspectual verbs at the early stages of acquisition.

1.2 An overview

One of the phenomena involved in the investigation of UG is the acquisition of tense and aspect. It has been frequently observed (Erbaugh 1987; Li 1989 for Chinese, Bloom et al. 1980; Brown 1973; Shirai 1994 for L1 English and Bardovi-Harlig 1992; Robison 1990, 1993 for L2 English and Andersen 1991; Ramsay 1990 for L2 Spanish among the others) that L1 and L2 learners in the early stages of acquiring target tense forms use verbal morphology selectively to mark inherent lexical aspect. For example, beginning L1 and L2 English learners use the verbal morphemes PAST[1] to mark achievement and accomplishment verbs (e.g. *arrive* and *make a cake*, respectively) more frequently than activity and stative verbs (e.g. *run* and *know*, respectively) and the progressive form '-ing' to mark activity verbs more frequently than achievement and accomplishment verbs with target tense being neglected. This phenomenon of selectively marking inherent aspect through tense/aspect morphology is known as the Primacy of Aspect (POA); (Andersen 1989, 1991).

However, no study to date has considered the acquisition of tense and aspect by Persian-speaking learners of English. Furthermore, no study to date on POA has controlled the association of verbal morphemes such as '-s', '-ing' and PAST with aspectual verb types for the different English target tenses: present, present perfect, past, past perfect, future, and future perfect tenses (see Chapter 5 for more detail).

Based on the findings of the present study, I will claim that the early use of verbal morphology is semantically governed by universal aspectual values of inherent aspect, i.e. punctuality, telicity, and dynamicity, while the later use of verbal morphemes is

[1] Through this dissertation, PAST refers to both regular and irregular past form of the verb.

determined by target tense time reference, rather than inherent aspect. In addition, I will argue that the lower-level learners' use of verbal morphemes can be syntactically described by aspectual projections below IP, while the higher-level learners' use of verbal morphemes involves IP (see Chapter 5 for detailed discussion)

The question that arises is whether L2 learners' interlanguage shows application of the same UG constraints that govern L1 acquisition. The assumption is that some of the processes of L1 acquisition may not apply to L2 acquisition in the same way, as L2 learners have previous instantiations of another language that may involve transfer of abstract properties of their L1 to the L2. Regarding the role of UG in the SLA, three hypothesis have been proposed: (1) The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), (2) The Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1994, 1996) and (3) The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). According to Vainikka & Young-Scholten, language transfer at the initial state is limited to lexical projections, while according to Schwartz & Sprouse and Eubank language transfer at the initial state is subject to both the lexical and functional projections of the L1. The proponents of non-accessibility of UG in L2 acquisition, on the other hand, hold that L2 acquisition is fundamentally different from L1 acquisition and is mediated by general problem-solving strategies, which are not necessarily linguistic-specific. In this thesis, I will address these issues and relate them to the present study (see Chapter 6).

1.3 The outline of the dissertation

The study consists of 6 chapters. Chapter 2 compares and contrasts tense and inherent aspect in English and Persian from a semantic and syntactic point of view and provides Questions and Research hypotheses as they relate to the present study. The aspectual verb systems in both English and Persian are semantically interpreted alike. However, in Persian a group of stative verbs are grammaticalized by the imperfective obligatory morpheme *mi-*, while in English all stative verbs are perfective. Furthermore, while in Persian all accomplishment verbs can be shifted into activity verbs by deleting their direct object markers (i.e. by means of noun-incorporation), in English accomplishment verbs cannot be shifted into activity verbs[2] (cf. section 2.1.1.4). Finally, while English has six tense forms: present, present perfect, past, past perfect, future, and future perfect, Persian has five tense forms; it lacks future perfect tense with present perfect tense used instead. Inherent aspect and tense are also syntactically instantiated in both English and Persian. The model that is followed is based on Arad's (1996) and Borer's (1994) views that the interface between the lexicon (i.e. meaning) and syntax is aspectually determined. Based on event-predicate based approach, telic events are projected by the aspectual projection of measurer where accusative Case is also checked, atelic events are projected by the aspectual projection of originator, where an agentive interpretation is determined, and non-dynamic situations are projected by neither the aspectual projection of measurer nor originator; they are base-generated in the

[2] It needs to be pointed out that in both English and Persian accomplishments (e.g. John ate a sandwich) can shift into activities (e.g. John ate sandwiches) by plularizing the direct object.

VP, because they are aspectually contentless. However, independently of these factors tense is uniformly projected in the IP.

Chapter 3 reviews the literature in the L1 and the L2 acquisition of tense and aspect morphology based on three relevant hypotheses: (1) Distributional Bias Hypothesis, Primacy of Aspect Hypothesis, and Bioprogram Hypothesis. The Distributional Bias hypothesis is suggested as the source of POA in language acquisition. The hypothesis (Andersen 1990) claims that the distribution of verb type in the input is skewed so as to create the acquisitional pattern found in studies of the POA in language acquisition. The proponents of the Primacy of Aspect (POA) hypothesis (e.g. Robison 1995) claim that L1 and L2 learners use verbal morphemes to mark aspectual verbs with the tense distinction being neglected. Finally, the Bioprogram Hypothesis suggested by Bickerton (1981) hypothesizes that the children are genetically equipped with the ability to make [+punctual] and [+telic] vs. [-punctual] and [-telic] and [+punctual] and [+telic] vs. [-dynamic] distinctions.

Chapter 4 describes the method of the study, the subjects, and the tasks: the Grammaticality Judgement Task (GJT), Gap-filling Task (G-f T), and Re-telling Task (RT), the operational tests for determing the inherent aspect of verbs, and coding the tasks for data analysis.

Chapter 5 presents and discusses the results of the study. The results were in accordance with the POA, with the lower level learners using the aspectual values as a criterion to mark aspectual verb types. They started off with their L1 aspectual verb types to mark English aspectual verb types with correct tense forms being neglected. Learners marked stative verbs with the present form '-s'. They also

marked activity verbs and accomplishment verbs (as it was switched into activity verbs) with the '-ing' form the latter showing evidence of L1 Persian influence. Finally the learners marked telic verbs including achievement verbs and accomplishment verbs with the PAST form. The higher level learners used correct target tense forms regardless of the aspectual verb types. Furthermore, the biased association of aspectual verbs with verbal morphemes coincided with the high frequency use of the infinitive, and the low frequency of inflectional markers such as modals, auxiliaries, sentential negation with auxiliaries, and correct target tense forms. It is claimed that the lower level learners' biased use of verbal markers with aspectual verb types is checked by aspectual projections below IP, while the higher level learners' use of correct target tense forms, modals, auxiliaries, etc. is checked by IP.

Chapter 6 consists of two sections. In the first section, implications of the study for the linguistic study of inherent aspect and the L2 acquisition hypotheses are discussed: (1) The Contrastive Analysis (Fries 1945; Lado 1957; Skinner 1957), (2) The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), (3) The Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996) and (4) The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). According to Vainikka & Young-Scholten, language transfer at the initial state is limited to lexical projections, while according to Schwartz & Sprouse and Eubank language transfer at the initial state is subject to both the lexical and functional projections of the L1. The present study supports Vainikka & Young-Scholten's hypothesis. On the lower level learners' account, lexical categories of verb types and their arguments, which determine the type of verbal

morpheme such as the association of the '-ing' with activity or accomplishment, the present form '-s' with stative verbs, and telic verbs with the PAST form are found in L2. In the second section, I will summarize the results of the study and suggest possible further research.

Chapter 2

TENSE AND ASPECT IN ENGLISH AND PERSIAN

2.0 Introduction

Linguistic approaches to language acquisition have emphasized the 'logical problem' of how the first language learner attains final steady state successfully (Atkinson 1982; Hornstein & Lightfoot 1981). The 'logical problem' is to explain how the child comes to have the complex linguistic knowledge, or competence, given the limited input she/he receives in the course of language acquisition. In other words, how is language acquisition possible? The developmental problem is how does language acquisition proceed (Gregg 1995)? Furthermore, 'the logical problem' is a linguistic phenomenon, while the developmental problem is a psycholinguistic phenomenon (Felix 1984). Pinker (1984) refers to the logical problem as involving linguistic principles and the developmental problem as involving learning principles. The linguistic principles include knowledge of semantic and syntactic correspondence, lexical and functional categories and the X- bar principles, and the learning principles include mechanisms designed to acquire target language structure, lexical entries, and morphological lexical alternation.

What are the relationships of the linguistic and learning principles with the POA? POA claims that L1 and L2 learners associate verbal morphemes such as '-s', '-ing', and PAST forms with the type of inherent aspect (or aspectual predicates) including stative, activity, achievement, and accomplishment with target tense being neglected at

the early stages, while the learners at later stages of acquisition of tense and aspect use verbal morphemes to mark correct target tense forms. What are the linguistic principles that the learners employ to mark verbs? One may suggest the linguistic principles include the semantic and syntactic correspondence of inherent aspect and tense. The learning principles deal with how the language learners associate verbal morphemes with aspectual verbs at early stages and how verbal morphemes mark correct target tense forms at later stages[3]. This chapter will focus on how tense and aspect are semantically interpreted and syntactically instantiated and how they are realized in English and Persian, which corresponds to the linguistic principle of tense and aspect. Each section is further organized based on Question and Research Hypotheses. Chapter 5 section 5.12 will return to the learning principles of the acquisition of tense and aspect based on the present study.

2.1 Inherent aspect

2.1.1 Semantic view of inherent aspect

Aspect usually refers to the organization with respect to time independent of any time frame, of an event or a situation represented by some linguistic expression such as a verb or verb phrase (Comrie 1976, Smith 1991). Vendler (1967) proposed a four-way classification of inherent aspect: stative, activity, achievement, and accomplishment. Examples from his four categories are shown below:

[3] The present study investigates the role of inherent aspect in the acquisition of verbal morphemes across the low-, mid-, and high-level groups (i.e., the STAGES of language development). Thus, Chomsky's idealisation of "instantaneous acquisition" does not account for the present data.

Table 1: Types of aspects:

states	activities	accomplishments	achievements
know	run	paint a picture	recognize
believe	walk	draw a circle	die
desire	swim	make a chair	find
love	push a cart	recover from illness	reach

The root of this classification dates back to Aristotle (Dowty 1979), and was elaborated on by philosophers such as Ryle (1949) and Kenny (1963). Later Dowty (1979) and Mourelatos (1981) developed the classification schema further.

2.1.1.1 Statives

Kenny noted that certain verbs did not occur in the progressive; thus we may say 'he is looking at Mary', but '*he is seeing Mary' is not acceptable. Vendler's (1967) formal definition of a state held it would be true at 'any instant between t1 (*time 1* as onset of state) and t2 (*time 2* as a new state)' (p. 34). This definition requires that every point within a state be identical to every other point and that any part of a state be identical to the whole thing. Therefore, we may characterize states as having no structure that differentiates any part of them from any other part. Therefore, states have duration, but are without a well-defined endpoint. We expect them to be homogenous throughout a time span and this may be tested by compatibility with the adverbial time 'for':

(5) She ***loved***[4] him for years

Furthermore, states have no endpoint or final conclusion (i.e. *time 2*). This can be tested by observing stative strangeness with temporal phrases that focus on the end of an interval, such as 'take [an hour] to' or adverbial phrases such as 'in [an hour]'. The following sentences are ungrammatical in English as well as in Persian:

(6) a. *It took an hour to ***belong*** to him.

b. *She ***loved*** him in an hour.

In Persian, most verbs are expressed as compound verbs. All simple and compound verbs that end in '*budan*' 'be' (e.g. *xoshahl budan* 'to be happy' *bimar budan* 'be ill') and '*dashtan*' 'have', e.g. *eteghad dashtan* 'to believe', *dust dashtan* 'to like') are stative verbs. Stative verbs without '*budan*' 'be' and '*dashtan*' 'have' are expressed by the imperfective prefix *mi-* as in (7a). The prefix *mi-* does not just mark stative verbs, other aspectual non-stative verbs can be expressed by the imperfective morpheme *mi-*. However, in Persian only stative verbs with the prefix *mi-* are incompatible with the progressive auxiliary '*dashtan*' 'have' (e.g. **daram midanam* *'I'm knowing'), whereas non-stative verbs with the imperfective *mi-* are compatible with the progressive auxiliary as in (8a). Furthermore, the prefix *mi-* with stative verbs is an obligatory morpheme, whereas the morpheme *mi-* with non-stative verbs is a optional morpheme. In other words, non-stative verbs with this morpheme are in progressive form and without this morpheme are perfective (cf. 8a-b), while statives

[4] In this study, verbs in all examples are bolded and italicized.

with the state prefix *mi-* are imperfective (but not progressive form) and without this prefix are impossible (cf. 7a-b):

(7) a. (man) a'rabi mi- dan- am
I Arabic impf know-1sg
'I know Arabic'

b. *(man) arabi dan-am
I Arabic know-1sg
'I know Arabic'

(8) a. (man) dasht-am mi david-am
I had-1sg impf ran-1sg
'I was running'

b. (man) david-am (non-stative)
I ran-1sg
'I ran'

Moreover, the prefix stative verb *mi-* represents a Persian inherent aspectual marker, while the morpheme non-stative verb *mi-* represents either a grammatical aspectual marker (cf. section 2.4 for the difference between inherent and grammatical aspect) or a tense marker such as in the sentences in 9 and 10 below (cf. section 2.3 for the distinction between inherent aspect and tense).

(9) a. (man) hala arabi mi dan-am
I now arabic impef know -1sg
'I know Arabic now'

b. (man) sale gozashteh arabi mi danst-am
I year last arabic impf knew-1sg
'I knew Arabic last year'

(10) a. (man) hala football bazi mi kon-am
I now football play impf make-1sg
'I am playing football'

b. (man) sale gozashteh football bazi kar -d -am
I year last football play made-perf-1sg
'I played football last year'

Sentences 9a-b with stative verbs use the prefix *mi-* with both present and past tenses while sentences 10a-b with non-stative verbs use the morpheme *mi-* with present tense but without the prefix with past tense. To sum up, the prefix *mi-* with non-stative verbs is either a tense or grammatical aspect marker, whereas the prefix *mi-* with statives is an inherent aspectual marker.

Superficially viewed, my prediction for the L2 acquisition of English is that the lower level Persian learners will associate the stative verbs (marked with the imperfective prefix *mi-*) with the English imperfective form, i.e., '-ing', while the higher level learners will no longer associate the progressive '-ing' form with English stative verbs, because English stative verbs are not compatible with the imperfective[5] form '-ing'. The question that arises is why the lower level learners would transfer their L1 imperfective form into the target language, while the higher level learners would not? The reason would be that lower level learners have not received much input yet and would rely L1-language. However, the transfer of aspectual markers has to be compatible with the universal aspectual entailment of stative aspect if POA is involved. In English, the attachment of the imperfective marker '-ing' gives progressive interpretation to verbs, thus the English stative verbs are not compatible

[5] There exist some English marked stative verbs which are compatible with the imperfective '-ing' form such as *enjoying* and *looking well*. The English unmarked stative verbs such as *know, believe,* and *see* are incompatible with the '-ing' form, while all Persian stative verbs without '*budan*' 'be' and '*dashtan*' 'have' (such as 'know' and 'desire') are compatible with the imperfective aspectual marker 'mi-'.

with the imperfective marker '-ing'. However, in Persian the use of the imperfective stative marker *mi-* does not give progressive interpretation to stative verbs. Therefore, the use of the imperfective marker '-ing' with stative verbs in English violates a universal entailment of stative verbs. The expectation is actually that even the lower level learners will not use the English imperfective marker with stative verbs. Thus, the first question and research hypothesis is as follows:

Question 1

Do lower level learners transfer the imperfective prefix *mi-* with Persian stative verbs using its English counterpart suffix '-ing' while higher level groups do not?

Research Hypothesis 1

Persian learners of English will not transfer the imperfective prefix with Persian stative verbs using the English counter-part imperfective suffix '-ing' even at lower levels of English proficiency, because the English imperfective '-ing' is not compatible with a universal entailment of stative verbs.

2.1.1.2 Activities

Activities are homogenous like states, but different in that they have a structure composed of successive stages. A process or activity has no goal or natural final point. As there is no difference in kind between a proper part which defines the activity and the entire interval during which the activity is said to be happening (the event structure

is homogenous), an entailment pattern holds for the imperfective viewpoint in both English and Persian:

(11) John is running -----**entails** ---→John has already run.

Since activity verbs or predicates have *time 1* (onset time) without *time 2* (end-point) like statives (see example 5), they are compatible with the process adverbial 'for', while they are not compatible with the 'end-point' adverbial 'in':

(12) a. (man) baraye yek saat shena kard-am.
I for an hour swim did-1sg
'I swam for an hour.'

b. *(man) dar yek saat shena kard-am.
I in an hour swim did-1sg
'I swam in an hour.'

2.1.1.3 Achievements and accomplishments

Kenny (1963) identified only three aspectual classes: achievements, activities and states. Vendler (1967:102) added an additional fourth category, accomplishments. Vendler's justification for introducing this category was to draw a distinction between activities which were unbounded, and activities which were brought to a conclusion or endpoint (accomplishment):

(13) a. John is singing a song.

b. John is singing.

Thus sentence 13a has an endpoint which has to be reached if the action is to be what it is claimed to be while 13b has no endpoint. In other words, for sentence 13a, it is correct to say 'John has not sung the song', i.e. finished singing it but for sentence 13b, one can say 'John has sung'. Vendler argued that the 'endpoint' of the activity has to be part of the definition of an accomplishment.

An interesting discovery was that duration expressed by the 'for-adverbial' appears to be incompatible with the concept of a definite or endpoint of an event that is realized by its own bound (Verkuyl 1993). Thus the definite temporal unit of accomplishments and achievements renders them incompatible with 'for-adverbial' phrases, while they are compatible with 'in-adverbial' phrases:

(14) a. *He wrote the letter for an hour.

b. *He died for a year.

(15) a. He wrote the letter in an hour.

b. He died in an hour.

Another reason that Vendler (1967) introduced the fourth aspectual inherent aspect, accomplishment was also to distinguish accomplishments from achievements. He described this distinction in the manner below:

> When I say it took me an hour to write a letter (which is an accomplishment), I imply that the writing of that letter went on during that hour. This is not the case with achievements (such as reach the summit).
>
> (Vendler 1967:104).

Vendler's (1967) definition between the two situation types brings to mind the entailment patterns first noted by Kenny (1963, cited by Dowty, 1976:59):

(16) a. If O is an accomplishment verb, then x Oed entails x was Oing during y time.

b. If O is an achievement verb, then x Oed in y time does not entail x was Oing during y time.

Examples:

(17) John wrote a letter in two minutes.

(18) Mary noticed the painting in two minutes.

'John wrote the letter' over the duration of the interval. But Mary was not 'noticing' over the same period. If we consider two time points t1 and t2, in which t1 indicates the onset of an activity and t2 shows the telicity of an activity or the new state, accomplishments require a duration that start with t1 and end with t2, but with achievements t1 is not part of a process that ends with t2 as a new state.

The question that arises is how one can distinguish between accomplishment and achievement aspects in English. Both accomplishment and achievement are compatible with the telic adverbial 'in' as in sentences 17 and 18, while they are not compatible with atelic adverbial 'for' as in sentences 15a and 15b. It is difficult to distinguish between achievement and accomplishment predicates in English. However, it was mentioned that achievement verbs just require *time 2* (or final conclusion), while accomplishment verbs require both *time 1* and *time 2*, thus:

(19) X will achievement in Y time entails X will achievement after Y time

(20) X will accomplishment in Y time does not entail X will accomplishment after Y time

To distinguish between the type of aspect in sentences 17 and 18, we can change them into the future tense to see whether they accept the entailment test (19) or (20):

(21) John will write a letter in two minutes.

(22) Mary will notice the painting in two minutes.

Sentence 21 does not entail that 'John will write a letter **after** two minutes', while sentence 22 does entail that 'Mary will notice the painting **after** two minutes'. The predicate 'write a letter' is an accomplishment predicate, while the predicate 'notice the painting' is an achievement predicate, because the former entails that 'writing a letter' will be continuing the whole two minutes, which requires both *time 1* and *time 2*, while the latter entails that 'noticing the painting' will happen after two minutes, which requires *time 2*. In Persian, the distinction between achievement and accomplishment predicates is much more straightforward than in English. I will discuss the distinction between achievement and accomplishment predicates in Persian in section 2.1.1.5.

To sum up, the temporal properties of the four-way classification of the inherent semantics of verbs or predicates following Andersen (1991) are punctuality, telicity, and dynamicity. In other words, all verbs can be classified into one of the four aspectual categories (i.e. achievement, accomplishment, activity, and stative) based on three universal aspectual values: (1) [punctual], (2) [telic], and (3) [dynamic]. Punctual occurrence, i.e. achievements – that which take place instantaneously, and is reducible

to a single point in time (i.e. *time 2*). Telic event, i.e. accomplishment - that which has some duration, but has a single clear end point (i.e. times 1 and 2). Activity – that which has duration, but without a clear end point (i.e. *time 1*). Stative – that which has no dynamics, and continues without applying additional effort/energy (i.e. neither *time 1* nor *time 2*). Therefore, accomplishment and achievement are both telic, but only achievement is punctual. Stative and activity are both atelic, but only activity is dynamic. Table 2, adopted from Andersen (1991), shows how these features map onto the four categories.

Table 2 Semantic features for the four categories of inherent lexical aspect (Andersen 1991)

	Stative	Activity	Achievement	Accomplishment
Punctual	–	–	+	–
Telic	–	–	+	+
Dynamic	–	+	+	+

2.1.1.4 Telic and atelic events in Persian

Atelic events are homogenous, without a natural end point, whereas telic events have a natural final conclusion. The former includes activities and statives while the latter includes achievements and accomplishments. Accomplishment aspect

involves an activity aspect with an 'incremental theme' (Dowty 1991). The incremental theme includes a direct object or a goal, which measures out an action described by an activity verb, as exemplified in the following sentences:

(23) a. John ate at the restaurant yesterday.

b. John ate a sandwich at the restaurant yesterday.

(24) a. John ran yesterday.

b. John ran to the store yesterday.

The predicates in sentences 23a and 24a are activity aspects, while the predicates in sentences 23b and 24b are accomplishment aspects. The direct object 'a sandwich' measures out the action described by the activity verb 'eat' as in sentence 23a and changes the activity aspect into an accomplishment aspect as in sentence 23b. The prepositional phrase ('to the store') or goal also measures out the action described by the activity verb 'ran' as in sentence 24a and changes the activity aspect into an accomplishment aspect in sentence 24b.

In Persian, the form of direct object determines whether a predicate is a telic event or an atelic event (Ghomeshi and Massam 1994). In Persian, direct object markers can appear in one of four ways. The predicates with the direct object marker '-ra' indicate that the NP is definite and referential[6].

[6] All objects that are inherently definite, such as proper names (e.g. 'John-ra'), personal and demonstrative pronouns appear with this marker; however, this marker does not appear on subjects or objects of prepositions.

(25) a. (man) livan-ra sheka'st-am
I glass-def broke-1sg
'I broke the glass'

b. (man) ketab-ra neve'sht-am
I book-def wrote-1sg
'I wrote the book'

In the sentences in 26 below, the object NPs appear with what has been called "the indefinite enclitic '*-I*' ". The indefinite marker indicates that the NP is indefinite but referential.

(26) a. (man) livan-i sheka'st-am
I glass-indef broke-1sg
'I broke a glass'

b. (man) ketab-i neve'sht-am
I book-indef wrote-1sg
'I wrote a book'

An NP with both morphemes: '-i' and '-ra' indicates that it is construed as indefinite but specific[7] and referential.

(27) a. (man) livan-i -ra sheka'st-am
I glass-indef -def broke-1sg
'I broke a (specific) glass'

[7] We need to clarify the differences among the specific, indefinite, and definite NPs. Karimi (1990) states that specific, definite, or indefinite noun phrases have one semantic feature in common: they all denote a specific individual. The difference between the definite NPs and specific indefinite NPs is that the former are supposed to be known to the hearer, while the latter are not. The fact is that every language has either a definite or a specific marker, but not both (e.g., Persian, Turkish, Albanian, etc., have a specific marker, whereas English, German, Ferench, etc., have a definite article) indicates that English lacks a specific indefinite marker as in 27.

b. (man) ketab-i -ra neve'sht-am
I book-indef def wrote-1sg
'I wrote a (specific) book'

The fourth type of NP found in Persian transitive predicates does not have any of the above NP markers (or '-ra' and '-i'). This type of bare NP is non-referential and forms a unit with the verb. This fact is clear from stress placement. In the first three types of NPs stress is placed on the last syllable of the verb stem ([ketab-i-ra **neve'**sht-am]) but when a bare noun appears before a verb this syllable does not receive any stress; it shifts to the bare noun instead ([**ke'**tab nevesht-am]).

(28) a. (man) ke'tab nevesht-am
I book wrote-1sg
'I was book writing'

The telic accomplishment in 25b-27b is shifted into atelic activity in the sentence 28. The fact is that there is a strong distinction between the fourth type of NP and the first three types that is aspectually identified. The distinction is semantically and syntactically realized. From the semantic point of view, the fourth type of NP does not bound or measure out the action described by the accomplishment verb, whereas the first three types of NP measure out the action described by the verb.

Adverbial modifiers are used as diagnostic tests (proposed by Vendler 1967 and Dowty 1979) to distinguish among the above NPs. Durative adverbials or atelic adverbials (e.g. for an hour) are compatible with predicates which do not have an end-point (i.e. activities and statives) whereas telic adverbials (e.g. in an hour) are compatible with predicates which do have an end-point (or accomplishment and achievement). In Persian, atelic adverbials with accomplishments are acceptable only

with the fourth type of NP and telic adverbial with telic events including both accomplishment and achievement aspects make sense only with the first three types of NPs.

(29) a. (man) dar yek mah ketab-ra neve'sht-am
I in a month book-def wrote-1sg
'I wrote the book in a month'

b. *(man) baraye yek mah ketab-ra neve'sht-am
I for a month book-def wrote-1sg
'I wrote the book for a month'

(30) a. *(man) dar yek mah keta'b nevesht -am
I in a month book wrote -1sg
'I was book-writing in a month'

b. (man) baraye yek mah keta'b nevesht -am
I for a month book wrote -1sg
'I was book writing for a month'

The direct object NP of the accomplishment predicate in the sentences in 29 appears with the definite marker '-ra'. Therefore, it can measure out the verb and it is compatible with telic adverbial as in (29a), whereas it is not compatible with an atelic adverbial such as sentence (29b). In the sentences in 30, however, the NP appears without any noun marker.(i.e. the fourth type of NP), therefore it is compatible with an atelic adverbial (sentence 30b) and it is incompatible with a telic adverbial (sentence 30a).

However when we look at transitive achievements without the direct object markers '-ra', '-I', and 'I-ra', we find they do not shift into atelic activity unlike accomplishments. Achievements both with (e.g. 31c) and without direct object markers

(e.g. 31d) are incompatible with atelic adverbials but still compatible with telic adverbials (e.g. 31a and 31b):

(31) a. (man) dar yek daghighah livan-ra sheka'st-am
I in a minute glass-def broke-1sg
'I broke the glass in a minute.'

b. (man) dar yek daghighah li'van shekast-am
I in a minute glass broke-1sg
'I was glass breaking in a minute.'

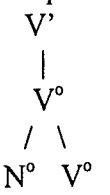
c. *(man) baraye yek daghighah livan-ra sheka'st-am
I for a minute glass-def broke-1sg
'I broke the glass for a minute.'

d. *(man) baraye yek daghighah li'van shekast-am
I for a minute glass broke-1sg
'I was glass breaking for a minute.'

The distinction between the fourth type and the first three types of Persian NPs is also syntactically realized. In the fourth type of NP (accomplishments without NP markers), the NP is not aspectually a measurer and forms a unit with accomplishment verbs (see section 2.2.2). In other words, the transitive accomplishment demotes or decreases to an intransitive verb. The nouns which incorporates with the accomplishment verb to form a unit is crucially an N^{o}+ V^{o}, following Sproat (1985) that referentiality is a matter of phrases rather than heads; i.e. we can propose that N^{o} is not referential. In other words, N^{o} is a sister to V^{o} under V'. Therefore, such NPs form transitive telic verbs consisting of both accomplishment and achievement verbs (Ghomeshi and Massam 1994):

(32) Telic aspect

Atelic Aspect



(Ghomeshi and Massam 1994: 190)

Through the absence of direct object markers, accomplishments in Persian can be switched to activity, whereas achievements cannot. While there are a few compounds in English for which N + V forms a unit (e.g. food shopping), in Persian accomplishments can be shifted into atelic events.

The second hypothesis for Persian learners of English is as follows:

Question 2

Do Persian learners of English switch accomplishments to activities at lower levels? In this case, do they associate accomplishments with the aspect marking(s) that they affiliate activities with? Do higher level learners transfer accomplishments into activities?

Research hypothesis 2

Persian learners of English will switch accomplishments to activities at lower levels. In this case, they will associate accomplishments with the aspect marking(s) that they affiliate activities with. Higher level learners will not transfer accomplishments to activities.

Although it was shown that accomplishments are difficult to distinguish in English (see section 2.1.1.3), nevertheless, the present study classifies lexical aspects into four categories of state, activity, achievement, and accomplishment. There are several reasons behind this 4-way classification. Firstly, accomplishments are generally grouped as a subpart of achievements; that is, they are telic. Thus, we have not ruled out the theory of aspect in which both accomplishment and achievement are [+telic]. Secondly, as was mentioned, in Persian accomplishment verbs without direct object markers are compatible with atelic adverbials while transitive achievement verbs are not compatible with atelic adverbials. Thus, while English does not show this distinction, accomplishment verbs are distinguished from transitive achievement verbs in Persian. Therefore, we can examine the role of L1 aspect transfer. Thirdly, by separating achievements from accomplishments, we can see whether their role varies in the L2 acquisition of tense and aspect. Finally as far as I can see, most previous studies have classified lexical aspects into four categories. The results of the present study can be thus compared and contrasted with previous SLA studies. So far, I have discussed the semantic interpretation of inherent aspect and its realizations in English and Persian. In the next section, I will discuss how the semantic aspectual values including [punctual], [telic], and [dynamic], which form four aspectual categories (i.e. stative, activity, achievement, and accomplishment), are syntactically instantiated within X-bar theory.

2.1.2 A syntactic view of the semantics of inherent aspect

2.1.2.1 The interface between the lexicon and syntax

The main question about the syntax-lexical semantic interface is whether there exists an association between lexical properties of predicates and the syntactic structure in which they can appear. Why should such a correlation exist at all? One good reason is that a strong correlation between meaning and structure might explain the rapidity of language acquisition: language learners need not learn syntactic structures of verbs on an item-by-item basis, but rather, make generalizations on the basis of a regular correlation. The syntax-lexicon interface can be described according to several different approaches.

2.1.2.1.1 Lexical-entry driven approaches vs. Predicate-based approaches

Lexical-entry driven approaches assume that the syntax of verbs is projected from their lexical entry, and is determined by this. Therefore, all information such as thematic and aspectual information is assigned by projecting the syntax of the verb (e.g. Baker's 1988 UTAH and Chomsky's 1986 Canonical Structure). However, a predicate-based approach assumes that part of the interpretation of the clause depends on the syntax of the whole clause rather than lexical entries (Borer 1994; van Hout 1996).

2.1.2.1.2 Thematic-based approaches vs. Event structure-based approaches

In thematically based approaches, NP arguments are checked by being assigned a thematic role such as Agent, Causer, Experimenter, Theme, etc. by the verb. Approaches within Government and Binding (GB) belong to this type. In event structure-based approaches, the lexical information available at the interface is the event structure of the verb (Tenny 1992). Tenny (1992) introduced the Aspectual Interface Hypothesis (AIH) as follows:

(33) Aspectual Interface Hypothesis:

> The mapping between thematic structure and syntactic argument structure is governed by aspectual properties. A universal aspectual structure associated with internal (direct), external and oblique argument in syntactic structure constrains the kind of event participants that can occupy these positions. Only the aspectual part of thematic structure is visible to the syntax. (Tenny 1992:2)

Based on the AIH, aspectual properties of verbs determine the mapping of arguments onto the syntax. Arguments that measure out the event that the verbs describe, i.e. measurers, appear in the direct object position. A measurer is an argument that undergoes some change described by the verb. In the proposition "John built a house", a house is a measurer and undergoes some change of state: when it is half way built, the event has proceeded half way through. When it is completely built, the event is terminated. As was mentioned earlier these types of events are called telic events. Events that have no measurers are not bounded in time (atelic events). In the proposition " John ran" there is no argument that undergoes a change that measures out the event.

To sum up, four approaches of the syntax-lexicon interface have been introduced. Here we need to choose an approach capable of handling the present data. Since the study of the acquisition of tense and aspect deals with aspectual predicates and event types of aspectual categories such as telic or atelic events, I justify in what follows my choice of a predicate-based account.

Arad (1996), McClure (1995) and van Hout (1996) argue in favor of both Borer's predicate and event-based approaches (cf. approaches 2.2.1.2 and 2.2.1.4). Arad (1996) introduces her model in this way:

> [I] claim that syntactic structure of arguments is not determined exclusively by the lexicon. Instead of a deterministic, uni-directional mapping from the lexicon to the syntax, I suggest a bi-directional view of the interface, in which both the syntax and the lexicon constrain the association of possible interpretations with possible structural positions. (P: 217-218)

This thesis aims to investigate POA hypothesis, that both L1 and L2 learners use verbal morphemes to encode aspectual events with tense distinctions being neglected at early stages, and verbal morphemes marking correct target tense forms at later stages. Therefore, the model should be based on an 'event and predicate-base approach' to include both aspectual events and aspectual verb phrases (or predicates). Furthermore, because the present study investigates the acquisition of tense and aspect across the low, mid, and high level learners, a syntactic model is needed which distinguishes between Aspectual Phrase (here aspectual projection) and Tense Phrase (here IP), which is the topic of the next section.

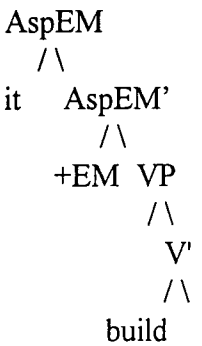
2.2.1 Projection of arguments in English

In what follows, I follow a model of the interface, which is based on the model proposed by Borer (1994). Borer was the first to suggest that arguments have no thematic labels, but rather, are interpreted semantically in specifiers of aspectual projections. There exist two aspectual projections: (1) Aspectual Projection of Measurer (AspEM) and (2) Aspectual Projection of Originator (AspOR). AspEM is assigned to telic events (+EM) including achievement and accomplishment, while AspOR is assigned to atelic events (+OR), i.e. activity. However, free aspectual values, i.e. (-EM) and (-OR) are assigned to non-event aspect, i.e. stative. This account of aspect is in agreement with the Minimalist Program in which a set of elements are selected from the lexicon which is the starting point of the structure building process (Chomsky 1995; Cook and Newson 1996). Furthermore, as Arad (1996) points out, arguments are base-generated at the specifiers of AspEM and AspOR rather than moving out of the VP into them. The assumption is that arguments are base-generated in the specifiers of aspectual projections, where they are assigned aspectual interpretation. When a node is specified as [+EM], the argument that is base-generated in its Spec is interpreted as the measurer of the event described by the verb, and the predicate is given a telic interpretation. 'Theme' is a label associated with the argument in Spec of AspEM (the measurer of the event). Telicity is achieved only when an argument, which is base-generated in spec, AspEM[8] is specified. That is, when the argument, which is base-generated in Spec of AspEM, combines with a telic verb, the argument is interpreted as measurer of the event described by the verb, and

[8] In the following trees, I have borrowed aspectual measurer (i.e. +EM) and aspectual originator (+OR) terms from Tenny (1992) and Arad (1996).

the predicate is given a telic interpretation. Since this model is bi-directional mapping from the lexicon, both the syntactic structure of arguments and the aspectual information of the verb constrain the aspectual interpretation of a predicate[9]. In order to achieve telic interpretation, there should be one argument that is base-generated and specified in Spec of AspEM. Secondly, aspectual information constrains the syntactic structure in which the verb appears (if we know that a verb such as 'die' is a telic verb, we can rule out that its argument has to be base-generated in Spec of AspOR). For example, in the proposition 'he built it', the telic predicate 'build it' is shown below:

(34) Aspectual Projection of Telic event



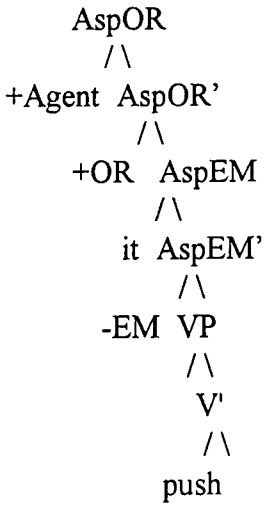
The assumption is that the verb NP complement is base-generated in Spec of AspEM where the accusative Case 'it' is assigned.

The second node is AspOR (for originator). The argument that is base-generated in Spec of AspOR is interpreted as the originator of the event, and the event therefore has a point of beginning in time (i.e. +OR). An 'Agent' is just a convenient label for the argument that is in Spec of AspOR (an originator of an event). An atelic

[9] Arad (1996), Borer (1994), and McClure (1995) have the same position that arguments have no thematic role in themselves; rather the roles are "aspectually determined" when the arguments occur in specifiers of aspectual projections. However, Arad claims that arguments do not move out of VP to the specifiers of aspectual projections. In other words, arguments are base-generated in the Spec of aspectual projection, whereas Borer and McClure claim that arguments move out VP to the specifiers of aspectual projections. In the present study, I have followed Arad's model.

event is achieved only when an argument is base-generated in Spec of AspOR. Then, in the proposition 'She pushed it', the atelic predicate 'push it' is shown below:

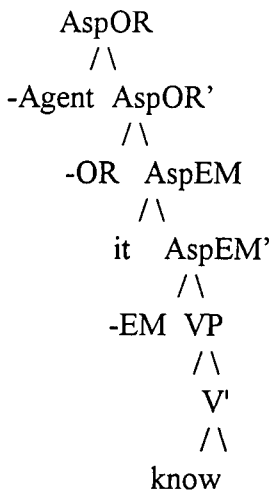
(35) Aspectual Projection of atelic event



In the tree 35, the argument 'it' that is base-generated at AspEM where it is assigned the accusative case 'it' is not specified. Therefore, the predicate is interpreted as non-telic (or atelic).

States have no aspectual content; that is, they are not specified as the aspectual projections of AspOR or AspEM. In fact, they have no 'Agent' and no 'Theme'. The subject of a stative predicate is not volitional or agentive and the object of a stative predicate is not a measurer. For example, in the proposition 'we know it', the stative predicate 'know it' is shown below:

(36) State



The assumption is that the subject NP is base-generated in Spec of AspOR but it is not specified. Therefore, it is not interpreted as agentive and it moves further to the Spec of IP to check its nominative Case (see the tree 41 below).

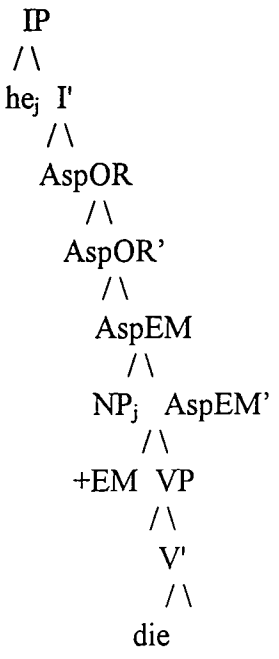
What type of lexical information is made visible to the syntax? The lexical information visible to the syntax contains the aspectual information and the number of arguments that a predicate can take. The aspectual information constrains the syntactic structures in which the verb appears. For example, if the verb is 'die', a telic verb, the argument has to be specified in AspEM. On the other hand, the syntactic structure of argument constrains the aspectual interpretations.

But how can the aspectual projections described above project arguments? For example, how can this model deal with unaccusatives and unergatives? Unaccusative verbs such as *die*, *break*, and *fall down* are telic events, while unergatives such as *walk*, *run*, and *smoke* are atelic events[10]. Unaccusative verbs describe an event with an endpoint (i.e. with +EM). In other words, with unaccusative verbs when the aspectual

[10] Levin & Rappaport-Hovav (1995) proposed Unaccusative Hypothesis claims that an intransitive verb or predicate whose subject NP is not an agent or an actor derives from an underlying (direct) object.

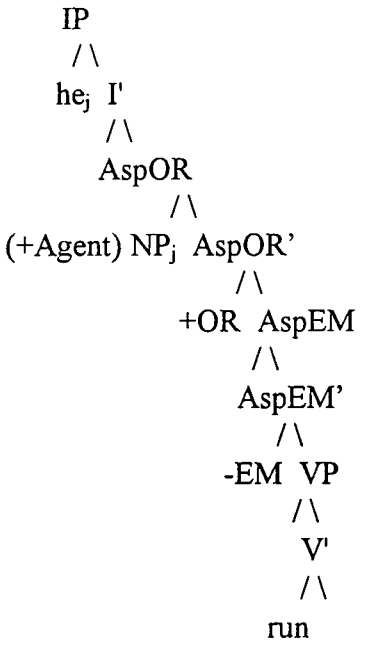
projection 'AspEM' is specified, a telic interpretation is assigned. Moreover, when there is one NP argument, no accusative Case is assigned and therefore the argument has to move further to Spec of IP to be assigned nominative Case. For example, the proposition 'he died' as an unaccusative proposition is shown below:

(37) Unaccusatives: Nominative Case assignment



Unergatives describe an action with an agent but without an endpoint (i.e. without AspEM). Therefore, when the aspectual projection AspOR is specified, an atelic interpretation is achieved (+OR). For example, the proposition 'he ran' as unergative is shown below:

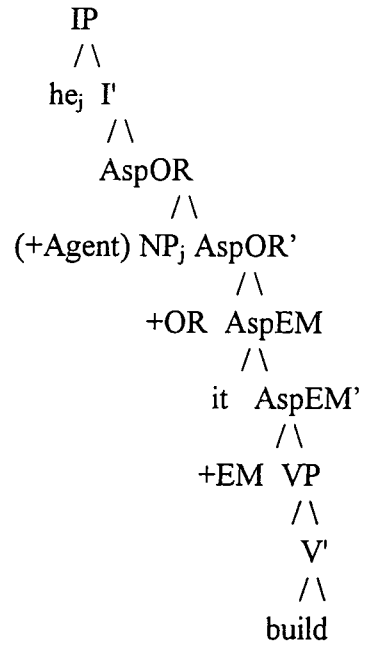
(38) Unergatives



Therefore, the difference between unaccusatives and unergatives is syntactically and semantically captured. From a syntactic point of view, the single NP argument of unaccusatives is generated at the same position where objects (i.e. in Spec of AspEM) are generated, while the single NP argument of unergatives is specified at the same position where agents (i.e. in Spec of AspOR) are assigned. The semantic difference is that unaccusatives are telic and non-agentive while unergatives are atelic and agentive.

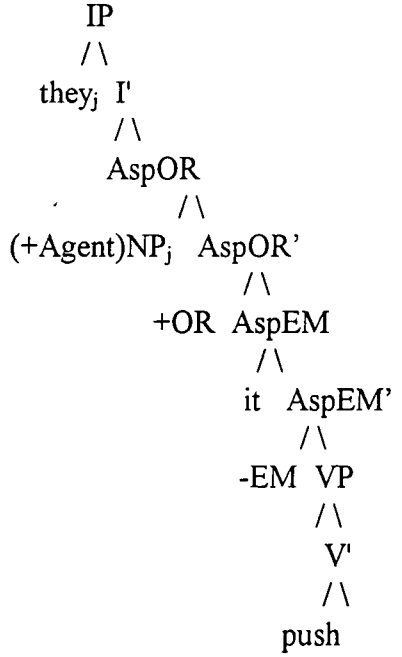
Transitive telic verbs such as *build* and *post as* accomplishment verbs and *win* and *steal* as achievement verbs base-generate their arguments in spec, AspEM as measurer, where accusative Case is checked and in spec, AspOR as agent. I assume that the NP raises to I to check the nominative Case. For example, the tree for the proposition 'He built it' is as follows:

(39)



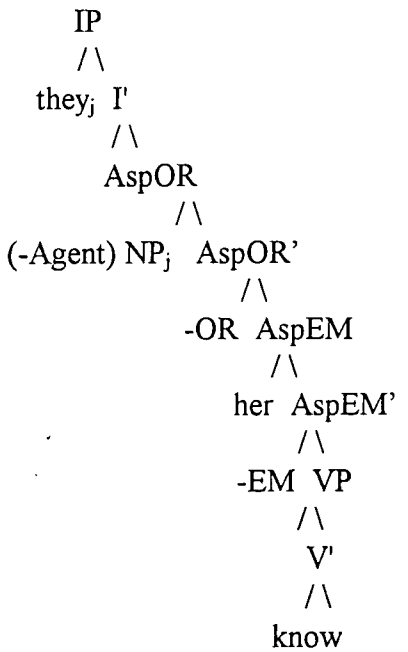
In atelic events of the transitive verbs such as *push* and *drive* the NP argument which is base-generated in aspect, AspEM (where accusative Case is checked) is not specified and is not measured out while the NP argument which is base-generated and specified in spec, AspOR is interpreted as agent. Then the NP raises to the Spec of IP to check nominative Case. For example, the tree for the proposition 'they pushed it' is as follows:

(40)



NPs arguments with transitive stative verbs such as *like* and *know* are not aspectually specified. That is, the arguments are base-generated at aspectual projections of AspEM and AspOR but the heads are not positively specified (i.e. they are -EM and -OR, respectively). The argument that is base-generated in Spec of AspEM, where accusative Case is checked does not measure out the stative verbs, thus, the node is not interpreted as telic. Moreover the subject NP argument that is base-generated in Spec of AspOR is not affected by the stative verb, thus, the argument is not interpreted as agent and the node not as atelic event. The assumption is that the NP argument that is base-generated in Spec of AspOR moves further to Spec of IP to check its nominative Case. The tree for the proposition ' they know her' is as follows:

(41)



To sum up, if an argument is not base-generated in Spec of AspEM, there is no way to achieve telic interpretation and if an argument is not base-generated in Spec of

AspOR, there is no way to achieve atelic interpretation. Furthermore, if an argument is based-generated in Spec of AspEM or in Spec of AspOR but its head is not specified (i.e., -EM or -OR), there is no way to achieve a non-event atelic interpretation (i.e. stative aspect). Although the lexical-entry thematic based approach specifies the different thematic roles that these predicates assign, the event-predicate based approach specifies the number of arguments and aspectual information of lexical entries (Arad 1996):

(42)

Build: [NP, NP, telic, agentive]

Die: [NP, telic, non-agentive]

Know: [NP, NP, atelic, non-agentive]

Push: [NP, NP,telic, agentive]

Run: [NP, atelic, agentive]

2.2.2 Projection of arguments in Persian

Persian is an SOV pro-drop language. Lazard (1992) refers to the subject agreement suffixes as **inflectional endings**. They are referred to as agreement suffixes here. The paradigm is presented below, with the colloquial versions given in parentheses.

Table 3 **Subject- verb agreement**

	singular	plural
1	-am	-im
2	-i	-id (-in)
3	Ø/-ad (-e)	-and (-an)

The person and number features of the subject are marked by verbal agreement. The third person singular forms differ depending on the tense of the verb. In the past tense the third person singular is null, while in the present tense it is realized as '-ad'.

Let us now look at how the subject gets nominative case in Persian. I suggest that the agreement affixes be checked by the argument that gets nominative Case at aspectual projections. Therefore, first the argument is base-generated in specifier of AspOR, where it is assigned an aspectual interpretation and then subject agreement must be checked and forces the verb to move further to Spec of I even if the subject is pro, to satisfy the requirement of the affix. This is in agreement with Chomsky's (1993) principle of 'Greed', where an element only moves to satisfy its own morphological properties and not because some other element needs its properties satisfied. An example of transitive sentence is given below. The subject of the sentence is shown in the parentheses to indicate that it is not usually present:

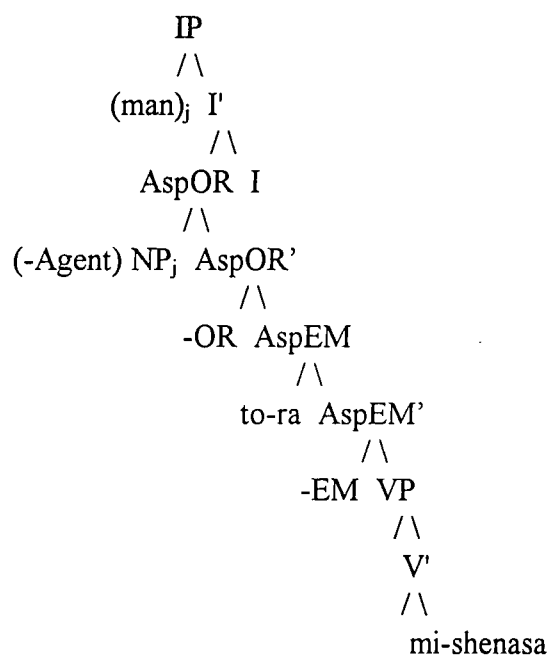
(43) (man) to-ra mi-shenasa-am

I you+ra impf know-1sg

'I know you.'

We thus have the following tree:

(44)



The verb 'saw' in the tree diagram (43) is a stative verb and the NP subject argument first of all is base-generated in aspect of AspOR but it is not specified, i.e. there is no [+OR], i.e. no agent and then it moves to IP to check nominative Case. The NP object argument is base-generated at Spec of AspEM but it is not measured out, i.e. [-EM] and gets the accusative Case marker 'ra'.

So far, we have discussed the semantic and syntactic realization of tense and aspect in English and Persian. In the next section, I will discuss the use of aspectual projection as an interface between the lexicon and syntax to account for the cross-linguistic variation in Case marking.

2.3 Cross-linguistic variation in Case marking

It was mentioned that the object NP argument is not specified in Spec of AspEM in both stative and activity predicates, namely, they are atelic (or –telic) while the object NP argument is specified in Spec of AspEM in both accomplishment and achievement predicates, namely, they are telic (or +telic). Arad (1996) claims that in telic predicates, the object NP argument is universally marked with accusative case, whereas in atelic (or –telic) ones, the object NP argument may be marked either by accusative, dative, ablative or genitive case, or by a preposition. Consider the following data on case marking:

(45):

English	Latin	Persian	Classical Greek	Hebrew
Help + acc	auxilior +dat	komak kardan +dat	boetheo +dat	azar + le (to)
Use + acc	utor + abl	estefadeh kardan +az(from)	xraomai +dat	hiStameS+be (at)
Trust +acc	fido + dat	e?temad kardan +dat	pistuo +dat	batax+be (at)
Fight + acc	pugno +dat	jangidan +ba (with)	palmemeo +dat	nilxam+be (at)
Rule +acc	dominor +dat	hokomat kardan+bar(upon)	arxo +gen	maSal+al (upon)
Obey +acc	pareo +dat	farmanravae kardan+az(from)	peithesthai +dat	ziyet +le (to)

Adapted from Arad (1996: 224)

The above predicates are atelic (i.e., stative or activity) and they are differently marked across languages. They are case-marked arbitrarily. In other words, they are language-dependent. However, the object NP argument is universally marked with accusative case in telic predicates:

(46):

English	Latin	Persian	Classical Greek	Hebrew
Build +acc	construo +acc	sakhtan +acc	oikodomeo +acc	bana +acc
Write +acc	scribo +acc	neveshtan +acc	grapho +acc	katav +acc
Murder +acc	occido +acc	beghtrasandan +acc	apokteino +acc	racax +acc
Eat +acc	edo +acc	khordan +acc	esthio +acc	axal +acc
Wash +acc	lavo +acc	shostan +acc	luo +acc	raxac +acc

Here we see that the aspectual projection model presented in this chapter could account for the cross-linguistic variation of Case marking. In the next section, I will discuss the distinction between tense and inherent aspect on the one hand and inherent aspect and grammatical aspect on the other hand. Since the present study investigates the role of inherent aspect on the acquisition of tense and aspect, one needs to study the effect of tense and grammatical aspect (e.g. perfective and imperfect markers) on inherent aspect.

2.4 Tense vs. Inherent Aspect

Aspect is generally distinguished from tense in that tense makes reference to a moment in time determined by the context in which the expression is used -- the 'present', for example, or the time at which the linguistic expression is uttered; aspect does not refer to such contextual information which locates the event in time, but to the internal time of the event (Comrie 1976, 1985). Events as they are expressed linguistically have temporal structure independent of reference -- this is what inherent lexical aspect refers to. Tense on the other hand, is indexical, i.e. it is through the context in which it is used. The following examples further illustrate the independence of tense and inherent aspect:

(47) a. John paints[11] a picture. (present tense, Accomplishment)

b. John has painted a picture. (present perfect, Accomplishment)

c. John painted a picture. (past tense, Accomplishment)

d. John had painted a picture. (past perfect, Accomplishment)

e. John will paint a picture. (future tense, Accomplishment)

f. John will have painted a picture. (future perfect, Accomplishment)

(48) a. John sleeps. (present tense, Activity)

b. John has slept. (present perfect, Activity)

c. John slept. (past tense, Activity)

[11] The use of present tense with non-stative verbs could render two interpretations: (1) habitual sense and (2) 'reportage' or 'sport commentator' sense. The former has stative interpretation, while the latter has a non-stative interpretation. The assumption is that the above verbs with present tense have a non-stative interpretation.

d. John had slept. (past perfect, Activity)

e. John will sleep. (future tense, Activity)

f. John will have slept. (future perfect, Activity)

In the sentences in 47, the tenses are all different; that is, there are six types of tenses but there is only one type of lexical aspect (i.e. 'paint a picture') which is an accomplishment aspect, whereas the sentences in 48 with the same tenses have an activity aspect. The form of tense and the type of inherent aspect are independent from each other.

English and Persian also have binary past/non-past tense systems. In English, the tense marker '-ed' marks past tense and non-past tenses such as present and future tenses are used without the tense marker '-ed'. In Persian, verb roots with a past tense marker such as '-t', '-d' or '-id' indicate past tense and without the past marker show non-past tenses such as present or future tense. In English, the suffix '-ed' (with past participle of regular verbs) or past participle of irregular verbs (such as '-en') and the auxiliary 'have' mark present, past, and future perfect tenses. In Persian, however, the past markers with the verb clitic *-h* and the auxiliary verb *budan* 'be' mark present and past perfect tenses.

2.5 Absolute and Relative Tenses

There are three points of time in Reichenbach's (1947) analysis of tense, i.e. Speech time (or time at which the sentence is uttered), Event time (or time the event

actually takes place) and Reference time (or an interval time relating speech time and event time in some tenses):

(49) John went (from Durham) to Newcastle in 30 minutes yesterday.

The S-time is the time of uttering the sentence, the E-time is the 30 minutes of the actual drive from Durham to Newcastle, and the R-time is 'yesterday'. The event time, i.e. 30 minutes, is included in reference time, i.e. 'yesterday'.

There are two kinds of 'universal' (as I term it) relations between the reference points of time: inclusion and precedence, the absolute tenses (i.e. present, past, and future tenses) where R-time includes E-time and the relative tenses (i.e. present, past, and future perfect tense), where E-time precedes R-time (Hatav 1993; Hinrichs 1986; Reichenbach 1947). These universal time relations also hold for English and Persian tense systems:

(50) a. John ate (yesterday) /was eating (when I came in.) R,E_____S

b. John eats /is eating (now) R,E,S

c. John will eat/will be eating tomorrow S_____R,E

In perfect constructions, however, the E-time precedes the R-time:

(51) a. John has eaten/been eating his food. E_____R,S

b. John had eaten/been eating his food. E_____R_____S

c. John will have eaten/been eating his food. S_____E_____R

However, there is no future perfect tense in Persian. Present perfect tense is usually used to refer to future perfect in English[12].

We now turn to prediction for Persian learners of English, based on the preceding discussion. Question and Research Hypothesis 3 is as follows:

Question 3

Do lower level learners use present perfect tense to refer to English future perfect tense while higher level use the correct target tense, i.e. future perfect tense?

Research Hypothesis 3

Persian learners of English will use present perfect to refer to English future perfect tense at lower levels of English proficiency.

2.6 Inherent Aspect vs Grammatical Aspect

Grammatical aspect is the way the speaker looks at the event or situation as a whole (i.e. complete or perfective) or looks at part of the situation (i.e. incomplete or imperfective) (Smith 1991). Different forms of grammatical aspects cannot change inherent lexical aspect:

[12] The use of present perfect in Persian to refer to the English future perfect tense is still in line with universal entailment of relative tense where E-time preceedes R-time.

(52) a. John paints a picture. (grammatical aspect = perfective, inherent aspect = accomplishment)

b. John is painting a picture. (grammatical aspect =imperfective, inherent aspect accomplishment)

c. John has painted a picture. (grammatical aspect = perfective, inherent aspect = accomplishment)

d. John has been painting a picture. (grammatical aspect =imperfective, inherent aspect = accomplishment)

e. John had painted a picture. (grammatical aspect = perfective, inherent aspect = accomplishment)

f. John had been painting a picture. John has been painting a picture. (grammatical aspect =imperfective, inherent aspect = accomplishment)

g. John will paint a picture. (grammatical aspect = perfective, inherent aspect = accomplishment)

h. John will be painting a picture. John has been painting a picture. (grammatical aspect =imperfective, inherent aspect = accomplishment)

i. John will have paint a picture. (grammatical aspect = perfective, inherent aspect = accomplishment)

j. John will have been painting a picture. John has been painting a picture. (grammatical aspect =imperfective, inherent aspect = accomplishment)

To summarize, we discussed the semantic and syntactic view of tense and aspect in English and Persian. From the semantic point of view, it was noted that all verbs can be classified into four aspectual categories by using three universal aspectual values: [punctual], [telic], and [dynamic]. Achievements are [+punctual] and [+telic], accomplishments are [-punctual] and [+telic], activities are [-telic] and [+dynamic], and statives are [-dynamic]. However, the realization of aspectual categories in English and Persian may differ. While Persian obligatorily must employ the imperfective stative

marker *mi-* to distinguish the contrast of stative, [-dynamic], (e.g. 7a) and non-stative, [+dynamic], (e.g. 8b), English uses perfective aspect to refer to stative (e.g. 5), [-dynamic]. Furthermore, in Persian the form of direct object determines whether a predicate is an accomplishment or activity (Ghomeshi and Massam 1994). The predicates with the direct object markers '*-ra*', '*-I*', or '*I-ra*' indicate that the NP direct object is definite, indefinite, or indefinite but specific and referential, respectively, whereas an NP without these NP direct object markers shows that the NP is non-referential and forms a unit with the verb. In Persian, NP direct object markers with activity verbs form accomplishment aspects, while NPs without direct object markers form activity aspects (see section 2.1.1.5). In addition to aspect systems in English and Persian, while English tense system obligatorily marks present, present perfect, past, past perfect, future, and future perfect tenses, Persian lacks future perfect. To refer to future perfect tense, Persian uses present perfect tense.

Regarding syntax, it was discussed that the interface between the lexicon and syntax involves aspectual projections, which are based on an event-predicate approach. It was proposed that the lexicon provides two kinds of information: the number of arguments and aspectual information. For instance, the only argument of intransitive telic verbs such as achievement verbs, [+punctual] and [+telic], is base-generated in Spec of AspEM, where accusative Case is checked and the argument is interpreted as a measurer, while the only argument of intransitive atelic verbs such as activity verbs, [-telic], is instantiated in the Spec of AspOR, where the argument is interpreted as an agent.

2.7 Semantic evidence of POA hypothesis: Questions and Research Hypotheses

An important part of this study is to test the Primacy of Aspect (POA) Hypothesis which claims verbal morphemes initially mark lexical aspect among lower-level learners before coming to mark tense among higher-level learners (Robison 1995 among others). In other words, the studies which have already been done for English indicate more or less that statives align with present form (i.e. '-s'), activities with progressive form (i.e. '-ing'), and telic events (i.e. achievement and accomplishment aspect) with past form (i.e. '-ed'), regardless of correct target tense form among lower level learners, while verbal morphemes are used as correct target tense markers among higher level learners.

The following additional hypotheses can be formulated:

Question 4a

Do lower level subjects use the present form to mark [-dynamic] stative aspect, with tense distinction being neglected, while higher level subjects and native English speakers (NES) as well associate statives in agreement with target tense?

Research Hypothesis 4a

Lower level learners will use the present form to mark [-dynamic] statives, with tense distinction being neglected, while higher level learners and NES as well will mark statives with correct tense forms.

Question 4b

Do lower level subjects mark [+dynamic] and [-telic] activities with progressive form regardless of correct target tense form, whereas higher levels and NES as well use correct target tense forms?

Research Hypothesis 4b

Lower level subjects will mark [+dynamic] and [-telic] activities with the progressive form with tense distinction being neglected, while higher levels and NES as well will apply correct target tense regardless of the type of aspect.

Question 4c

Do lower level learners mark [+punctual] and [+telic] achievements with PAST form whatever the target tense is, while higher levels and NES as well mark lexical aspect in accordance with correct target tense?

Research Hypothesis 4c

Lower level learners will mark [+punctual] and [+telic] achievements with PAST form ignoring correct target tense form whereas higher level and NES as well will mark achievements with correct target tense forms.

Question 4d

Do lower level subjects mark [-punctual] and [+telic] accomplishments with PAST form regardless of the type of target tense while higher level subjects and NES as well apply correct target tense forms?

Research 4d

Lower level learners will mark [-punctual] and [+telic] accomplishments with past form regardless of the type of target tense while higher level subjects and NES as well will apply correct target tense.

So far the Questions and Research Hypotheses of the semantics of aspect have been explained. In the following section, the syntactic evidence of aspect will be discussed.

2.8 Syntactic ramification of POA hypothesis: Questions and Research Hypotheses

The POA shows that there seems to be some evidence for the IP system for the subject-verb agreement of the present tense '-s' and the tense marker PAST in the early stages of language acquisition. For example, Shirai (1991) investigated the acquisition of verbal morphology by three American children acquiring English as an L1. The subjects' age range was from 1;6 to 4;10. The results supported the POA hypothesis (see above). He reported that while the children use verbal morphemes to mark inherent aspect (e.g. the biased association of achievement with past form '-ed'), his subjects' use of infinitive was frequently observed. I suggest that these associations of verbal forms which co-occur with the use of infinitive are semantically in accordance with the universal entailment of aspect and syntactically in accordance with the aspectual projections, rather than IP. That is to say, these verbal forms, which involve projections lower than the IP system, are checked by the aspectual projections, namely, by AspEM and AspOR. In addition, the aspectual projections including infinitives and

the biased association of verbal morphemes with inherent aspect (i.e. the biased use of '-s', '-ing', and PAST form with stative, activity, and telic verbs, respectively) are checked at aspectual projections, while the functional verbal elements including modals, negative sentences with auxiliaries, auxiliaries with correct target tense markers are checked at IP. To support the claim that the biased use of verbal morphemes with inherent aspect is an aspectual marker rather than a tense marker, the present data would also have to show that functional verbal elements are more in proportion to the verbal forms of the aspectual projections in higher and NES groups than lower level groups and vice versa. In other words, when the learners use the verbal forms of the aspectual projections selectively to mark universal aspectual values with tense distinction being neglected, there is no significant ramification of an IP system for lower-level learners. As soon as the biased association of inherent aspect and verb form decreases, modals, auxiliaries, tense markers, and sentential negations should significantly outnumber infinitives and verb forms without auxiliary (e.g. the use of the '-ing' form without the auxiliary 'be'). Below are Questions and Research Hypotheses regarding the syntactic evidence for the acquisition of tense and aspect:

Question 5a

Do lower level subjects use fewer IP-level verbal forms (in proportion to all verbal forms of aspectual projections) than higher and NES groups?

Research Hypothesis 5a

Lower level groups will use fewer IP-level verbal forms (in proportion to all verbal forms of aspectual projections) than higher and NES groups.

Question 5b

Do lower level learners use more verbal forms of aspectual projections (in proportion to all IP-level verbal forms) than higher and NES groups.

Research Hypothesis 5b

Lower level groups will use more verbal forms of aspectual projections (in proportion to all IP-level verbal forms) than higher and ENS groups.

The second part of this chapter (sections 2.7-2.8) presented the semantic and syntactic evidence of tense and aspect. Questions and Research Hypotheses were then stated to investigate the present data. In the next Chapter, I will review previous studies on the acquisition of tense and aspect in both L1 and L2 acquisition.

Chapter 3

UNIVERSAL GRAMMAR AND ACQUISITION OF TENSE AND ASPECT

3.0 Introduction

The relationship between UG and language acquisition has always been a crucial issue in current research, because we cannot possibly construct a theory of language acquisition without considering the role of what we are all genetically equipped with as children are (e.g. UG) (Chomsky 1981). One of the areas investigated for the relationship of UG and language acquisition is the acquisition of tense and aspect. It has been observed that both L1 and L2 learners in the early stages of acquiring verbal morphology use tense/aspect markers redundantly to mark inherent lexical aspect (Andersen 1989, 1991). The question that arises is what are the universal principles or values a language learner uses to mark verbal aspect? It was noted in Chapter 2 that all verbal aspect (stative, activity, achievement, and accomplishment) can be classified by three universal values: (1) [dynamic], (2) [punctual], and (3) [telic]. In all languages stative verbs are [-dynamic], activity verbs are [+dynamic] and [telic], achievement verbs are [+punctual] and [+telic], and accomplishment verbs are [-punctual] and [+telic]. It was also mentioned that these three semantic aspectual values are syntactically instantiated. The aspectual value [+punctual] and [+telic], achievement, is instantiated by the aspectual projection of measurer, where accusative

case is also checked. The aspectual values [+dynamic] and [-telic], activity, is instantiated by the aspectual projection of originator, where the nominative argument is interpreted as an agent. In the aspectual values [-punctual] and [+telic], accomplishment, the nominative argument is instantiated by the aspectual projection of originator, and the accusative argument is instantiated by the aspectual projection of measurer. Finally, in the aspectual value [-dynamic], stative aspect, the nominative and accusative arguments are not instantiated by the aspectual projections of measurer and originator, because they are not affected by the stative verb, thus, they are not interpreted as measurer or agent of an event.

This chapter is structured as follows. Section 3.1 presents studies on the L1 acquisition of tense and aspect. The review covers studies which are in favor and against POA Hypothesis. Section 3.2 presents studies on the L2 acquisition of tense and aspect. The last section will summarize the descriptive and explanatory hypotheses suggested for the L1 and L2 acquisition of tense and aspect.

3.1 Acquisition of tense and aspect in L1

Children who are exposed to a particular language come up with the complete grammar of that language. This procedure is known as the *creative aspect of language acquisition* (Chomsky 1965). This complete knowledge of L1 grammar occurs no matter what kind of input children get. For the last two decades a series of studies have indicated that children acquire verbal morphology by marking aspectual verbs based on their aspectual values with target tense distinction being neglected at the early stages, while they come up with correct target tense form at latter stages.

In this section, I will summarize the most important studies in the acquisition of tense and aspect, both in favor of and against POA. The discussion includes both descriptive and explanatory issues at each point. First of all the general descriptive claims of POA can be summarized following Andersen and Shirai (1995). But before that, I will discuss Bickerton's studies in creolization as a special case of L1 acquisition.

Bickerton (1981) looks at children of pidgin speakers who grew up in a community where they had little access to their masters' language and they learned pidgin from each other. Pidgin languages include lexical categories but lack grammatical markers such as perfective and imperfective markers. When the children of the pidgin speakers grew up in such community they created a new language from this pidgin. This new language is called a creole language. In the case of tense-aspect marking, the result is remarkably consistent across diverse creole languages: creole languages use the progressive marker with non-punctual aspect (or activity), and punctual aspect (achievement) is used without the aspectual marker progressive. In other words, a verb without the progressive aspectual marker is [+punctual] and [+telic], while a verb with the progressive aspectual marker is [-punctual] and [+dynamic]. How could pidgin children create such as punctual-nonpunctual distinction? Bickerton claims they can do that because the Punctual-Nonpunctual Distinction (PNPD) is innate. Furthermore, he argued that independent research on L1 acquisition provides further evidence that children follow universal aspectual values: State-Process Distinction (SPD) and PNPD. The SPD hypothesis claims that children do not attach progressive or non-punctual marker to stative verbs in initial stages of acquisition. The PNPD hypothesis states that children mark the distinction of a

punctual event [+punctual] and [+telic] vs. a nonpunctual event [-punctual] and [+dynamic] (see Chapter 5 section 5.9.2 for more detailed discussion of PNPD and SPD). What follows is a summary of the most important studies on the acquisition of tense and aspect as L1 acquisition.

> 1. Children first use past marking (e.g. English speaking children) to mark achievement aspect. In languages such as Chinese and Spanish the perfective and imperfective grammatical markers first emerge with achievement aspect. The perfective/imperfective grammatical aspects correspond to Bickerton's (1981) Punctual/Non-Punctual Distinctions in his (PNPD) discussion of pidgin-Creole languages, while the way he discusses in L1 acquisition studies cited by Bronckart and Sinclair (1973) and Antinucci and Miller (1976) roughly corresponds to PNPD.
>
> 2. In languages that encode the perfective/imperfective distinction perfective past appears earlier than imperfective past and imperfective past begins with stative and activity aspects and then it spreads to accomplishment and achievement aspects.
>
> 3. In languages that have progressive aspect, progressive aspect begins with activity verbs and then it extends to accomplishment and achievement verbs.
>
> 4. Progressive marking is not overextended to stative verbs. This corresponds to Bickerton's SPD hypothesis.
>
> (Andersen and Shirai 1995: 533)

The above results of the L1 acquisition of tense and aspect were based on various researches done by L1 researchers. I will discuss some of the most important studies on the acquisition of tense and aspect. In their study of the L1 acquisition by 74 French-speaking children ranging from 2;11 to 8;7 (years; month), Bronckart and Sinclair (1973) discussed the phenomenon that children primarily used present form for activity verbs like *naviguer* 'swim', whereas achievement verbs such as *sauter* 'jump' appeared in the perfective verb form, the *passé composé*. The subjects were divided into five age groups. They were asked to describe actions that the researchers

performed with toys (cars, dolls, and animals). The youngest group exclusively used the perfective form, i.e. the *passé compose* with telic verbs (achievement and accomplishment), while verbs with no end result , i.e. atelic verbs (activity and stative) remained in their present-tense form. The children in the two oldest groups, however, used correct verb forms irrespective of the type of aspectual verbs.

Antinucci and Miller (1976) observed a similar tendency in longitudinal studies of one English- and seven Italian-speaking children. The English subject's age range was from 1;9 to 2;2 and the Italian subjects' age range was from 1;6 to 2;6. The English subject used past tense inflection only for telic verbs. The Italian group also used past tense inflection in the past participle (passato prossimo); the initial 'past' inflections for activity and stative (i.e., both activity and stative verbs were [-telic]) verbs are in the imperfect tense.

Both Bronckart and Sinclair (1973), and Antinucci and Miller (1976) claimed that children do not have the concept of tense (i.e., the concept of temporal deixis) and they used verbal inflections to encode the semantic properties of events which are more relevant to them. In other words, their results are accounted for by referring to the children's cognitive limitations, which prevent them from marking verbs with the appropriate verb inflections. If Bronckart and Sinclair (1973) and Antinucci and Miller (1976) claim that children can not use correct target tense form because of their limitations, again the question is what criterion they employ to encode verb types. If the answer is that the children employ aspectual values, which are linguistic values, to mark verb types, linguistic universals could account for the children's early use of verbal morphology rather than cognitive limitations. Furthermore, if L2 learners who have instantiated their L1 tense forms and are cognitively mature employ the aspectual

values to mark verbs with correct tense being neglected at initial stages, this implies that cognition cannot be the factor which prohibits the L1 learners from marking verbs with correct target tense forms. But if one claims the learners employ their innate knowledge of aspectual values to encode the aspectual verbs at early stages, this can account for the data in both L1 and L2 acquisition.

Bickerton (1981) interpreted the studies by the cited authors as evidence for his Language Bioprogram Hypothesis. Based on his pidgin-Creole studies, Bickerton (1981) claimed that children are genetically equipped with the ability to make distinctions such as punctual versus nonpuctual and state versus process. To Bickerton, the data from the above two studies were good evidence of the punctual versus nonpunctual distinction the children make.

Bloom, Lifter, and Afitz (1980) studied the acquisition of verbal morphology by three English-speaking children, ranging from 1;9 to 2;6 using spontaneous longitudinal data. These results have been reinforced by non-native English speaking children as well, in studies of Portuguese (Simoes and Stoel-Gammon 1979), Greek (Stephany 1981), Hebrew (Berman 1985), Spanish (Jacobsen 1986), and Turkish (Aksu-Koc 1988). Bloom, et al. found that verbal inflections were distributed selectively among verbs according to their lexical aspect. Past form marked telic events, present form marked stative aspect, and imperfective or progressive inflections associated with atelic events[13]. The cited studies which support the view that the early use of inflections is constrained by lexical aspect rather than cognitive limitations was

[13] In their study, Bloom et al., however, did not distinguish between lexical and grammatical aspect, thus implying that the lexical and grammatical aspects play an important role in tense marking.

de-emphasized by both Bronckart and Sinclair (1973), and Antinucci and Miller (1976).

Shirai (1991) also investigated the acquisition of verbal morphology by three American children acquiring English as an L1. The subjects' age range was from 1;6 to 4;10. The results supported the POA hypothesis (see above). However, Shirai (1991) explains that the source of his data does not originate in children's cognitive limitations (e.g. Bronckart and Sinclair 1973, and Antinucci and Miller 1976) but rather a distributional bias found in the children's care-takers' speech addressed to them. If that is the case, the L1 acquisition of tense and aspect would 'apparently be reduced to an input phenomenon' (Rohde 1996:1118). The main idea in Shirai's account of the children's data is that language acquisition can be facilitated by the caretakers' simplified input. However, providing children with simplified input does not explain how young children come to know all sorts of target tense forms in their language.

The above-cited L1 studies support the POA hypothesis, that the type of lexical aspect influences the assignment of verbal inflections. On the other hand, Weist, Wyscocka, Witowska-Standnick, Buczowska, and Konieczna (1984) investigated the acquisition of Polish in six children from 1;7 to 2;5 using both longitudinal and cross-sectional data and disputed the theory that the earliest tense morphology in child language development encodes only aspect, not tense. They claimed that children marked both tense and aspect (both of which are grammaticalized in Polish) in early stages, thus providing counter-evidence to the *defective tense hypothesis*, which Weist et al. (1984) attributes to the above-cited authors. As Andersen (1989) points out, Weist et al. (1984) were arguing against what can be called 'Absolute Defective Tense Hypothesis', that is a strong, all-or-nothing version of the POA hypothesis. According

to the absolute version, all telic verbs or predicates must receive past tense inflection. Robison (1995) remarked that although this may have been true in isolated utterances, their overall counts still indicated a lack of past inflection with atelic aspects, which decreased with age; while the majority of telic verbs were inflected for past in the youngest age group (1;8), less than 10% of atelic aspects were in past form. The results showed that past marking was associated with inherent lexical aspect, which supported a weak version of POA hypothesis.

In general, the reports presented above showed that children acquiring their first language tend to mark inherent aspect rather than tense at early stages. However, the degree of the influence of inherent aspect on verb marking varies from study to study. Studies on the acquisition of tense and aspect which may seem to provide evidence against the POA will be discussed below.

Eisenberg (1982) collected spontaneous longitudinal data from two Spanish children. One child's age range was from 1; 4 to 2; 4 and the other's was from 1; 10 to 3; 0. She claimed that the results presented a counterexample to POA. Her data indicated that telic and atelic verbs do not associate with perfective and imperfective aspects, respectively. However, Gonzales (1989) reanalyzed her data applying the Vendlerian four-way classification and concluded that her data were in line with POA hypothesis[14].

Cziko and Koda (1987) stated that their Japanese subject from age range 1;0 to 4;11 was not influenced by aspect. They attempted to test Bickerton's two hypotheses: the PNPD and SPD. They reported that they found no relationship between past verbal

[14] Clark (1985) also reported that studies on the acquisition of verbal inflection in other Romance languages such as French, Italian, and Portuguese indicate that past markers encoded perfective rather than past tense.

inflection and punctuality. However, they found that the progressive marker was not extended to stative verbs, which does support the SPD.

Li (1989) collected data from 135 Chinese children ranging from 3;11 to 6;4 using three tasks: comprehension, production, and imitation. Li specifically tested Bickerton's two hypotheses, PNPD and SPD. Li reported that his data do not support Bickerton's hypotheses, but that support was found for Slobin's (1985) result-process distinction as a cognitive universal. It appears that the disagreements between Bickerton (1981, 1989) on the one hand and Cziko and Koda (1987), and Li (1989) on the other hand stem from the lack of a distinction between situational aspect and inherent aspect. For example, *he looked at me when I screamed* is achievement (i.e.[+punctual] and [+telic]) in terms of real-world situation, while its inherent aspect is an activity (see chapter 4 section 4.1.3.2.1 for more detailed distinction between inherent and situational aspects).

Andersen and Shirai (1995) reviewed Li's interpretation, which Li considers as evidence against Bickerton's claim, and reinterpreted it within the framework of POA. Andersen and Shirai (1995) agree with Li's idea that Bickerton did not distinguish among the three levels of aspect (situational characteristics, e.g. iterative/habitual, grammatical aspect, e.g. perfective/imperfective[15], and inherent aspect, e.g. stative/activity, etc.). That is to say what Bickerton labels punctual versus nonpunctual is actually perfective versus imperfective, which is a distinction of grammatical rather than lexical aspect. This distinction is clear in his distinction of pidgin/Creole languages where he includes iterative/habitual and progressive as non-punctual. Andersen and

[15] Some languages are tenseless such as Chinese. Here pefective/imperfective grammatical markers are used to mark the endpoint of situation (i.e. perfective marker) or the process of a situation (i.e. imperfective marker).

Shirai (1995), however, stated that although Bickerton's distinction of punctual versus nonpunctual is at the level of grammatical aspect, they are assigned to telic versus atelic inherent aspect respectively.

Andersen and Shirai (1995) argued that in the comprehension task, Li (1989) used achievement verbs such as *jump, kick*, etc., with no observable results. The expectation was when such achievement verbs combined with the Mandarin perfective marker '-le' they would result in significantly higher comprehension by children than activity verbs. Furthermore, achievement verbs were better comprehended with the progressive marker '-zai' than the perfective marker '-le'. Andersen and Shirai (1995) indicated that the above cited achievement verbs actually involve punctual activity (i.e. actually they are inherently activity verbs.). The expectation would then be that the progressive marker '-zai' would associate with such activity verbs, which supports POA.

Li (1989) also found that the children overextended the progressive marker '-zai' to stative verbs in the production task. The stative verbs that received the progressive marker were posture verbs such as *sit, stand,* and *kneel*. This contradicts the SPD, that there will be no overextension of progressive markers to stative verbs. However, such verbs with present tense have habitual meaning. In that case, they should be classified as activity verbs, thus, the association of the imperfective marker '-zai' with the posture verbs would be in line with POA hypothesis (cf. Chapter 4).

To summarize, the studies in the L1 acquisition of tense and aspect can be divided into two groups. The first group of the studies such as the studies cited by Bronckart and Sinclair (1973), and Antinucci and Miller (1976) clearly support the findings in POA hypothesis, while the second group of the cited studies such as Cziko

and Koda (1987), and Li (1989) reject the general findings of the POA hypothesis. It can be concluded that the disagreement of the second group of researchers stems from lack of identification between inherent aspect and situational aspect. In the next section, I will report on the most important studies done in the L2 acquisition of tense and aspect.

3.2 Acquisition of tense and aspect in L2

L2 researchers on tense and aspect have found that verbal morphemes are also used in L2 acquisition to mark aspectual distinctions in non-native-like manners, namely, L2 learners, like L1 learners, affiliate telic predicates with past tense (or perfective) markers and atelic predicates with imperfective (or progressive) markers at early stages of acquisition. Table 4 summarizes the studies relevant to POA in L2.

Table 4 Studies on the aspect hypothesis in second language acquisition (arranged by L1)[a]

L2	N	Learner characteristics	L1
English			
Rothstein (1985)	1	3 years in USA	Hebrew
Kumpf (1984)	1	28 years in USA	Japanese
Shirai and McGhee (1988)	1	6 months in USA	Japanese
Mishina (1993)	3	Uninstructed, in USA	Japanese

Nixon (1986)	1	1-6 months in USA	Mandarin
Yoshitomi (1992)	1	7 years in USA	Mandarin
Bayley (1991)	20	Not described	Mandarin
Huang (1993)	5	Uninstructed, in USA	Mandarin
Flashner (1982)	3	2, 3, and 4 years in USA	Russian
Cushing (1987)	1	1.5 years in USA	Serahuli
Kumpf (1982)	1	30+ years in USA	Spanish
Robison (1990)	1	less than three years in USA	Spanish
Robison (1993)	26	1st year university students	Spanish
Taylor (1987)	1	1-10 months in USA	Spanish
Economides (1985)	1	12+ months in USA	Mixed
Spanish			
Andersen (1986, 1991, 1992)	2	8-14 years old	English
Ramsay (1989a, 1990)	30	Classroom SLA	English
French			
Kaplan (1987)	16	Classroom SLA	English
Bergstrom (1993)	118	Classroom SLA	English

[a]Andersen and Shirai (1994: 141)

Most studies on the SLA of tense and aspect are on English, French, or Spanish. The English data generally indicate that (a) past morphology is associated with achievement or accomplishment verbs (Cushing 1987; Economides 1985; Flashner 1982; Robison 1990, Rothstein 1985; Shirai & McGhee 1988; H. Taylor

1987) and (b) '-ing' is strongly associated with activity verbs (Cushing 1987; Economides 1985; Kumpf 1982; Rothstein 1985; H. Taylor 1987).

Kaplan (1987) studies 16 classroom native English speakers learning French as a L2. He concluded that the learners use perfective past to mark telic events, while they use the present form to mark atelic events. Bergstrom (1993) studied 118 classroom students. He used a Cloze test to study the acquisition of target tense past. For example, the low-level learners used past marking with achievement verbs (79.6%), activity (73.8%), accomplishment verbs (60.3%), and stative verbs (38.5%). The studies in the L2 acquisition of French supported the general findings of POA.

All studies in the acquisition of Spanish as an L2 support the POA hypothesis. Andersen's (1986, 1991, 1992) quasi-longitudinal study clearly indicated that the past perfective morphology associates with achievement and accomplishment, while the past imperfective morphology associates with stative and activity verbs. Andersen stated that the order of the emergence of the past perfective morphology was achievement---→ accomplishment ---→ activity ---→ stative, while the emergence of the past imperfective morphology was stative ---→ activity ---→ accomplishment ---→ achievement. Ramsay (1989a, 1989b, and 1990) reported that her 30 classroom subjects followed the same developmental order that Andersen's subjects did.

The cited authors mention that their results support POA. First, It is quite plausible to say that verbal inflections that occur with certain types of verbs or predicates encode the properties of verbal aspect with what they affiliate. Then the suggestion is that such verbal inflections be called verbal aspect rather than verbal inflection. In other words, the association of morphemes with verbal aspect indicates that the morphemes display aspectual properties of verbs or predicates rather than the

properties of tense. Secondly, as pointed out by Rohde (1996) is that the cited authors do not make claims about learners' ability or inability to make tense distinctions.

However, a group of L2 researchers also investigated the learners' ability to make tense distinction. For instance, Bardovi-Harlig and Reynolds (1995) investigated the role of lexical aspect in the obligatory context of past tense by adult learners of English whose first languages were Arabic, Korean, Japanese, Spanish, and Chinese. They concluded that lexical aspect features played a role in lower-level learners whereas the verbal inflection 'past' associated with tense with increasing proficiency level. Similarly, Robison (1995) analyzed English interviews with 26 Puerto Rican college students (i.e. Spanish students) grouped into four proficiency levels and found the association of verbal inflections with lexical aspect in lower-level groups, while verbal inflections associated with tense in higher-level groups. Some examples of the lower level subjects are provided below:

> We ***talking*** a while ..... they come to our ..... . [target tense 'past', verb type 'activity']
>
> A baseball player ..... ***playing*** ...ball. [target tense 'present', verb type 'activity']
>
> I have ... ***lives*** ... um ... fifteen years in Yabucoa. [target tense 'present perfect', verb type 'stative']
>
> He ***began*** ... October nine. [target tense 'future', verb type 'achievement']
>
> (Robison 1995: 357-361)

The above examples show that the activity verbs 'talk' or 'play' associate with the '-ing' form without the auxiliary 'be', the stative verb 'live' associates with the present tense '-s' form, and the achievement verb 'begin' associates with the past form, with tense distinctions being neglected.

In the studies in which the L2 learners were in an instructed environment, native speakers' speech is not studied by the above-cited researchers to see whether native speakers used verbal morphemes in association with verb type. This brings to mind the Distributional Bias Hypothesis (DBH), which one cannot be sure whether this involves input that the L2 learners imitate from native target language speakers or whether it is the semantic property of lexical aspect which causes the L2 learners to mark verbs selectively because there were no data available from target language native speakers as a control group.

Ramsay (1989b) and Andersen (1989) and Andersen and Shirai (1994) found that the data from adult L2 learners of Spanish and English could be accounted for by the DBH under where L2 learners show a tendency to mirror native adult language use (see section 5.10.1 for more details). Andersen (1988) discussed the Distributional hypothesis in these terms:

> [T]here are . . . properties of the input that promote the incorporation of an inappropriate form:meaning relationship into the interlanguage. That is, the learner misperceives the meaning and distribution of a particular form that he discovers in the input, following the Distributional Principle:
>
> If both X and Y can occur in the same environments A and B, but a bias in the distribution of X and Y makes it appear that X only occurs in environment A and Y only occurs in environment B, when you acquire X and Y, restrict X to environment A and Y to environment B.
>
> (p. 123)

The proponents of the DBH claim that both L1 and L2 learners respond to this bias with their utterances as an acquisitional principle. Rohde (1996) suggests the evidence leaves three empirical factors to be accounted for:

1. the degree of distributional bias in adult native speech
2. more absolute bias in interlanguage
3. same behavior for both native speakers and L1 and L2 learners

The role of DBH observed in the above-mentioned studies appears to weaken the case for an innatist account such as Bickerton's Bioprogram. Rohde (1996) criticizes Andersen and Shirai (1994) because they have created 'an impression that the aspect hypothesis has been rejected in favor of a "general linguistic principle" that is capable of accounting for the evidence' (p. 1118). The observed tendencies in both L1 and L2 acquisition mirror the input from adult native speakers, reducing the SLA of tense and aspect to an input phenomenon.

Furthermore in the studies of the L2 acquisition of tense and aspect, the association of aspect marking(s) such as '-ing', '-s', and PAST form with the type of inherent aspect interacts with a learner's L1 tense and aspect. Although for the L1 acquisition of tense and aspect, the universal aspectual values interact with language input, in the L2 acquisition of tense and aspect, a learner's L1 tense and aspect system interacts with language input, because a L2 learner has already instantiated his/her L1 tense and aspect (see Chapter 6 section 6.3). As far as I know the role of learners' L1 transfer of tense and aspect has not been taken into consideration in the authors cited above (see Questions and Research Hypotheses 1,2, and 3 in Chapter 2). Secondly one cannot suggest the same account for L2 learners suggested by Antinucci and Miller (1976) whereby cognitive factors are responsible for this acquisitional behavior since L2 learners are cognitively mature.

An example of the effect of learners' L1 tense and aspect on the L2 acquisition of tense and aspect is a study carried out by Flashner (1982). In her analysis of the interlanguage of three Russian immigrants, she found that the aspect marking '-ed' and irregular past indicated perfective aspect (i.e. telic aspect), while the base form marked imperfective aspect (i.e. atelic aspect). She attributed the use of past forms for 'perfective' contexts and the base form for 'imperfective' contexts to transfer from Russian. It seems that most of the L1s of the subjects in the studies cited have imperfective aspect (e.g. Spanish, Japanese, Russian, etc.), which is strongly associated with atelic aspect (Comrie 1976; Weist et al. 1984). It is possible that these learners affiliate the aspect marking '-ing' with the imperfective aspect from their L1, as progressive is part of imperfectivity (Comrie 1976).

The influence of L1 transfer on SLA (e.g. Flashner's (1982) study) can provide a full account of biased selection of verbal morphology, because in that case, there is an interaction between universal factors and L1 factors. For instance, Gass and Ard's (1984) study is a comparison of the acceptability judgments of progressive morphemes by Japanese and Spanish learners of English. In these two languages, the perfective and imperfective aspects are grammaticalized. Therefore, as the subjects judge activity verbs with the progressive aspect marking as more acceptable than other aspect markings, one can claim for sure the L2 learners transfer their L1 aspectual marking into the L2. This suggests that the study of tense and aspect systems in both subjects' background and target languages is necessary before one can account for the data. The present study compares and contrasts tense and aspect systems in Persian and English (see Chapter 2). It is hypothesized that while the learners have their native-language tense and aspect as the initial state of SLA, they make use of their native language only

to the extent that the universal principles of tense and aspect are not violated.

One possible counterexample to POA in the L2 acquisition of tense and aspect is Meisel (1987). Based on his study of German as an L2, he claimed the aspectual system plays a 'very marginal' role. However, as Andersen and Shirai (1995) point out, Meisel (1987) failed to cite any L2 study in the area of SLA of tense and aspect despite the fact that he states: "Anyone who wants to claim that an aspectual system is characteristic of certain phases of L2 acquisition . . . will have to give solid empirical evidence" (p. 220). Moreover, Andersen and Shirai (1995) point out that Meisel's studies were focused on how past time reference emerges in interlanguage including other devices such as adverbials, discourse elements, etc. In other words, his study has nothing really to do with the POA hypothesis.

Bardovi-Harlig (1992) studied 135 foreign students studied in USA with mixed L1 background and also concluded her study did not support the POA hypothesis. She reported that the learners marked past target tense regardless of the type of aspectual verb types. However, a reexamination of the 19 low level learners in her study carried out by Shirai and Andersen (1993) showed that simple past forms associate much more with achievement verbs (63.2%) than activity (35.1%) and stative (31.6%) verbs.

To sum up, L2 studies on the acquisition of tense and aspect support the general findings of the POA hypothesis. Learners start off by associating verbal morphemes with aspectual verbs with correct target tense distinction being neglected at the early stages, while they mark verbs with correct target tense forms regardless of the type of aspectual verbs at later stages. According to Andersen and Shirai (1995), researchers in both L1 and L2 acquisition have mentioned two hypotheses to describe and three hypotheses to explain the phenomenon of the language acquisition of tense

and aspect. I will discuss them briefly them below:

3.3 Description

3.3.1 The Primacy of Aspect Hypothesis

As we have seen, nearly all studies for both L1 and L2 acquisition confirm the POA hypothesis. The POA hypothesis describes both L1 and L2 findings with respect to four factors. Firstly learners initially use past or perfective to mark telic aspects (achievement and accomplishment) and then they extend past or perfective markings to atelic aspects (activity and stative). Secondly an imperfective marker, which develops later, is first used with activity and stative verbs. Thirdly, progressive marking initially is restricted to activity aspect and then it extends to accomplishment and achievement aspects. Fourthly progressive marking is not overgeneralized to stative verbs.

3.3.2 The Distributional Bias Hypothesis

Ramsay (1989) and Andersen (1989) and Andersen and Shirai (1994) among others confirm that their findings are in line with the POA hypothesis. The learners discover verbal aspects for telic or atelic. The learners reinterpret the verbal aspects from the input in terms of aspectual categories. However, the proponents of the DBH tried to show that native speakers display the same tendencies quantitatively, a phenomenon called DBH. In other words, native speakers use verbal aspects selectively in terms of aspectual categories.

The question that arises is what is the difference between the above two hypotheses? The POA hypothesis does not deal with whether the speech addressed to language learners shows a tendency to associate verbal morphemes with aspectual verb types. However, the DBH investigates both native speakers' and language learners' speech and hypothesizes that the native speakers' speech also shows a tendency to associate verbal morphemes with aspectual verb types.

3.4 Explanation

3.4.1 The role of the Defective Tense Hypothesis

The Defective Tense Hypothesis was presented by Weist, Wyscocka, Witowska-Standnick, Buczowska, and Konieczna (1984) to disqualify the role of POA hypothesis in language acquisition. Weist et al. state the absolute version of the Defective Tense Hypothesis, which was strongly rejected by Andersen (1989). The absolute Defective Tense Hypothesis attributes use of verbal aspects to the cognitive inability of young children in the process of past tense acquisition. It is, however, obvious that the Defective Tense Hypothesis cannot explain SLA of tense and aspect because the L2 learners do not have such cognitive limitations.

3.4.2 The role of Distributional Bias in the Input

The findings concerning the Distributional Bias in the input were discussed above. The proponents of DBH use the distributional bias of native speakers' speech

to account for L1 and L2 learners' biased use of verbal morphemes. This could cause a problem with innateness account such as Bickerton's Boiprogram. The idea is that even if the DBH turns out to be confirmed, one cannot claim that L1 and L2 learners imitate the native speakers' biased use of verbal morphemes. If that were the case, the role of UG or innate knowledge of aspectual values is ignored and acquisition becomes solely input-distinction (Rohde 1996).

3.4.3 The role of 'Innateness' for the POA findings

In the preceding section some authors attributed their observational findings for the POA to universal properties of aspectual categories. Bickerton studied the data in L1 acquisition collected by Bronckart and Sinclair (1973), and Antinucci and Miller (1976) and claimed that the findings support his Bioprogram hypothesis that the children are genetically equipped with the ability to make PNPD and SPD distinctions.

To study the role of innateness in SLA, one needs to control for several variables. The findings in SLA need to include data from native speakers as well to check whether the native speakers use verbal morphemes in association with aspectual aspect. If this turns out to be the case, the role of an innateness account will be undermined. If, however, the native speakers' data do not show biased use of verbal morphemes, while L2 learners' data display biased use of verbal morphemes, the findings can account for by an innateness point of view. In addition, tense and aspect systems have to be compared and contrasted in both the native and target languages to investigate the role of L1 transfer. As far as I know no study has ever been done to control the all above-mentioned variables. The aim of the present study is to control as

many variables as possible to investigate the role of innateness in the L2 acquisition of tense and aspect. The study also explores the role of the syntax of tense and aspect to see what constitutes the L2 learner's initial state and what triggers subsequent stages of the acquisition of tense and aspect.

Chapter 4

The Study

4.0 Introduction

The main purpose of the study was to investigate whether second language learners of English (L2E) as experimental group and native English speakers (NES) as control group mark verbs with correct target tense forms or they mark the verbs selectively based on inherent aspect across the groups (i.e. low, mid, high, and NES as well). In particular, this study is unique in that it created contexts for all possible English target tenses including present, present perfect, past, past perfect, future, and future perfect tenses to investigate the effect of tense/aspect on the acquisition of English verbal morphology.

This study explores a possible explanation for the phenomenon of the acquisition of verbal morphology across groups by analyzing the data on three tasks: (1) Grammaticality Judgement Task (GJT), (2) Gap-filling Task (G-f T), and (3) Re-telling Task (RT). The present data contain a distributional bias for the experimental group rather than the control group that would favor the course of verbal morphology development as predicted by POA, i.e. it may be necessary to postulate "innateness" or "bio-programming" as the explanation of POA. In order to get a better picture of the study, I review below the general and specific questions and research hypotheses put forth in Chapter 2.

4.1 Research Questions and Hypotheses

The general question is how do L2E and NES subjects use verbal morphology? The study also investigates the subjects' comprehension and production data per se with a view to answering the question: Do the general claims of POA outlined in Chapters 1 and 3 hold with both L2E and NES groups? The following are the specific questions and hypotheses. Recall that Questions and Research Hypotheses 1 and 2 relate to the L1 transfer of aspect into English while the Question and Research Hypothesis 3 is the L1 transfer of tense into English. Questions and Research Hypotheses 4a-4d involve semantic evidence for the POA hypothesis, while Questions and Research Hypotheses 5a-5b involve further syntactic evidence for the POA hypothesis.

Question 1

Do lower level learners transfer the imperfective prefix *mi-* with Persian stative verbs using its English counterpart suffix '-ing' while higher level groups do not?

Research Hypothesis 1

Persian learners of English will not transfer the imperfective prefix with Persian stative verbs using its English counterpart imperfective suffix '-ing' at lower levels of English proficiency, because the English imperfective '-ing' is not compatible with the universal entailment of stative verbs.

Question 2

Do Persian learners of English transfer accomplishments to activities at lower levels? In this case, do they associate accomplishments with the aspect marking(s) that they affiliate activities with? Do higher level learners transfer accomplishments to activities?

Research Hypothesis 2

Persian learners of English will transfer accomplishments to activities at lower levels. In this case, they will associate accomplishments with the aspect marking(s) that they affiliate activities with. Higher level learners will not transfer accomplishments to activities.

Question 3

Do lower level learners use present perfect tense to refer to English future perfect tense while higher level use the correct target tense, i.e. future perfect tense?

Research Hypothesis 3

Persian learners of English will use present perfect to refer to English future perfect tense at lower levels of English proficiency.

Question 4a

Do lower level learners use the present form to mark [-dynamic] stative aspect, with correct target tense distinction being neglected, while higher level learners and NES as well associate statives with the correct target tense?

Research Hypothesis 4a

Lower level learners will use the present form to mark [-dynamic] statives, with correct target tense distinction being neglected, while higher level learners and NES as well will mark statives with the correct tense form.

Question 4b

Do lower level learners mark [+dynamic] and [-telic] activities with the progressive form regardless of correct target tense form, whereas higher levels and NES as well use the correct target tense form?

Research Hypothesis 4b

Lower level learners will mark [+dynamic] and [-telic] activities with the progressive form with tense distinction being neglected, while higher levels and NES as well will apply correct target tense regardless of the type of aspect.

Question 4c

Do lower level learners mark [+punctual] and [+telic] achievements with PAST form whatever the target tense might be, while higher level and NES as well mark lexical aspect in accordance with correct target tense?

Research Hypothesis 4c

Lower level learners will mark [+punctual] and [+telic] achievements with PAST form, ignoring correct target tense form, whereas higher levels and NES as well will mark achievements with the correct target tense form.

Question 4d

Do lower level learners mark [-punctual] and [+telic] accomplishments with PAST form regardless of the type of target tense, while higher level learners and NES as well apply the correct target tense form?

Research 4d

Lower level learners will mark [-punctual] and [+telic] accomplishments with PAST form regardless of the target tense, while higher level subjects and NES as well will apply the correct target tense.

Question 5a

Do lower level learners use fewer IP-level verbal forms (in proportion to all verbal forms of aspectual projections) than higher and NES groups?

Research Hypothesis 5a

Lower level groups will use fewer IP-level verbal forms (in proportion to all verbal forms of aspectual projections) than higher and NES groups.

Question 5b

Do lower level learners use more verbal forms of aspectual projections (in proportion to all verbal forms of the inflectional projection) than higher and NES group?

Research Hypothesis 5b

Lower level groups will use more verbal forms of aspectual projections (in proportion to all verbal forms of the inflectional projection) than higher and NES group.

A precise study of the L2 acquisition of tense and aspect needs to incorporate all possible factors that might be involved in the development of verbal morphology, such as the learners' L1 tense and aspect systems, target language input, the overgeneralization of verbal morphemes into aspectual verbs, and the learners' language proficiency. It was also mentioned that the previous studies focused on the acquisition of 'past tense' (Shirai 1991 for the L1 acquisition and Robison 1995 for the L2 acquisition of English, among others) or 'past time' which may include past, past perfect, or present perfect tense (Bardovi-Harlig and Bergstrom 1996 for the L2 acquisition of English and of French). This study has the advantage of involving obligatory contexts for English target tenses by applying three tasks: (1) GJT, (2) G-f T, and (3) RT to investigate the association of verbal morphemes with target tense and inherent aspect. GJT, G-f T, and RT were used to include a range of tasks, from the most controlled (GJT) to the least controlled type of data elicitation (RT); I will discuss these issues in more details in the following sections. Secondly, use of three

tasks, the GJT, G-f T, and RT increases the potential reliability of the tasks. If the results across tasks support each other, one can be sure that the results were not influenced by just a specific task. Finally, if the results of the three tasks are the same regarding the Questions and Research Hypotheses outlined above, one can be sure the POA hypothesis is also supported for the Persian learners of English. In what follows, I will explain how subjects were selected and how the tasks were constructed and administered.

4.2 Methodology

4.2.1 Subjects

A cross-sectional study using three tasks was conducted to test 45 Persian children and teenagers between 9 to 13 years old at the time of testing at three levels of proficiency from beginning to lower advanced. All informants were enrolled at an Iranian public school in Newcastle Upon-Tyne where their parents were postgraduate students who had come to the United Kingdom (UK) to continue their studies. They had not been exposed to English before they came to the UK. When data collection started, 13 subjects had just lived there between 4 to 7 months, 18 subjects between 8 to 11 months and 14 subjects between one to two years. The subjects' exposure to English was by attending British schools, contact with English native-speaking friends, watching TV, and so on. In addition they were taught English 6 hours each week at the school. Since part of this study aims to check the informants' interlanguage of English target tenses such as present, present perfect, past, past perfect, future, and

future perfect tenses against English native speakers, a control group of 15 English Native Speakers (NES), who were enrolled at a school in Durham, just south of Newcastle, was also given all three tasks. The age range of the control group was between 9 to 12 years old.

In order to test the POA hypothesis, the learners' English proficiency levels had to be measured to provide an independent means of categorizing learners as lower level vs. higher level. The Edinburgh Reading English Test (ERET) was chosen to measure the ESL subjects' proficiency in English. It is constructed to measure the children's general progress in English. The test is divided into four sub-tests of vocabulary (20 items), syntax (30 items), sequences (20 items) and reading comprehension (21 items), totaling 91 items. The subjects' scores were between 23 to 89 out of total score 91. The 45 subjects were divided into three groups with 15 subjects for each group: low, mid, and high-level groups. The low, mid, and high-level learners scored about one-third, two-thirds, and higher than two-thirds of the total score, respectively. The subjects' ERET scores were compared with their English classroom scores and the time of their residence in the UK to confirm that the ERET had yielded reliable results. The learners' ERET scores corresponded to their English classroom scores and the time of their residence in the UK.

4.2.2 Experiments

Previous studies have investigated the role of lexical aspect in L2 learning mostly by asking learners to write compositions or to describe orally what had happened to them. In this way, 'past time' target tenses were mainly assessed, while

other target tenses were left untreated. To refer to past time, one could use present perfect, past perfect, or past tense to describe a situation. There are some crucial problems with these types of data elicitation. For example, obligatory contexts for target tenses are difficult to determine to check whether L2 learners are using the correct target tense form. Secondly, the POA hypothesis claims that learners selectively associate inherent aspect with verbal morphemes regardless of the correct forms of target tenses at initial stages. Data from these studies cannot indicate precisely to which target tenses the learners apply verbal morphemes with inherent aspect, because target tense is not precisely set up. Thirdly, learners' performance on such tasks (e.g. oral interview) is difficult to interpret. For example, accomplishment predicates usually outnumber the other lexical aspectual classes. Moreover, the range of stative lexical verb tokens is limited; 'be' is widely used for the stative class in learners' performance (cf. Bardovi-Harlig and Bergstrom 1996 for written production by French learners of English).

The present study balances the types of inherent lexical aspects (i.e. stative, activity, achievement, and accomplishment) and the types of target tenses (present, past, present perfect, past perfect, future and future perfect tenses) and determines with which target tenses which inherent lexical aspects are used (cf. Appendices A-1 and A-3). In this way, we can precisely test whether lower level learners encode verbal morphemes in accordance with lexical aspect (see Questions and Research Hypotheses 4a-4d in section 4.1).

Fourthly, in the previous studies L2 acquisition of tense and aspect, the role of L1 transfer of tense and aspect is not usually taken into consideration. In this study, the role of L1 tense and aspect is dealt with (see Questions and Research Hypotheses 1, 2,

and 3 in section 4.1). Finally, there are few studies which tap L1 and L2 learners' linguistic competence by using grammaticality judgements. Gass and Ard (1984) used acceptability judgment and production tasks by asking Japanese and Spanish learners of English to judge sentences or to write long sentences with the verb forms provided. They compared and contrasted the use of the progressive, the present and the future 'will' forms and concluded that the association of progressive form with activity events, the present tense with regular states and the use of 'will' with states or events in the foreseeable future was significant. In the following section, I provide a detailed description of the GJT, G-f-T, and RT.

4.2.2.1 Grammaticality Judgement Task

The use of GJT to elicit the subjects' intuition regarding tense/aspect enables the investigator to balance all aspectual categories (i.e., stative, activity, achievement, and accomplishment) and target tenses (i.e., present, present perfect, past, past perfect, future, and future perfect tenses). Specific controls were built into the design of the experiment concerning the sentences used. First, to make sure that the subjects did not see the same lexical tokens more than once, the lexical tokens were not repeated from one target tense to the other (cf. Appendix A-2). The lexical verb token, for example, 'like' as stative aspect was changed from one test item to other stative tokens such as 'love', 'know' and so on for other test items, but the type of inherent lexical aspect was kept constant. Second, to construct the sentences systematically, the number of sentences was also in accordance with the number of aspect markings in each target tense. When the target tense was, for instance, present perfect tense, four morpho-

syntactic variants such as '-s', '-ing', '-ed' and 'has' were constructed for each lexical aspect of stative, activity, achievement, and accomplishment. The first three aspect markings were possible English verbal inflections and the last aspect marking was the correct target tense form, i.e. present perfect tense (cf. Appendix A-3 for complete GJ test items): For example, target tense 'present perfect', verb type 'accomplishment' (cf. Appendix A-2):

(52) a. In the last two hours Ali **paints** his sitting room white and he's still painting the other rooms.

b. This is the first time Mahin **looking up** ten new words in her dictionary in three minutes.

c. The dentist **checked** five teeth since 5 o'clock today.

d. In the last two weeks the secretary **has typed** three letters and she hopes to type a few more today.

There were three sets of GJ test items and four types of lexicalizations of aspectual categories of verbs that were randomly presented to the subjects. To choose the sentences for presentation to each learner, I used the following 'Latin square' technique (Ferguson 1976):

Table 5

	Sentence variant			
Group I	A	B	C	D
Group II	B	C	D	A
Group III	C	D	B	A

There are four morphological variants in the above design, and therefore four lexicalizations which was randomly presented to the subjects (cf. Appendix A-2). Versions I, II, and III refer to the three versions of the GJ tests (see Appendix A-3). The letters A, B, C, and D refer to the four morpho-syntactic variants of the '-s', '-ing', '-ed', and 'has' respectively.

The incorrect aspectual markings (i.e. '-s', '-ing', and '-ed') were included to test whether the low level subjects selectively mark the inherent lexical aspects regardless of the correct target tense form (cf. Questions and Research Hypotheses 4a-4d) and the correct target tense was also included to see whether the subjects would choose the correct target tense. The aspect marking '-ing' without the auxiliary 'be' was included because studies on the L1 and L2 acquisition of English indicate that the learners typically use the morpheme '-ing' without the auxiliary 'be' in the initial stages. The results of G-f T and RT converged with that of the GJT in that the lower level learners often produced the verbal form '-ing' without the auxiliary 'be' in these two tasks.

Some 122 sentences were constructed for the GJT. There were 112 experimental sentences and 10 practice sentences. Within the 112 experimental sentences, 92 were targets and 20 were distractors to deflect the subjects' attention from the aim of the target sentences. Examples of distractors presented to subjects are as follows:

(53) I and Nader doesn't like to play football.

(54) He didn't like to not stay at home.

(55) I studies two hours I slept.

(56) I prefer red apples to green ones.

Three sets of GJ test items (i.e., 112 x 3 = 336 test items) were constructed (cf. Appendix A-3).

Since the number of test items was still too many for the subject to judge in one test session, I divided the test items into two halves. After a 15 minute break, the subject judged the items on the second half of the test. The subjects were allowed to spend 60 minutes for each half of the GJ test.

In this study, a 5-point scale technique was applied (cf. Appendix A-3). The measurement of learners' intuitions involved responding in terms of very bad, bad, I don't know, good, and very good and coded with 1, 2, 3, 4, and 5, respectively. A subject who cannot decide whether a sentence is bad (2), very bad (1), good (4) , or very good (5) may choose 'I don't know' (3) or does not mark the sentence, which is also considered as 'I don't know' (3). The 5-point scale technique is easy for subjects to understand, and it also allows the use of powerful statistical technique to analyse the data (I will discuss the statistical techniques in more details in Chapter 5).

Before administering the GJT, the subjects had a training session to learn how to mark the sentences. They were presented with ten practice sentences to mark on a-5 point scale. The sentences were selected with structures other than those which were in the real GJT sentence materials. Examples presented to subjects are as follows:

(57) I studied a book green.

1 2 3 4 5

(58) Reza studied and to university went to.

1 2 3 4 5

(59) I studied went to school.

1 2 3 4 5

They were advised not to concentrate on traditional grammar to mark the sentences, but they were told to rely on their intuitions or judgements to see whether the sentences were very bad, bad, not bad (I don't know), good, or very good.

4.2.2.2 Gap-filling Task

Native English speakers and the second language learners were given 72 test items consisting of three tokens for each verb type: stative, activity, achievement and accomplishment, with the six target tenses: present, present perfect, past, past perfect, future and future perfect (i.e. 3 x 4 x 6 = 72). There were three sets of target sentences, that is, three types of lexicalization of aspectual verbs (group I, group II, and group III), which were randomly presented to the subjects (cf. Appendix A-2). That is, 216 G-f test items (i.e., 72 x 3 = 216) were constructed (see Appendix A-5 for complete G-f test items). The sentences established time reference through the use of a time adverbial or verb tense. The subjects were given the base form of the verb and asked to provide the correct form of the verbs in the blank. All verbs were tested with the third person singular subject so that the overt verbal inflection would be obligatory in the present tense. The subjects were allowed to spend 72 minutes to write the

correct forms of the verbs in the blanks. A sample of G-f T items with the correct target tense form that is provided in bold italics is shown:

(60) Examples for the target tense 'Past perfect' with stative (60a-60c), activity (60d-60f), achievement (60g-60i), and accomplishment aspects (60j-60l):

(60) a. Jamshid heard a funny noise in his room yesterday. He (not hear) ***.....had not heard.....*** it before.

b. Reza could see a kind of car that he (not see) ***.....had not seen.....*** for several years.

c. It was not the first time that Amir heard such a funny noise. He (hear) ***.....had heard.....*** it several times before.

d. When Jamshid saw Mary this morning she was skating. She (not skate) ***.....had not skated.....*** for several months.

e. Reza was not in the football field when you arrived. He (just/play) ***.....had just played/had just been playing.....*** there.

f. Parvaneh: Was Monir amusing the children at the nursery school when you arrived?
Freshteh: No, she (already/amuse) ***.....had already amused.....***them.

g. When Ali got to the rail station the train (just/get) ***.....had just got.....*** there. He didn't miss it.

h. Reza didn't know when I arrived in Newcastle Mary (already/arrive) ***.....had already arrived.....*** there, too.

i. There was a fire in flat 30 last night. When the rescue team got there ten people (just/die) ***.....had just died.....*** .

j. Majid: Did Laleh make tea when Ali got to home?
Nader: No, She (already/make) ***.....had already made.....*** it.

k. Reza, who (already/pass) ***.....had already passed.....*** all his exams, was very happy today.

l. Monir typed the same letter that Ali (just/type) ***.....had just typed.....***
Monir wished she had not typed it.

The present study checks the subjects' performance on GFT for all possible English target tenses: present, present perfect, past, past perfect, future, and future perfect tenses, modals, auxiliaries, etc.

The G-f test was similar to the GJ test. First, the G-f tests were constructed to create an obligatory context for a target tense form through the use of time adverbials or verb tense forms (see the G-f test items below). Secondly, the aspectual verbs that were provided in the parentheses were the same as the GJ test. However, in G-f test, the learners had to write the correct form of the verbs provided in the parentheses. The question that arises is why was a G-f tests used? The idea was that if the GJ test is reliable, the same results will be provided with the G-f test. In that case, one can claim both the GJ and G-f tests are reliable and valid. In other words, one can claim the type of the tasks themselves does not affect the results in the GJT and G-f T. In Chapter 5, the results of both tasks will be discussed.

Another question which arises is what if the lower level learners had not acquired some of the target tense forms such as past perfect or future perfect tenses? Actually, the assumption was that the lower level learners did not know all target tense forms. However, they do know the universal time point reference of tenses in that for instance, both Reference and Event time coincide in absolute tenses such as present and past tenses, while Event time precedes Reference time in relative tenses such as past perfect and future perfect tenses (cf. Chapter 2 section 2.5). Furthermore, the learners had instantiated their L1 tense forms. Therefore, the use of verb tenses was to create an obligatory context, i.e. absolute and relative tense contexts, for the learners to mark aspectual verbs.

4.2.2.3 Re-telling Task

Since the GJT was a kind of comprehension test and the G-f T was a type of controlled performance task, a story Re-telling Task (RT) was also used to elicit the L2 learners' and NES' spontaneous performance regarding tense and aspect. I chose the cartoon film Robin Hood because it contains a lot of actions and situations to prompt the subjects to use different aspectual verbs. In previous studies on the acquisition of tense/aspect, the subjects were usually interviewed to describe what they had done in order to prompt them to refer to past 'time'[16]. However, the present and future target times could not be tackled. The only study that is cited to refer to all target times, i.e. present, past, and future target times, was carried out by Robison (1995). However, his 26 adult Spanish learners of English produced more utterances to refer to 'past time' than 'present or future time'. In this way, the learners usually refer to 'past time' to describe what had happened to them, while 'present and future target times' were usually left with few utterances. However, in the present study, the subjects' use of the target times, i.e. 'past, present and future times' was balanced by how the task was constructed. The subjects watched the film without sound. They were allowed to watch one segment of the film, but then it was stopped and they had

[16] The difference between target time and target tense is that the former covers both absolute and relative tenses, while the latter does not. For example, future time can refer to either to future tense or future perfect tense; it depends whether the speaker would like to refer to an Event time before a Reference time in the future, in this case future perfect tense is used as in (1); if there is no such comparison between Event and Reference time points, the future tense is used as in (2).

(1) Reza: Is Mary going to finish her homework tomorrow morning?
Ali: No, She (finish) .....***will have finished***.....it by tomorrow morning.

(2) It's 16th of May and Reza has not got any job yet. I think that he
(get) .....***will get***..... a job quite soon.

to describe what had happened. This shifted them to 'past time'. Then, while they were watching the next segment of the film, they had to describe what was happening right then. This shifted them to 'present time'. Finally the cartoon was switched off again and they were asked to guess what would happen next. This shifted them to 'future time'. All responses were (audio) tape-recorded.

So far, I have outlined the general picture of how the testing was carried out. However, a more detailed description of the classifying of inherent aspect for the tasks is necessary, since the procedure is complex and is an important part of this study. The remainder of this chapter is devoted to this discussion.

4.3 Coding for inherent aspect

First, I will outline the procedure for coding the classification of inherent aspect and its motivation. I will then discuss the choice of particular test items in this study, and elaborate on how aspectual systems as a linguistic choice is viewed in this study. Finally, I will discuss some problematic cases that were encountered in coding, and how they were coded for the purpose of this study[17].

4.3.1 Procedures for classification of inherent aspect

One of the weaknesses of previous studies has been the lack of precise description of the procedures for determining inherent lexical aspect. There are few

[17] I would like to emphasize that this procedure was carried out before I constructed the GJ and G-f tests, because I needed to know the type of inherent aspect (i.e. stative, activity, achievement, and accomplishment) to construct the test items. However, for the RT, the procedure for the classification was carried out after I transcribed the data, because I needed to identify the type of inherent aspect.

acquisition studies published that have operational tests (Weist et al. 1984, Robison 1990, 1995). The problem with the lack of operational tests is: (1) it affects the validity of the studies and (2) the classification of verbs or predicates based on a well-defined aspectual theory is by itself very important in L2 acquisition, especially in the general view that inherent aspectual distinction may play a role in the L2 acquisition of tense and aspect.

As was mentioned above, this study used three tasks to elicit the subjects' interlanguage of tense and aspect. In the GJT and G-f T, it was the investigator's job to determine aspectual verb tokens before the tasks were administered. In these two tasks, I selected the aspectual tokens that were stereotypical (see Table 1), while the subjects produced the aspectual tokens in RT. However, I followed three steps to identify the verb tokens in all three tasks into Vendler-type inherent aspect categories to be sure that aspectual tokens were identified properly.

4.3.1.1 Three Steps for coding inherent aspect

(1) Criteria for Iterative vs. Unitary

Determine if repetition is involved, and code as either Unitary, Iterative, Habitual, or Iterative-Habitual following the criteria below:

The criteria for Iterativity is simply whether the situation referred to is single Unitary state/event/process, or not. For example, 'he knocked at the door once yesterday', 'he swam for few minutes yesterday' and 'he knows Arabic' are coded as Unitary, while 'he knocked at the door for a few minutes' is coded as non-unitary (i.e.

repeated) in that there is repetition of the action of knocking. There are three subcategories for repeated situations (Brinton 1988; Dowty 1979):

(61) a. Iterative — He knocked at the door for a few minutes.

b. Habitual — He went to school for a month.

c. Iterative-habitual — He knocked at the door for a few minutes for a month.

As defined in Brinton (1988), iterative "portrays actions repeated on the same occasion", while habitual "portrays actions repeated on different occasions" (P. 54). The category iterative-habitual indicates that the actions are not only repeated several occasions but also on each of these occasions. In the RT, there were no cases in which the learners produced habitual or iterative actions or situations as marked cases while they produced the unitary situations as default contexts. The reason was that the task did not require the subjects to describe their daily actions, which would have forced them to use repeated and habitual situations (i.e. marked situations). The assumption is that marked situations change the type of unmarked or default aspectual categories (i.e. unitary situations). Sentence 61a as iterative action should be coded as activity aspect rather than achievement aspect while sentences 61b and 61c as habitual and iterative-habitual situations should be coded as stative aspect rather than accomplishment and achievement aspects, respectively. In other words, iterative events indicate a process without an endpoint, while habitual and iterative-habitual situations entail that every point within the situations is identical to every other point and that any part of the situation is identical to the whole situation.

(2) Remove tense and grammatical aspect forms from the sentence (see section 2.4-2.6 for elaboration) and then apply the following steps to determine its inherent aspect. As mentioned in Chapter 2, tense markers can be bound morphemes such as 'ed' and '-s', or free morphemes such as 'have, 'had' or 'will'. Grammatical aspect marking in English is the imperfective marker '-ing'. It's worth mentioning that step 2 was used in RT to identify the inherent aspect since the subjects had provided the utterances. In GJT and

G-f T, however, the investigator had provided the aspectual verbs, making it unnecessary to follow the second step.

(3) Operational tests for inherent aspect

Steps 1 and 3 below are applied to determine the inherent aspect of the sentences in the GJT and G-f T, while steps 1, 2, and 3 are applied to determine the inherent aspect of the RT sentences. In English and Persian, the simple present generally has a habitual or generic reading for non-stative verbs and this can be illustrated with frequency adverbs. Stative aspects with simple present tense are not habitual and they are ungrammatical with frequency adverbs:

(62) a. Alice ***drinks*** coffee (everyday). [Activity]

b. Mary ***believes*** in God (*everyday). [Stative]

This habitual interpretation of the simple present of course excludes so-called 'sports commentators' or 'reportage' use when describing events:

(63) a. Sports announcer: "Allen ***shoots*** the ball and now he ***kicks*** the ball into the goal!"

In sentence 63, the verbs 'shoots' and 'kicks' are achievement and accomplishment rather than habitual stative verbs.

Step 1: State or non-state?

Does the verb have a habitual interpretation in simple present tense with frequency adverbs?

If no ----------→ State (e.g., sentence 62b)

If yes ----------→ Non-stative (e.g., sentence 62a)

There are some other typical operational tests to distinguish stative aspects from activity and accomplishment aspects. For example, stative verbs are not compatible with the progressive form as in '*Mary is believing in God' while activity and accomplishment verbs are usually compatible with the progressive form as in 'Alice is drinking coffee'. However, it is not always as clear-cut as the test seems to indicate. There are some cases where stative verbs may be acceptable with the progressive form, as in 'They are enjoying themselves'. Furthermore, achievement aspect is not compatible with the progressive form, for example, '*John is recognizing

me' is ruled out. Therefore, progressive form cannot be a good test to distinguish between stative and non-stative aspects while simple present, which is interpreted as habitual, can distinguish stative from non-stative aspect.

Step 2: Activity or non-activity?

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

If yes ----------→ Activity, e.g., 'John stopped running' entails 'John has run'.

If no ----------→ Non-activity, e.g., 'John stopped leaving the room' entails 'John has not left the room'.

Step 3: Accomplishment or Achievement

<u>If test (a) does not function, apply test (b).</u>

(a) If "X Ved in (Y time; e.g., 5 minutes)", then "X was Ving during that time."

If yes ----------→ Accomplishment, e.g., He painted a picture.

If no ----------→ Achievement, e.g., He recognized her.

(b) "X will Verb Phrase (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 10 minutes' is different from 'He will paint a picture after 10 minutes', because the former can mean he will spend 10 minutes painting a picture, but the latter does not.

If yes ----------→ Achievement, e.g., 'He will start recognizing her in a second' can have only one reading, which is the same as in 'he will start recognizing her after one second' and no other reading is possible.

The above operational tests rely on a number of studies on the Vendlerean classification: Dowty (1979), Comrie (1976), Mourelatos (1981), Robison (1990, 1995), Sag (1973), and Vendler (1976). The above-cited authors propose many operational tests, some of which work better than others do during the actual classification of data. The tests that work best for each step were selected after a pilot study. Robison (1990) categorized inherent aspects by not assuming clear-cut categories; he has a four-point scale classification with multiple tests for both punctuality and durativity. However, in this study, I chose to use distinct categories, because some tests that Robison did not use seem to work well for making dichotomous judgements.

It is assumed in this study that it is possible to separate grammatical aspect from a sentence when coding the inherent aspect of a sentence (see section 2.6). A speaker, in describing a situation in which 'John walked yesterday' has a variety of choices, for example:

(64) a. John walked (yesterday).

b. John was walking.

c. John was walking to school.

If the speaker's goal is just to assert the fact that John walked (yesterday), 64a will suffice. If he wants to add more dynamicity to the assertion, he can choose to impose a grammatical aspect as in 64b. If he wants to additionally assert that John was in the process of walking to school, he can choose 64c. The point here is that verbalization, if the utterance contains a verb phrase, involves two aspectual choices: which words to use (inherent aspect), and which verbal morphemes to use (grammatical aspect). In terms of inherent aspectual choices, 64a and 64b are the same (activity), while the predicate in 64c is an accomplishment aspect. In terms of grammatical aspectual choice, 64b and 64c are the same (progressive or imperfective), while 64a is perfective.

Given the above structure of the speaker's aspectual choices, how are we to code 64a, b and c for the purpose of the RT in this study? What we are coding is the inherent aspect that describes a situation or an event described by the verb. The choice made by the speaker as to what lexical item should be used to describe the situation is important, and this is what we need to code. We can use 'John walk' for 64a and 64b and 'John walk to school' for 64c as default values without grammatical aspect. The operational tests can be applied to these default values.

Why do we need to first read and interpret a segment of the transcription before coding for inherent aspect? This is because the appropriate interpretation is very difficult without information provided by morphology, the discourse context and, in this study, comments on extralinguistic contexts provided by the investigator who gathered the data.

For example, in the film used for the RT, the tax collector 'knocks at the door' and then he 'listens' to hear what is going on inside. The verbs 'knock' and 'listen' in the

present form are not interpreted as 'habitual' situations in this context because the actions do not repeat during a time period (cf. sentences 61a-61c); rather they were coded as achievement and activity aspects, respectively. As pointed out earlier, what we are coding is the inherent aspect that describes the real world situation.

4.3.2 Problematic cases in classification of inherent aspect

The investigator chose clear cases of lexical aspects for the GJT and G-f T, due to their invented nature. But even with a sufficient understanding of the speaker's intent in the actual classification of the RT data I found some unclear, borderline cases for which classifications were difficult. In what follows, I will discuss some of the problematic cases, and how I decided to code them. As this is an acquisition study, these choices are made so that the classification can be of use in addressing some relevant issues in the area of POA.

4.3.2.1 Accomplishment or achievement

The distinction between accomplishment and achievement is especially problematic. Dowty's (1979) entailment test was chosen for distinction (i.e., if "X Ved in Y time", then "X was Ving during that time period"; see Step 3, test a). For example, 'he drew a tree in two minutes' entails he was drawing a tree during those two minutes; therefore, 'draw a tree' is an accomplishment. On the other hand, 'he recognized her in two minutes' does not entail he was recognizing her during that two

minutes; therefore, 'recognize her' is an achievement. These are clear-cut cases and not problematic.

However, things are not always so easy. Let us take an example, 'reach the summit', which is often cited as an example of an achievement. 'He reached the summit in two hours' appears to entail 'he was reaching the summit during those two hours'. But here, the meaning of 'he was reaching the summit' is different in that it has futurate meaning, i.e., he was about to reach, on the verge of reaching, or getting closer to the goal of reaching the summit. He was not actually reaching the summit throughout those two hours. "X was Ving during that time" in the test implies that X was Ving all the time during that time. In other words, if 'reach the summit' is an accomplishment then it should be possible to say 'he is reaching the summit' at any point during those two hours. With 'reach the summit' being an achievement, it is odd to say 'he is reaching the summit' if he has just started climbing the mountain. In what follows I would like to discuss here how I coded two types of verbs 'come/go' and 'say/tell' that are problematic in terms of an accomplishment/achievement distinction.

4.3.2.1.1 Coding for 'come/go'

I found some motion verbs (e.g., come/go) in the RT:

(65) a. and Robin Hood ***go*** to the his house and close the door... .

b. and they ***come*** on the way and the king and snake want... .

It appears that test (a) cannot handle verbs that have both a starting point and an endpoint and duration between them in real situations, namely, they are achievement verbs. However, in the cartoon film, the subjects watched somebody start leaving somewhere and then they watched that person get to his/her destination. The assumption is that by watching the beginning and the endpoint of the actions, the audience would infer that the event has passed on its duration. Therefore, 'come/go' were classified as accomplishment.

4.3.2.1.2 Coding for 'say/tell'

'Say/tell' often appeared in the RT:

(66) a. ...he ***says*** his face fine and they ***told*** them the Robin Hood want... .

b. Robin Hood ***tell*** about the prince future and ... .

It may seem that if a situation is being coded, 'say' and 'tell' should be considered as accomplishments, in that there is duration that leads up to the point of finishing saying or telling the phrase 'his face fine' or 'about the prince future'. However, what is coded as inherent aspect as Smith (1983) claims is the "idealization" of situations, so it is irrelevant that it takes time before finishing something. What counts as inherent aspect is the way the proposition in question works in terms of the operational tests. In what follows, I apply Step 3 (the accomplishment/achievement test) and discuss the problems involved.

Test (a): If he said "his face fine" or they told them "Robin Hood want ..." in two seconds, then he was saying "his face fine" or he was telling them "Robin Hood want ..." during that two seconds. We do not normally refer to the duration (1 second, 2 second, etc.) of someone's utterance. If these types of cases are taken to be as accomplishments, then we would have to code 'he said "sorry' as accomplishment as well, since it is just the matter of length. That is why it was suggested to use two operational tests to distinguish accomplishment from achievement.

Test (b): He will say "his face fine" in two seconds is not necessarily the same as she will say "his face fine" after two seconds, because it could be possible that the speaker will complete his utterance during two seconds. As was mentioned earlier, we do not normally talk about the duration of utterances (see section 2.1.1.3). As McClure (1995) points out if we extend the time-frame, for example, from two seconds to two minutes, it clearly indicates that "he will say his face fine after two minutes", which suggests that "say and tell" are achievements rather than accomplishments.

Furthermore, the interaction of inherent aspect and grammatical aspect also supports my claim here. An achievement event, if combined with progressive, yields either an iterative interpretation (he's knocking at the door now) or an "approaching to an end" (he's reaching the summit) (Lee, 1991, P. 33). On the other hand, accomplishment events with the progressive yield an "action in progress" meaning. When we hear "he's saying his face fine", the interpretation is not certainly that the action is in progress.

Even if the operational tests were found insufficient to determine the type of inherent aspect, I gave additional coding to problematic cases. In doing so, I did not

rely on any operational test; rather, I used the following criteria and used my intuition for classification (see Andersen 1991):

(67) a. State: Situations that last without any input of energy

b. Activity: Situations that have duration, but do not have an inherent endpoint

c. Accomplishment: Situations that have both duration and an inherent endpoint

d. Achievement: Situations that occur instantaneously

In 67, the semantic properties of inherent aspects are introduced. The syntactic properties of inherent aspects are as follows, based on Borer (1994) and Arad (1996) (see chapter 2 for the detailed discussion):

(68) a. State: states are aspectually content-free. That is to say that the subject NP argument is base-generated at spec, AspOR but it is not specified (i.e. non-agentive). Furthermore, the object NP argument is also base-generated at spec, AspEM but it is not specified (i.e. non-measurer).

b. Activity: Activities are aspectually specified. The subject NP that is base-generated at spec, AspOR is specified (i.e. agentive). Moreover, the object NP argument that is base-generated at spec, AspEM is not specified (i.e. non-measurer). Therefore, the object arguments of both statives and activities are not measurer (i.e. without endpoint).

c. Accomplishment and achievement: The subject NP arguments are base-generated and specified at spec, AspOR (i.e. agent) in both accomplishment and achievement. Furthermore, the object NP argument is also base-generated and specified at spec, AspEM (i.e. measurer) in both accomplishment and achievement.

4.4 Coding for grammatical aspect

Since the aim of this study is to investigate the role of target tense contexts and inherent aspect in marking verbs, the type of inherent aspect, target tense, and verbal morphemes were identified and coded. So far I have discussed the way inherent aspects were identified and coded. In this section, I will discuss the coding for verbal morphemes and target tenses in each task.

4.4.1 Coding for the GJT

The data were coded and entered into a spreadsheet by the statistical package SPSS for Windows. Since the present study investigated the role of tense and inherent aspect in the acquisition of verbal morphology, each file was devoted to an inherent aspect and a target tense (see Table 6). There were six target tenses (i.e. present, present perfect, past, past perfect, future, and future perfect) and four types of inherent aspect (i.e. stative, activity, achievement, and accomplishment). Therefore, 24 files were constructed (i.e. 6 x 4 = 24). For example, the files v1t1.spss, v1t2.spss, v1t3.spss, v1t4.spss, v1t5.spss, and v1t6.spss refer to stative aspect present, present

perfect, past, past perfect, future, and future perfect tenses, respectively. Furthermore, the type of verbal morphemes and tense markers were also coded. For example, in all files the codes 1,2,3,4,5,6,7 refer to the '-s', '-ing', 'PAST', present perfect, past perfect, future, and future perfect forms, respectively. Finally, in each file further codes were used to refer to subjects' identification, their levels (i.e. 1 = low, 2 = mid, 3 = high), and to the NES.

4.4.2 Coding for the G-f T

Similar to the coding for the GJT, The files were also coded based on the verb type and verbal morpheme (or aspect marking) for each target tense for the G-f T (see Table 7). The difference between the coding in the two tasks was that there were many more verb forms such as present progressive, past progressive, infinitive, and so on in the G-f T than the GJT.

4.4.3 Coding for the RT

The data were coded based on the verb type and aspect markings for each target time on Microsoft Word files on a PC computer. The difference between the first two tasks (i.e. GJT and G-f T) and the RT was that in the former there existed six target tenses while in the latter there existed three target times: past time, present time, and future time (see section 3.3.2.3). Thus, the subjects used different tense forms to refer to the target times. For instance, to refer to 'past time', the subjects may have used 'past' or 'past perfect' tenses.

The procedure for analyzing the data is as follows:

Step 1

Select all the clauses that have verbs.

Step 2

Exclude the following from further analysis:

Verbs that do not conjugate for past tense (e.g., 'hit, 'put')

Frozen utterances such as 'I think', 'I don't know'

Also excluded were imperative forms in their base forms. This is quite different from the aspect marking infinitive form, as the latter was used with the third person singular. The base form of the verb with all subject forms except third person singular

Step 3

Give the following codes to each clause:

Code for grammatical aspects: third person singular '-s', progressive '-ing' without the auxiliary 'be', regular past (ED), irregular past (IR), past participle (EN), base (B), infinitive (INF.), present progressive (PR. ING), past progressive (P. ING), present perfect (PRPF), past perfect (PPR), present passive (PR.P), past passive (PP), modals, and 'be going to' (BE.TO).

4.4.4 Codes for the type of clause

(69) a. Finite clause (e.g., He walked there.) = F

b. Non-finite clause (e.g., He wanted to walk there.) = PRO (i.e. empty category for the overtly vacant subject position)

c. Subordinate clause (e.g., I know you walked there.) = SUB

d. WH-clause (e.g., Where did he walk?) = WH

4.4.5 Codes for the type of inherent aspect

State (ST), Activity (A), Accomplishment (T), and Achievement (P)

Code for target time

Past time (P), Present time (PR), and Future time (FU)

The following is an example of how a finite clause was coded:

(70) ...and then the bear ***kissed***-ED-F-A-P the king and...

The letters 'ED' stand the grammatical aspect marking. Thus, 'ED' codes the regular past verb. The letter 'F' codes finite clause, the letter 'A' indicates that the type of inherent aspect that is an activity, and finally the letter 'P' shows that the target time is past time (for coding the RT data see 4.4.1).

The quoted aspect markings were used in the GJT because the tester determined the type of aspect markings and the subjects had to judge the acceptability of these aspect markings for the target tenses (see Table 6). However, the subjects had to provide aspect markings in the G-f T and RT. In other words, the testees, rather than the tester, provided the aspect markings. For instance in Table 7, the codes 'V1Asp1, V1Asp2, V1Asp3, V1Asp4, V1Asp5, V1Asp6, V1Asp7, V1Asp8, V1Asp9, V1Asp10, and V1Asp11, refer to stative (i.e. V1) and Asp 1-11 refers to '-S', '-ING, 'PAST', 'HAVE', 'HAD', 'WILL', 'WILL HAVE', 'INFINITIVE', 'OTHERS',

'PRESENT PROGRESSIVE', PAS PROGRESSIVE' aspect markings respectively in the G-f T. For a complete list of aspect markings in all tasks, refer to Appendices B-1 to B-9.

Table 6: Coding for the GJT

File name	Codes	Aspect markings corresponding to Codes
1. v1t1.spss	1 2 3	'-s' '-ing' '-ed'
2. v1t2.spss	1 2 3 4	'-s' '-ing' '-ed' 'has -ed'
3. v1t3.spss	1 2 3	'-s' '-ing' '-ed'
4. v1t4.spss	1 2 3 5	'-s' '-ing' '-ed' 'had -ed'
5. v1t5.spss	1 2 3 6	'-s' '-ing' '-ed' 'will'
6. v1t6.spss	1 2 3 7 4	'-s' '-ing' '-ed' 'will have -ed' 'has -ed'
7. v2t1.spss	1 2 3	'-s' '-ing' '-ed'
8. v2t2.spss	1 2 3 4	'-s' '-ing' '-ed' 'has -ed'
9. v2t3.spss	1 2 3	'-s' '-ing' '-ed'
10. v2t4.spss	1 2 3 5	'-s' '-ing' '-ed' 'had -ed'
11. v2t5.spss	1 2 3 6	'-s' '-ing' '-ed' 'will'
12. v2t6.spss	1 2 3 7 4	'-s' '-ing' '-ed' 'will have -ed' 'has -ed'
13. v3t1.spss	1 2 3	'-s' '-ing' '-ed'
14. v3t2.spss	1 2 3 4	'-s' '-ing' '-ed' 'has -ed'
15. v3t3.spss	1 2 3	'-s' '-ing' '-ed'
16. v3t4.spss	1 2 3 5	'-s' '-ing' '-ed' 'had -ed'
17. v3t5.spss	1 2 3 6	'-s' '-ing' '-ed' 'will'

18. v3t6.spss	1	2	3	7	4	'-s'	'-ing'	'-ed'	'will have -ed'	'has -ed'
19. v4t1.spss	1	2	3			'-s'	'-ing'	'-ed'		
20. v4t2.spss	1	2	3	4		'-s'	'-ing'	'-ed'	'has -ed'	
21. v4t3.spss	1	2	3			'-s'	'-ing'	'-ed'		
22. v4t4.spss	1	2	3	5		'-s'	'-ing'	'-ed'	'had -ed'	
23. v4t5.spss	1	2	3	6		'-s'	'-ing'	'-ed'	'will'	
24. v4t6.spss	1	2	3	7	4	'-s'	'-ing'	'-ed'	'will have -ed'	'has -ed'

Table 7: Coding for the G-f T

File name	Codes	Verb types and Aspect markings corresponding to Codes
1. GFT1.sav	V1Asp1-V4Asp11	'-S', '-ING, 'PAST', 'HAVE', 'HAD', 'WILL', 'WILL HAVE', 'INFINITIVE', 'OTHERS', 'PRESENT PROGRESSIVE', PAST PROGRESSIVE'
2. GFT1.sav	V1Asp1-V4Asp11	'-S', ...
3. GFT1.sav	V1Asp1-V4Asp11	'-S', ...
4. GFT1.sav	V1Asp1-V4Asp11	'-S', ...
5. GFT1.sav	V1Asp1-V4Asp11	'-S', ...
6. GFT1.sav	V1Asp1-V4Asp11	'-S', ...

In this chapter it was mentioned that the main purpose of this research is to investigate the role of inherent aspect and target tense forms in the acquisition of verbal morphemes across proficiency levels. Furthermore, how the research procedure was carried out constitutes main part of this chapter. In the next chapter, the results of the three tasks will be discussed.

Chapter 5

Results and Discussion

5.0 Introduction

The sections in this chapter are organized according to the acquisition of English target tenses: present, present perfect, past, past perfect, future, and future perfect tenses. Each section is further organized based on the Questions and Research Hypotheses detailed in Chapters 2 and 4. First, I will deal with the questions concerning the Persian Speakers' (PS) and Native English Speakers' (NES) acquisition/use of verbal morphology. Based on the findings of the study, I will argue that the early use of verbal morphology is semantically governed by inherent aspect for the lower-level groups, while the later use of verbal morphology comes to be governed by target tense time reference rather than inherent aspect for the higher-level PS (and NES as control group). Furthermore, I will explain that the lower-level learners' use of verbal morphemes can be described as being syntactically governed by aspectual projections, while the higher-level learners' and NES' use of verbal morphemes is governed by Inflectional Projection (IP). To support this claim, the lower-level subjects should use more aspectual forms (i.e. the forms that are below IP) relative to all inflectional morphemes (i.e. the forms that are checked in IP) than higher and NES groups. The aspectual morphemes could include negative markers without auxiliaries, the biased association of aspect marking with verb types such as the association of the morpheme '-s' with stative verbs, '-ing' with activity verbs, and PAST[13] with

[13] In what follows, I will refer to PAST as one category, without discriminating between irregular past (IR) and regular past (ED). Although the issue of regular vs. irregular past in the acquisition of

achievement and accomplishment verbs, and infinitives, while the inflectional morphemes would include the correct target tense forms, modals, auxiliaries, and sentential negation with the auxiliary. Secondly, in each section, I will also compare PS' and NES' (Grammaticality Judgement Task) GJT, (Gap-filling Task) G-f T, and (Re-telling Task) RT data on distributional bias in English and present a scenario for the acquisition of tense/aspect. Finally, in the general discussion section, I will discuss the results of the present study based on the *learnability theory* presented by Pinker (1984). The theory is claimed to account for both what makes a language learnable and developmental stages in the terms of the ambient input.

Since the Questions and Research Hypotheses are based on the association of inherent aspect and verbal morphology across the groups (i.e. the PS' low, mid, high-levels and NES as well), I applied null hypothesis tests to see whether the associations were statistically significant. I used repeated measurement of variance (or Manova) to compare the means of main effects, that is the effect of inherent aspect (or aspectual verbs), or aspect markings (i.e. verbal morphology and correct target tense forms) and the interaction effects, that is the interaction among verb types (i.e. aspectual verbs) and aspect markings across PS' and NES' groups in the GJT. I used the chi-square test to test the association of verb type and aspect marking in the G-f T and RT. Both the repeated measurements of variance and chi-square tests were used to test the associations among variables. The reason that why repeated measurement of variance was used to analyze the data on GJT is that the subjects were required to provide a 5-

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tense/aspect marking is very interesting and important (e.g., Bybee & Slobin 1982), it is beyond the scope of this study. I would just point out here that in almost 95% of cases, I used regular verbs for both the GJT and G-f T. Furthermore, in all cases both regular and irregular past show congruence with the prediction of the DBH and POA in the GJT, G-f T, and RT.

point rank to judge the acceptability of the GJ test items. If I had wanted to use chi-square test instead of repeated measurement of variance to test the null hypothesis that there is no significant difference among variables, I would have had to include five more variables (i.e. 5-point rank: 1, 2, 3, 4, and 5) in addition to the other variables such as the verb types (i.e. stative, activity, achievement, and accomplishment), aspect markings (i.e. the English verbal morphemes '-s', '-ing', PAST), and English target tense forms such as 'present perfect' 'past perfect' 'future', etc. Thus, it would have been extremely complicated to work out the chi-square with no compensating advantage. The repeated measurement of variance was used to average the subjects' 5-point scores. In that case, the mean score reduced the 5-point scores to one mean score for each of the subjects. Repeated measurement of variance, Manova, was used to calculate the significance within the variables such the significance of verb type, or aspect marking on one hand and the significance between variables, such as the significance between group by aspect marking, group by verb type, or verb by aspect marking, on the other hand.

However, the chi-square test was used to test the null hypothesis in the G-f T and RT because the subjects were required to mark the verb types in the G-f T and to provide both verbal morphology and verb type in the RT. Thus, the number of morphemes on each verb type was counted. Since we were dealing with the observed counts of verb types and aspect marking in the G-f T and RT, a chi-square test as the type of null hypothesis was used to measure whether the association between verbal morphemes and verb types was significant across groups.

It should be mentioned that percentages and raw frequency counts per se are misleading in this particular study. For example, it is not appropriate to add up raw

frequency counts across groups and rely on percentages to claim whether the association among variables is significant (I will discuss this furthermore in section 5.1.2.1). That is why repeated measurement of variance and chi-square tests as the tests of the null hypothesis were used to analyze the GJT, G-f T, and RT data.

In order to test the Questions and Research Hypotheses, I have thought of the GJT and G-f T as a set of six independent experiments, with one experiment for each of the target tenses. However, in the RT, the subjects were asked to refer to 'past time', 'present time', and 'future time'. In what follows, I will start with the data on the GJT, G-f T, and RT for each target tense.

5.1 Target tense 'Present'

5.1.1 The overall association of aspect marking with verb type in the GJT[14]

As noted earlier (section 4.4), the data were coded and entered into a spreadsheet by the statistical package SPSS for Windows. The present study investigated the role of tense and inherent aspect in the acquisition of verbal morphology; thus, each file was devoted to an inherent aspect and a target tense. There were six target tenses (i.e. present, present perfect, past, past perfect, future, and future perfect) and four types of inherent aspect (i.e. stative, activity, achievement, and accomplishment). Therefore, 24 files were constructed (i.e. 6 x 4 = 24). The repeated

[14] Since the study deals with the association of verb type by aspect marking across groups, the effect of verb type or aspect marking as the main effect is not reported.

measurement of variance was carried out on each file to test whether the association between aspect marking and verb type across groups was significant.

For the PS and NES subjects the interaction of group by aspect marking by verb type was statistically significant (F (18, 336) = 7.42 P = 0.000). The following bar charts provide a general picture of the interaction of each verb type and the other two main effects, i.e. the effect of group and aspect marking:

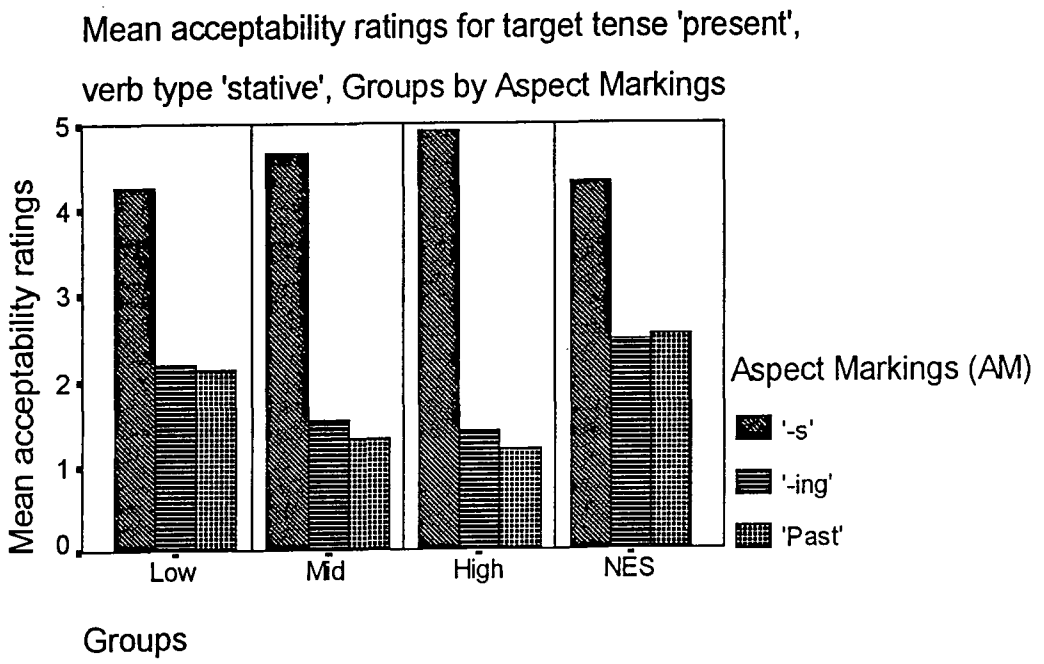

Figure 1[15]

[15] On the horizontal axis, you see four Groups: (1) Low, (2) Mid, (3) High, and (4) native English speakers (NES). In addition, for each group, the type of Aspect Markings (AM): here the '-s', '-ing', and PAST is determined. On the vertical axis, you see the mean acceptibility ratings, the maximum is 5 because the subjects had to judge the acceptibility of the sentences based on a 5-point scale: very bad (1), bad (2), I don't know (3), good (4), and very good (5).

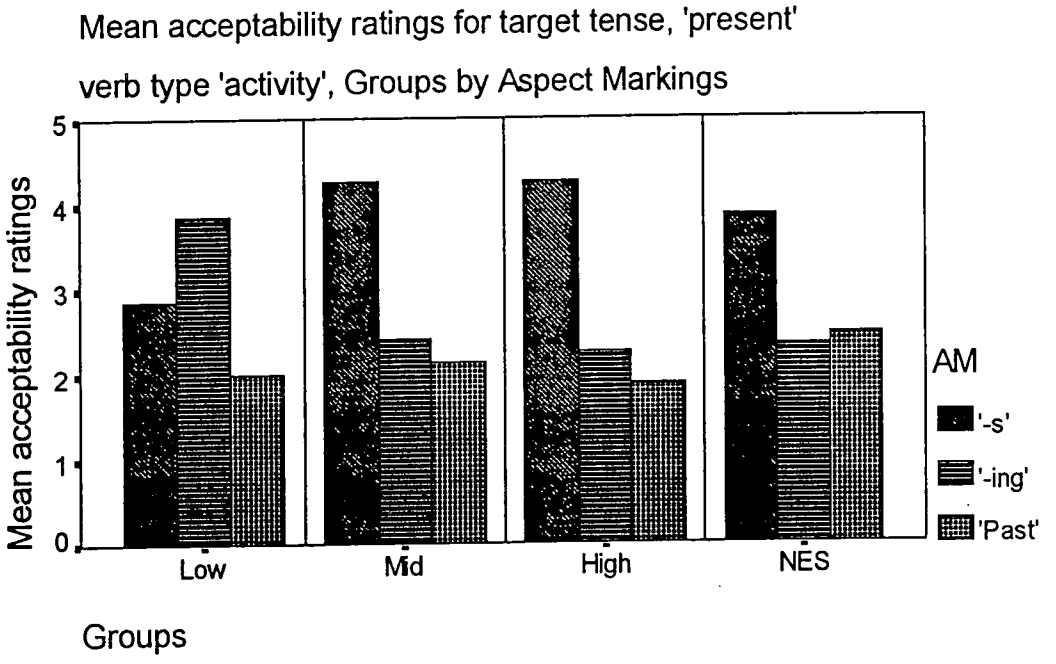

Figure 2

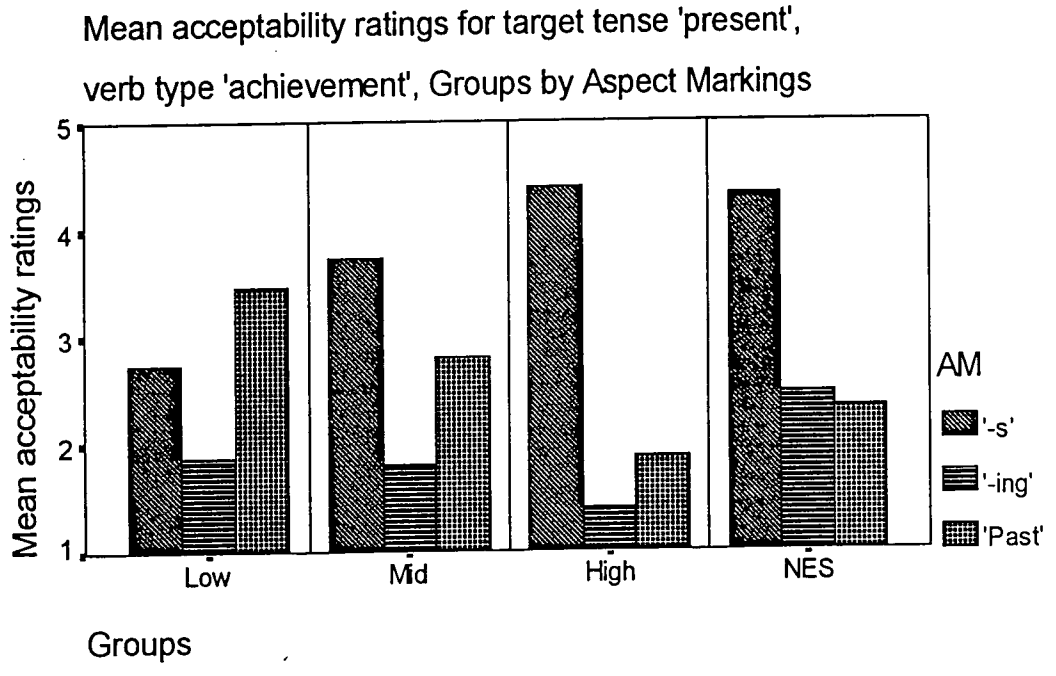

Figure 3

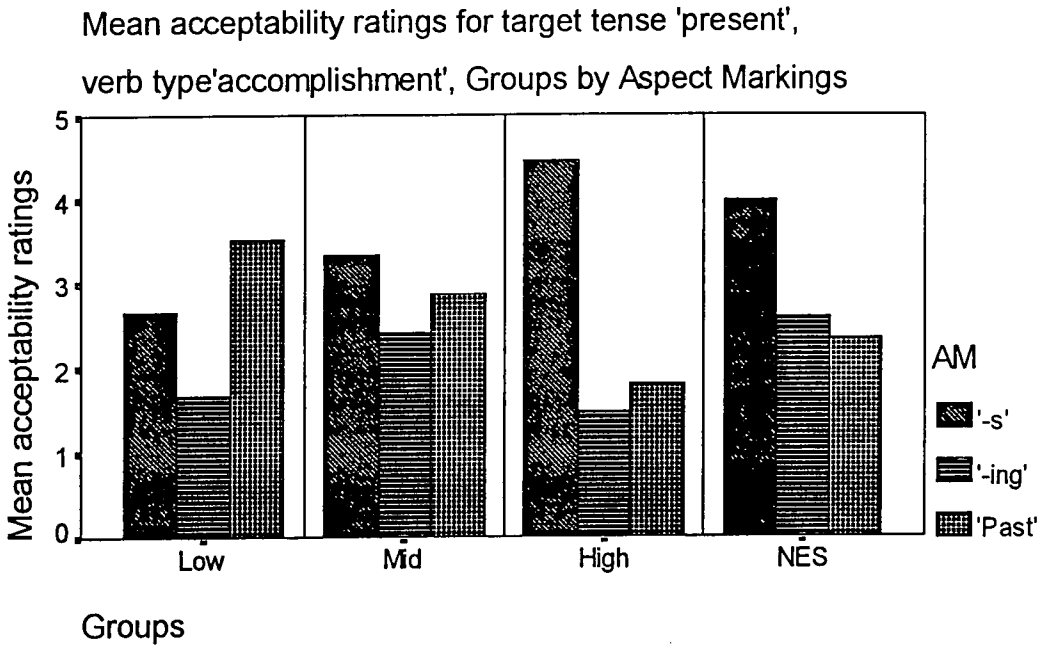

Figure 4

Repeated measurement of variance indicated that the overall interaction of the stative, activity, achievement, and accomplishment verb types with the aspect markings '-s', '-ing' and PAST was significant across the PS and NES groups. However, what one does need to know is which pairwise means are significant. For example, is the difference between the aspect marking '-s', '-ing', or PAST and stative, activity, achievement, or accomplishment across the low, mid, high, or NES groups significant? What is obvious is that the repeated measurement of variance cannot measure the significance of such pairwise means comparisons. For example, by looking at Figure 2, one cannot say for sure whether the difference between the aspect markings '-s' and '-ing' within the low-level group is significant or whether the difference between the aspect marking '-ing' and the low and/or mid-level learners is significant.

In order to find out which of the pairwise comparisons is significant, a Tukey test was used. The test compares all pairwise means and indicates which pairs are

statistically significant. For the low-level subjects, the aspect marking '-s' was more often preferred with stative (4.267) verbs (see Figure 1 and the test items 71-73)[16] than with activity (2.867), achievement (2.733) or accomplishment (2.667) verbs, the '-ing' form was preferred with activity (3.867) verbs (see Figure 2 and the test items 74,78,80) over stative (2.200), achievement (1.867) or accomplishment (1.667) verbs, and the PAST form was preferred with both achievement (3.467) (see Figure 3 and the test items 75, 79, and 81) and accomplishment (3.533) verbs (see Figure 4 and the test items 76, 77, and 82) over stative (2.133) or activity (2.000) verbs. These differences were all statistically significant ($p < 0.05$). However, the mid, high, and NES groups' acceptance of the morpheme '-s', '-ing' and PAST was not selectively associated with stative, activity, achievement, or accomplishment verbs; rather the '-s' form as the correct target tense form was correctly extended to all verb types (see Figures 1-4 and Question and Research Hypothesis 4a-d): Examples presented to the subjects in the GJT with stative verbs and various verbal morphemes for target tense 'present' are as follows:

(71) Last year my brother was practicing skating but he ***preferring*** swimming now.

(72) Reza: How many languages does Ali know?
Javad: He ***knows*** three languages now.

(73) Reza ***enjoyed*** fishing now but he was interested in basketball last week.

(74) Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "Parvin ***looking at*** the goalkeeper."

[16] The verbal morphemes, which were used with the target tense 'present', were the '-s', '-ing' and PAST morphemes with each inherent aspect, i.e. stative, activity, achievement, and accomplishment. Thus, three test items with each verb type are introduced here.

(75) "Now he ***kicking*** the ball."

(76) "And Garoosi ***shooting it*** into the goal! It's a goal for Esteqlal."

In a theater somebody might describe the action of the play as:

(77) "The curtain ***rises***[17]."

(78) "And Jamshid ***walks*** in the corner of the room."

(79) "Meanwhile a tall man ***enters***."

(80) Sports announcer: "Karami ***ran*** very fast on the right side."

(81) "And he ***kicked*** the ball now."

(82) "But now Estili ***brought*** it for his team."

5.1.2 The overall association of aspect marking with verb type in the G-f T

As mentioned in section 4.5.2, the data were coded and entered into a spreadsheet using the statistical package SPSS for Windows. The files were based on the verb type, target tense, and aspect markings (i.e. the total number of aspect markings such as the '-s', '-ing', PAST, and so on for each verb type and target tense that each learner had produced). Then, the chi-square test was carried out on the data. In this way, the total frequencies, percentages, and expected values of aspect markings for each verb type and target tense across groups were worked out. Appendix B-1 shows the detailed results of token analyses, that is, the correlation of aspect markings such as '-s', '-ing' PAST, etc. with lexical aspect categories, stative, activity, achievement, and

[17] The use of the morpheme '-s' with the non-stative verbs, i.e. activity, achievement, and accomplishment verbs are not interpreted as habitual stative verbs.

accomplishment. Groups are presented from low-level to high-level as well as NES. The results indicate that the overall chi-square of the association of aspect marking and verb type was significant for the low-level group (X^2 (15, N = 178) = 79.32, P<.000), while that of the overall chi-square was not significant for the mid, high, and NES (cf. Appendix B-1). The bar graphs presented below of the association of verb type and aspect marking across the groups give a clear picture of what is going on:

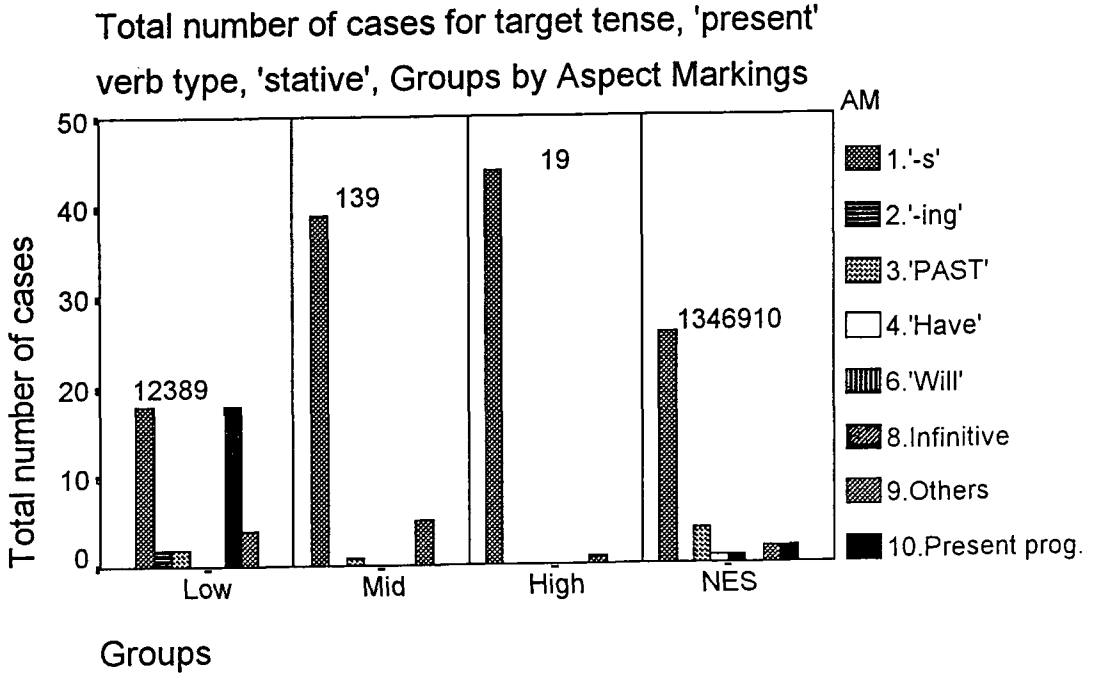

Figure 5[18]

[18] On the vertical axis, you see the total number of cases of Aspect Markings (AM) such as the '-s', '-ing' without the auxiliary 'be', present progressive (i.e. the '-ing' form with the auxiliary 'be'), and so on, which were produced by the subjects. In addition, there were three items for each verb type (here stative) for each target tense (here present tense) and in each group, there were 15 members (subjects); thus the maximum number of the aspect marking would be 3 X 15 = 45. For example, for the mid-group, 39 cases of the '-s' form out of 45 were in the '-s' form. In addition, the numbers on the top of the bars indicate the type of Aspect Marking (AM) involved for the Low, Mid, High, or NES groups. For example, the low-level learners used the aspect marking 1, 2, 3, 8, and 9 which match with the '-s', '-ing' PAST, infinitive, and Others, respectively, while the mid-level learners produced the Aspect Markings (AM) 1 (i.e. the '-s' form), 3 (i.e. PAST), and 9 (i.e. Others).

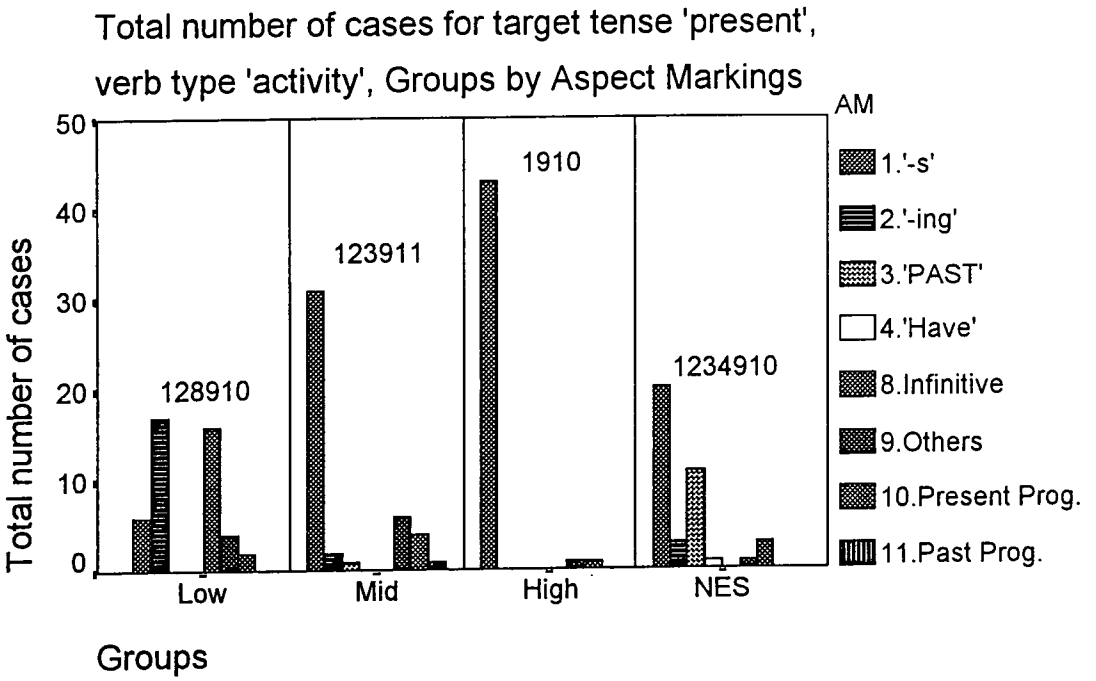

Figure 6

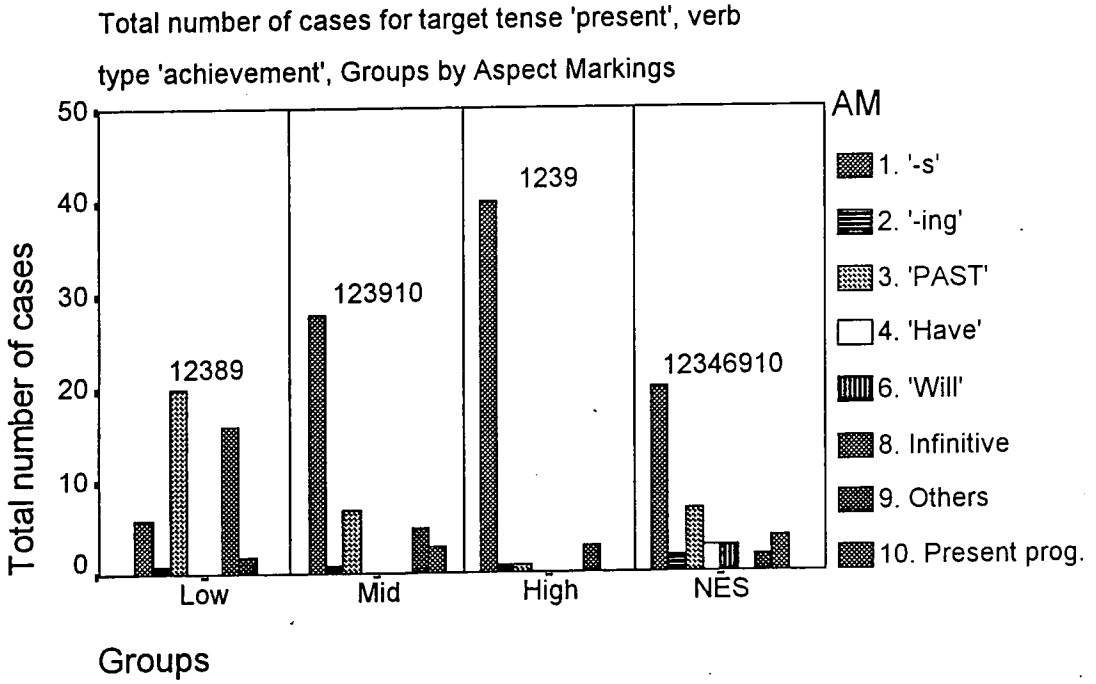

Figure 7

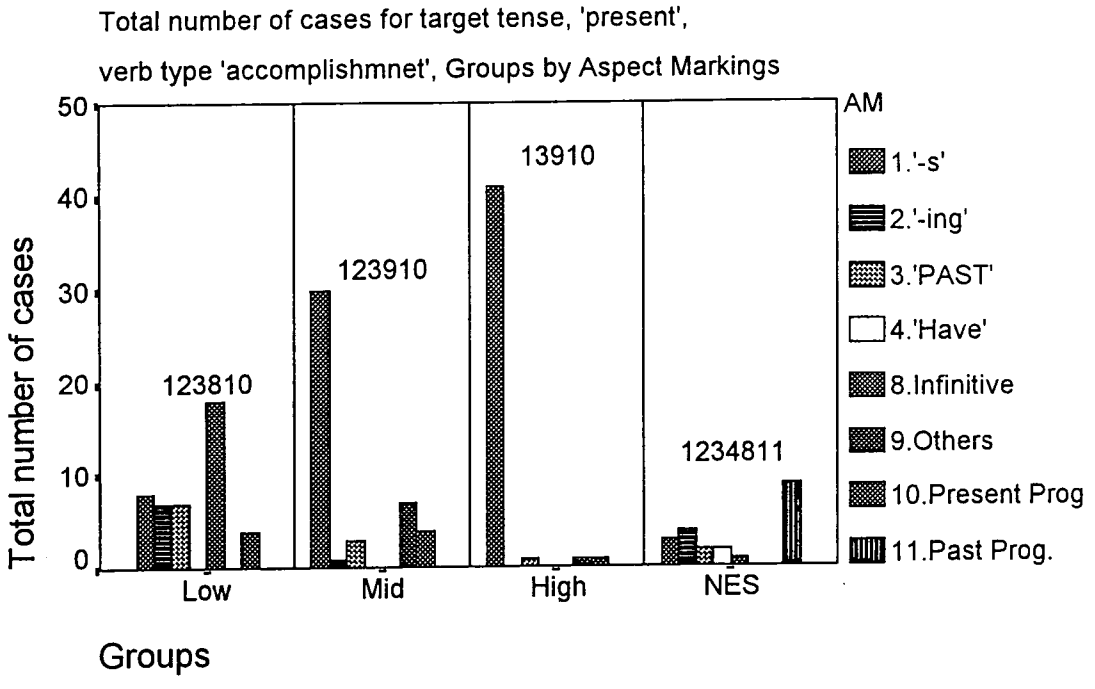

Figure 8

5.1.2.1 The use of the aspect marking '-s'

Token counts are observed frequencies representing the distribution of aspect markings within each aspectual category; thus, 18, 17, 20 of all stative, activity, and achievement token counts were in the '-s', '-ing', and PAST forms, respectively, for the low-level group and each set of token counts is accompanied by a matching set of percentage figures and expected values in the same table (cf. Appendix B-1). The percentage column represents the distribution of the aspect markings within each aspectual category; thus, 40.9%, 37.8%, and 44.4% of all stative, activity, and achievement tokens at the level 1 (or low-level) were in the '-s', '-ing', and PAST form respectively. By comparing percentages, one cannot say for sure whether the association of aspect marking by verb type is significant. Furthermore, the expected value column shows the expected distribution of aspect markings within each aspectual

category; thus, 9.4, 6.8, 7.3 of all stative, activity, and achievement tokens for the low-level were expected to be in the '-s', '-ing', and PAST forms respectively. However, the data showed that there were 18, 17, and 20 of all stative, activity, and achievement token counts, or those of all observed statives, activities, and achievements were in the present form '-s', '-ing' and PAST, respectively, which greatly exceeded the expected values of these tokens (cf. Appendix B-1). That is to say, one expects the aspect markings '-s', '-ing', and PAST in the aspectual category of statives, activities, and achievements, respectively, for the low-level learners were contributing to the overall X^2 value. However, for example, 6, 6, and 8 of all activities, achievements, and accomplishments token counts respectively in the '-s' form does not exceed the expected values 9.6 and 9.4. Thus, activities, achievements, and accomplishments token counts do not contribute to the overall significant X^2 value. The low-level subjects manifested a dependence between aspect marking and aspectual category; the null hypothesis can be rejected at least at the $\alpha = .05$ confidence level for each group. Appendix B-1 shows that the value of chi-square is only statistically significant for the low-level subjects. What is of interest here is the contribution made by each category of lexical aspect to the overall X^2 value in each group. Therefore, it seems that the aspect marking '-s' associates with the stative aspect, the aspect marking '-ing' with activity aspect, and PAST with achievement aspect contribute to the overall X^2 value in the low-level group (cf. Appendix B-1).

Since several variables are involved in this study, the difficulty is to identify precisely what is the principal source of significance among the variables across the groups. Although it was mentioned that the correlation of the aspect markings '-s', '-ing', and PAST with the stative, activity, and achievement verb types respectively

outnumbers their expected values, one still needs to calculate the cell value of X^2 of these pairwise separately to tell whether the associations are significant or not. The cell values of X^2 for the '-s' stative were significant for the low and mid groups ($X^2(1, N = 178) = 11.81, P< .0006$) and ($X^2(1, N = 179) = 5.82, P< .02$) respectively, while the correlation of the aspect marking '-s' and stative aspect was not significant for the high and NES groups. This result is in agreement with the answer to Question and Research Hypothesis 4a for the low and mid groups. As the subjects become more competent they extend the present form '-s' as the correct target tense form from its concentration on statives into the other aspectual categories of activity, achievement, and accomplishment. In the following section, the results of some further chi-square tests will be discussed to examine whether the progressive and PAST aspect markings associate with verb type.

5.1.2.2 The use of the progressive aspect marking

Progressive marking bears a distinct association with activity in this study in general. For the low-level group, the V + ing without auxiliary affiliates with activity (e.g., the test item 84 below), the X^2 value for this affiliation was statistically significant ($X^2(1, N = 178) = 21.63, P < .001$), while the X^2 value for the association between present progressive and past progressive with activity aspect was not statistically significant. Moreover, seven of all accomplishments were in the '-ing' form but they did not exhibit statistical significance. However, the low-level learners used accomplishment verbs more with the '-ing' form (e.g., test item 83 below). Nor do the higher groups or NES exhibit an amplified use of the different forms of the aspect

markings '-ing' with activities and accomplishments for target tense, 'present'. The disassociation between the aspect marking '-ing', present progressive, or past progressive with accomplishment aspect is not in agreement with Question and Research Hypothesis 2 (i.e. the biased use of the '-ing' form with the accomplishments) in all groups, whereas the association of activity verbs with the aspect marking '-ing' without auxiliary that the low-level learners link the '-ing' with activities verifies the hypothesis 4b.

As Appendix B-1 indicates only two cases of the stative '-ing' were observed for the low-level learners, much less than its expected value, i.e. 6.7. Thus, the Question and Research Hypothesis 2 that the lower-level learners align stative with the English '-ing' form is rejected.

5.1.2.3 The use of the aspect marking PAST

A biased use of PAST aspect marking stands out as the most significant feature of achievements in both low and the mid groups ($X^2(1, N = 178) = 37.29, P < .0001$) and ($X^2(1, N = 179) = 6.07, P < .02$) respectively but that use was not significant with the high and NES groups. The link between the PAST aspect marking with achievements decreases as the subjects' proficiency level increases. The association of the aspect marking PAST with accomplishment aspect was not statistically significant in all groups, which is in opposition with the Question and Research Hypothesis 4d.

As with the '-ing' aspect marking on activities (e.g. *walking*), PAST frequently distinguishes achievements (e.g. *entered*) from accomplishments which may be in the same line as '-ing' form or an unmarked verb (e.g. *rise*) for the low-level learners in

the context of 'present'. The following sentences are typical verb forms filled in by the lower-level learners:

In a theater somebody might describe the action of the play as:

(83) "The curtain (rise) .....***rise***..... ."

(84) "And Jamshid (walk) .....***walking***..... in the corner."

(85) "Meanwhile a tall man (enter) .....***entered***..... the room."

The results confirm the POA hypothesis for which PAST is biased with achievements but they do not confirm the biased use of PAST with accomplishments. In the next section, the results of the RT will be discussed.

5.1.3 The overall association of aspect marking with verb type in the RT

Appendix B-2 shows the detailed results of token analyses for the RT, that is, thebiased concentration of aspect markings such as '-s', '-ing' PAST, etc. with stative, activity, achievement, and accomplishment. Groups are presented from low-level to high-level as well as NES. The results indicate that the overall chi-square of the association of aspect marking and verb type is significant for the low, mid-level groups and NES (X^2 (15, N = 156) = 80.55, P<.0001), (X^2 (27, N = 269) = 142.72, P<.0001), and (X^2 (27, N = 314) = 71.72, P<.0001) respectively, while the overall chi-square results were not significant for the high group (cf. Appendix B-2). The bar graphs of the association of verb type and aspect marking across the groups are presented below:

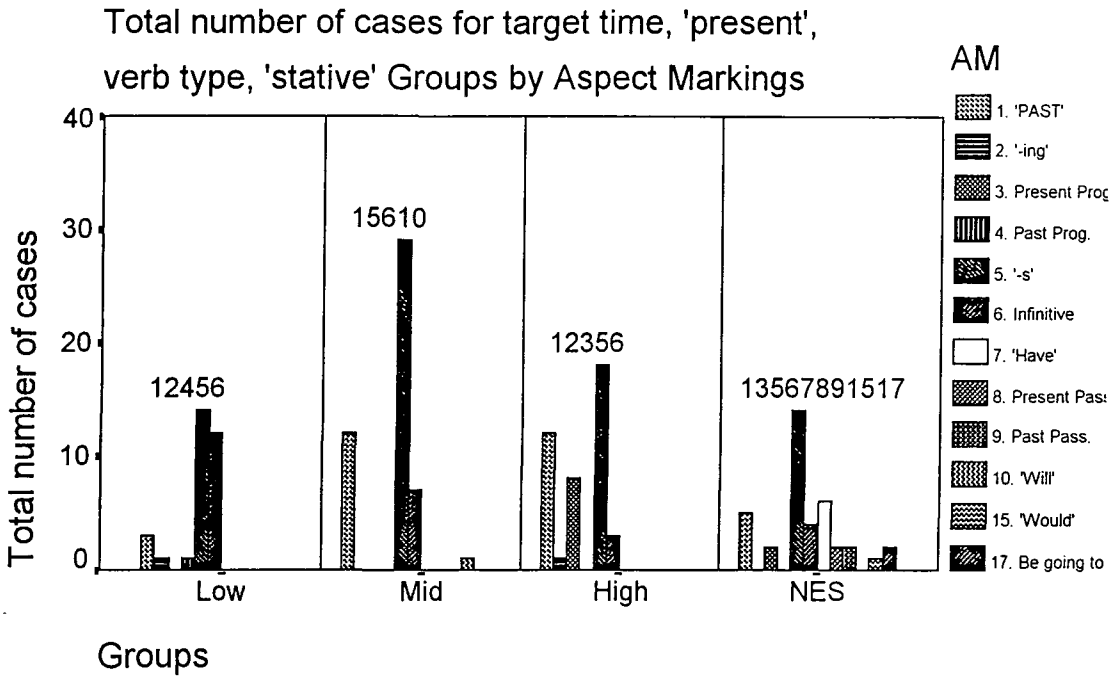

Figure 9

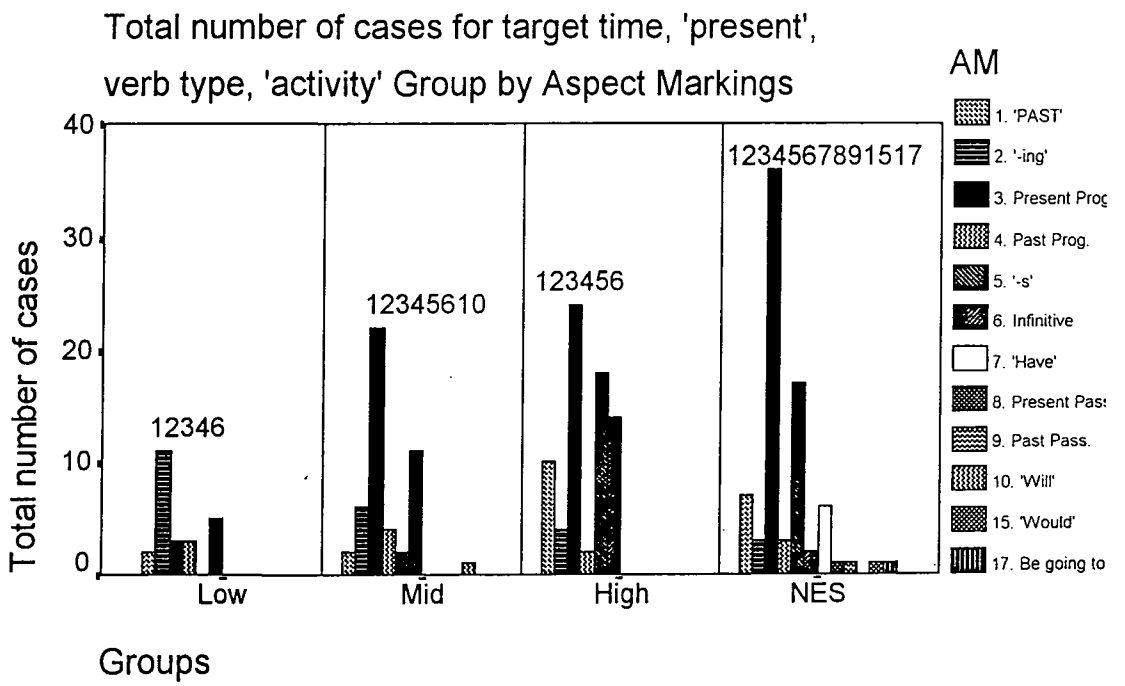

Figure 10

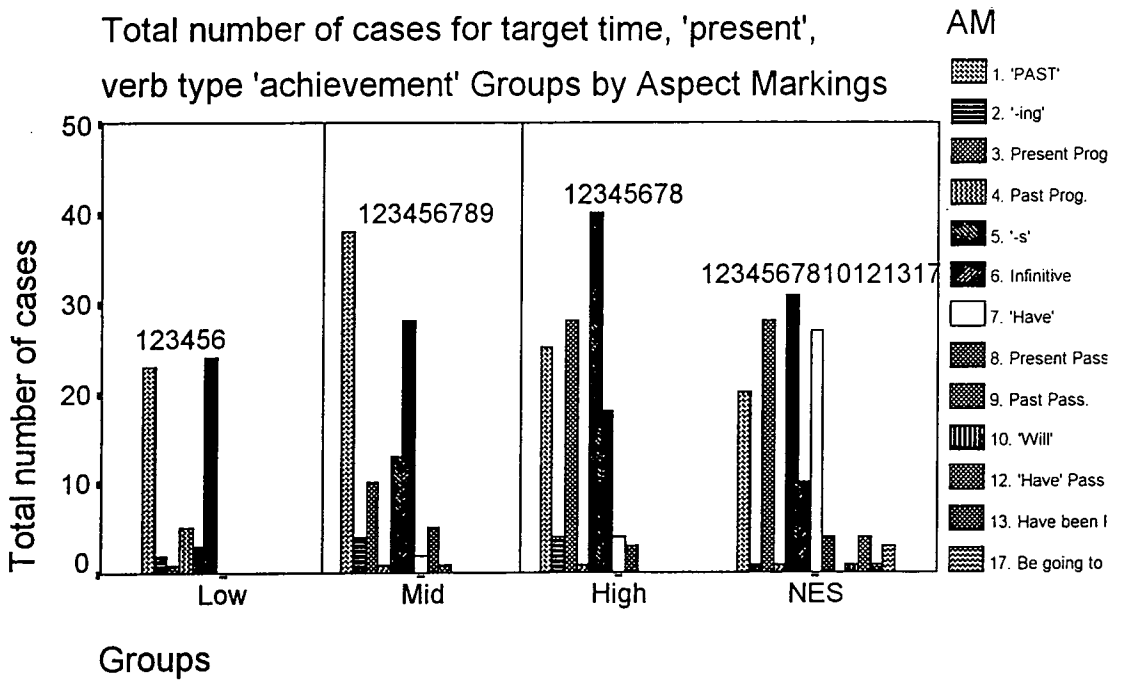

Figure 11

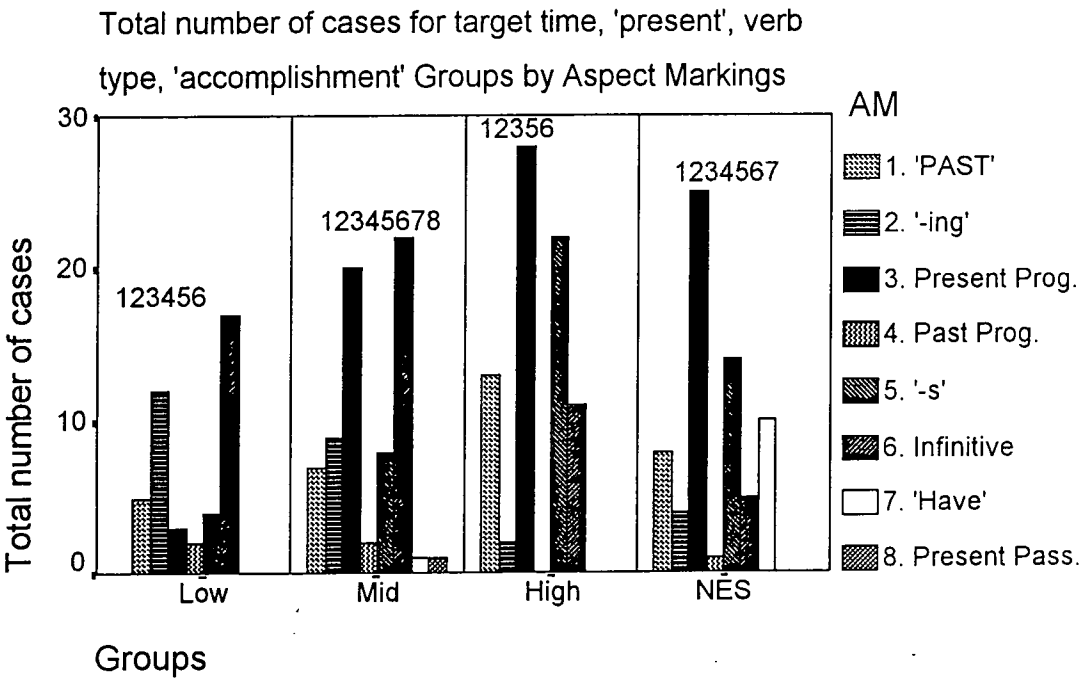

Figure 12

5.1.3.1 The use of the present form '-s'

The token counts show the distribution of aspect marking within each aspectual category (as shown in Appendix B-2). Therefore, 14, 45.2%, and 4.2 of all stative verb counts, percentage counts, and expected values, respectively, were in present form for target time, 'Present'. The comparison between the expected values (i.e. 4.2) of all stative verbs and that of token counts (i.e. 14) indicates that there exists a strong link between stative verbs and the aspect marking '-s'. The cell values of chi square for the stative '-s' marking were significant for the low and mid groups (X^2 (1, N = 156) = 30.06, P < .00001) and (X^2 (1, N = 269) = 57.93, P < .00001), respectively, while the correlation between the present form '-s' and stative aspect was not significant for the high and NES groups. The result confirms that the low-level learners associate the simple present form with stative aspect (see Question and Research Hypothesis 4a). Some typical biased uses of the '-s' form with stative for the low-level learners are shown below:

(86) The king ***wants see***[19] the Robin Hood ... .

(87) He ***is*** a soldier of king he's keep their money.

[19] In Radford's (1990) view, early grammars are entirely lexical in nature and functional categories such as IP and CP mature later during the course of acquisition. In support of his claim that there is no INFL system in early grammar, Radford presents data from child English. He observes that children's utterances with infinitival complements of verbs such as *want* do not contain the infinitival marker *to*, as shown in the following examples.

(2) a. Want [VP mummy [V come]].
b. Want [VP teddy [V drink]]. (Radford, 1990: 140)

For Radford, while the adult form of the complements in (2) requires an IP headed by an INFL element *to*, the child uses a simple VP.

As the subjects become more proficient they spread the present form '-s' as the correct target tense from stative verbs into the adjacent aspectual categories of activities, achievements, and accomplishments:

(88) ... and he ***try*** to ***get*** the money from them

(89) ... the wheels ***come off*** and the king ***falls down*** and everyone ***walks*** over him.

(90) ... the father ***finds*** with taxman he ***advises*** him to be quiet.

5.1.3.2 The use of progressive form

Examination of the alternatives to the simple present tense form used by the low-level learners reveals the influence of aspect. In the case of activity aspect, the single competitor to simple present in activity verbs was the progressive. The use of progressive without the auxiliary 'be' was significant for the low-level learners (X^2 (1, N = 156) = 14.97, P < .00001) while the association of activities with the auxiliary 'be' was not significant for the low-level learners. The use of present progressive with the auxiliary 'be' was significant for the mid and NES groups (X^2 (1, N = 269) = 24.28, P < .00001) and (X^2 (1, N = 314) = 13.78, P < .00001). Examples of the activities with progressive without the auxiliary for the low-level learners in the context of 'Present time' as follows:

(91) ...and the bear come to the street and he ***walking*** and ***singing*** and he was...

(92) ...and she ***listening*** and he say something come here and he...

The use of progressive was not significant with respect to verb type for the high-level learners. The association between progressive with activity aspect for the low and mid groups is line with the Question and Research Hypothesis 4b, whereas the disassociation between the progressive and activity aspect for the high and NES groups is in accordance with target tense form, regardless of the type of aspect. Moreover the link between accomplishment and stative aspects with the progressive form was not significant for the low-level group, which rejects Questions and Research Hypotheses 2 and 1, respectively.

5.1.3.3 The use of PAST form

The data showed that achievement aspects exhibit high-levels of simple past form at the low-level of proficiency (X^2 (1, N = 156) = 17.22, P < .00001). However, the link between the past form and accomplishment aspect was not significant for all groups. The link between the past form with achievements decreases as the subjects become more competent (see Appendix B-2). The results verify Question and Research Hypothesis 4c (i.e. the biased use of the PAST form with achievements) and reject Question and Research Hypothesis 4d (i.e. the biased association of the PAST form with accomplishments). Examples of achievements with PAST forms for the low-level learners in the context of 'Present time' are as follows:

(93) and ... snake are fall down. He ***smashed*** on the king head and...

(94) He put out her money and ***stole*** it and...

(95) This is father and this father and this is the friend of father and Robin Hood *gave* him...

5.2 The development of the present tense '-s' as a marker of inherent aspect into a tense marker

5.2.1 Emergence of the '-s' marker: Semantic evidence

For the lower-level learners, the '-s' morphology is significantly restricted to stative verbs in all tasks (see Figures 1, 5 and 9). The preponderance of stative terms with '-s' is in a sense natural since the criterion used in this study to distinguish statives from non-stative was whether the latter (non-stative verbs) necessarily have a habitual reading in the simple present tense. However, the non-stative verbs with the '-s' form as reportage or sport commentary when describing events which are not habitual stative (cf. 4.3.1.1). Therefore, the present form '-s' with non-stative verbs as reportage or sports commentary does not shift non-stative events into habitual statives. That was the reason the reportage or sports commentary was used in the GJT and G-f T to include non-stative (i.e. activity, achievement, and accomplishment) instances of present tense. Furthermore, since the subjects were required to produce both the verb types and aspect markings to describe the cartoon-film in the RT, the use of the '-s' form with non-stative verbs did not refer to habitual states; rather they were cases of non-stative '-s' forms. Typical uses of such non-statives are in the sentences 77-79 above for the GJT, but sentence 72 in the GJT and sentences 86-87 for the RT have with typical stative '-s'. The stative '-s' is in a sense natural; that is, children pay attention to what Bickerton (1981) suggests can be interpreted as the State/Process

Distinction (SPD). Therefore, the stative '-s' form denotes situations that (characteristically) hold for an extended period of time that includes the moment of speech.

Let us turn to the groups' use of '-s'. First, the emergence of '-s' is exclusively with stative verbs. The low-level learners in the GJT and the low-and mid-level learners in both the G-f T (cf. Figure 5) and RT (cf. Figure 9) used the '-s' form, and they were significant on stative verbs: ***loves, sees, wants***, etc. Although the '-s' form emerges with distributionally dominant verb type (i.e. stative verbs), usage soon starts to deviate from the pattern seen for the lower groups, and becomes extended to non-stative verbs for the higher-level groups. Therefore, whenever the lower-level learners used the stative '-s' form, they referred to a constant, and they created an association between the form and the meaning. As reported by Brown (1973), his child subjects took a long time to acquire the habitual reference usage of '-s'. He explains that this is understandable since children's concern is generally with here and now, and they may not, at early stages, grasp the notion of displaced reference such as the habitual. In this connection, as it was pointed out in the GJT, G-f T, and RT, the use of the '-s' form with non-stative verbs did not refer to a habitual state; rather it referred to a unitary event (e.g. sentences 77-79).

The question that arises is what is the difference between the stative '-s' form and the non-stative '-s' form? The former refers to an extended unitary state (e.g. sentence 72 in the GJT and sentences 86-87 for the RT), which includes the moment of speech, while the latter refers to an unextended unitary action or event (e.g. sentences 77-79 for the GJT), which includes the moment of speech. Since stative verbs are timeless or refer to an extended period of time which includes the moment of speech

and the '-s' form as the marker of 'present time' also refers to an extended period including the moment of speech, there exists a match between the semantic feature of stative and the semantic feature of the '-s' form. One might say there is one form one function relationship between them (Slobin 1985, Pinker 1984). The second question is why non-stative verbs (activity, achievement, and accomplishment verbs) were not aligned with the '-s' form in the GJT, G-f T, and RT for the lower-level learners. Non-stative verbs entail some change of state. Activity verbs entail an onset change of state or process without an end-point or conclusion. Achievement verbs entail a final end-point change and accomplishment verbs entail both an onset change of state and a final conclusion (Dowty 1979, Vendler 1967). Therefore, the '-s' form, which entails an extended period of time, is not compatible with non-stative unextended change of state.

As was mentioned earlier, the lower-level learners associated activity verbs with the '-ing' form, which is compatible with the semantic entailment of activity verbs as processes of states without conclusion[18] (Question and Research Hypothesis 2). However, to transfer the imperfective prefix stative *mi-* in Persian to its counterpart, the imperfective '-ing' in English, the lower-level learners should have associated the '-ing' form with stative verbs. The data on the GJT, G-f T, and RT showed that even the lower-level subjects did not use the stative '-ing' form significantly. If they had associated the stative verbs with the '-ing' form, the association would have been in contrast to the universal semantic entailment of stative verbs, which is incompatible

[18] Marked stative verbs are compatible with the progressive form '-ing' (e.g., *enjoying* or *looking well*, while unmarked stative verbs are incompatible with the progressive form (e.g., *knowing* or *believing*). The question that arises is why the lower-level learners do not associate marked stative verbs with the '-ing' form. The reason is that the lower-level learners use a universal aspectual feature of stative verbs [-dynamic], which is applicable to both marked and unmarked stative verbs, to mark all stative verbs. The progressive marker '-ing' indicates a change of state [+dynamic] which is incompatible with both marked and unmarked stative verbs [-dynamic].

with the '-ing' form under POA. Moreover, achievement verbs, which entail final change of state were strongly associated with the PAST form. Finally, accomplishment verbs, which entail both an onset change of state and a final conclusion, were usually associated with the PAST form.

To summarize, there was an agreement between PAST morphology, progressive, and the present tense form '-s' morphology. First, as far as these related morphemes are concerned, the results of the previous studies discussed in chapter 3 were clearly supported: Initially, the learners mark inherent lexical aspect achievement using PAST morphology, stative aspect using the '-s' form, and activity aspect using the '-ing' form without correct target tense distinction then gradually approximate NES and the higher-level groups by using correct target tense (Robison 1995). However, in this study, there was a discrepancy between PAST morphology and accomplishment. It cannot be unequivocally claimed that the same tendency was found for PAST marking. In view of high percentages of inherent aspects: activity, stative, and achievement for the lower-level learners, the claim that the PAST is initially used to redundantly mark accomplishment aspect may be less conspicuous for the G-f T and RT but not for GJT. It was also found that the lower-level learners sometimes used the '-ing' form to mark accomplishment aspect because of the learners' L1 transfer of aspect. Therefore, it appears that the PAST marker and the '-ing' marker do not necessarily mark accomplishment aspect as clearly as the '-s', '-ing' and PAST mark stative, activity, and achievement aspects respectively. However, as the lower-level learners mark accomplishment aspect they use either the PAST or the '-ing' form, which is in agreement with their universal semantics (cf. Questions and Research Hypotheses 2 and 4d, respectively).

5.2.2 Emergence and development of the present tense morphology: Semantic evidence

A crucial question is, how do the higher-level learners unlearn the acquisition of aspect, i.e. the biased association of the '-s', '-ing' and PAST with aspectual verbs (stative, activity, achievement, and accomplishment) and use correct target tense forms instead? To investigate what the role of aspectual values for the developmental pattern of the verbal morphology 's' in this study is, I consider the four aspectual values punctual vs. non-punctual, telic vs. non-telic, dynamic vs. non-dynamic, and observable end-states vs. no end states. Recall that punctual vs. non-punctual refers to achievement vs. activity, telic vs. non-telic refers to telic aspects (i.e. achievement or accomplishment) vs. atelic aspect (i.e. activity or stative), dynamic vs. non-dynamic refers to achievement, and accomplishment and activity verbs vs. stative verbs (see Table 2 Chapter 2). Finally, observable end-states vs. no end states refers to the cognitive notion of the situations. The question is which of these aspectual values plays a role in the development of the present tense. To study the development of the present tense form, the mid-and high-level groups' in the GJT, G-f T, and RT must be studied because the low-level group's data were considered as the earliest stage. For the later stages, the mid, and high-level groups' data were focused on.

The mean acceptability ratings for the mid-and high-level groups, respectively, were higher on stative verbs (4.667, 4.933) than activity (4.267, 4.267), achievement (1.800, 1.400), accomplishment (3.333, 4.467) verbs. Therefore, the developmental pattern of the present tense morphology can be proposed to be: stative, activity, achievement, and finally accomplishment. Telic aspectual value (i.e. achievement and accomplishment) is the last candidate to receive the present tense form.

To investigate the role of aspectual values in the G-f T and RT, the percentage of the tokens of the verb types were compared for the mid-and high-level groups. As Appendix B-1 shows the mid and high groups, respectively, yielded a higher percentage of stative (86.7%, 97.8%) verbs than activity (68.9%, 95.6%) verbs, accomplishment (66.7%, 93.2%) verbs, and achievement (963.6%, 88.6%) verbs. Thus, the developmental pattern for the acquisition of present tense morphology is as follows: stative, activity, accomplishment, and achievement aspect in the G-f T. Appendix B-2 also shows the aspectual order of verb type for the mid-level group was that the association of the '-s form with stative (59.2%) verbs was more frequent than achievement (12.7%) verbs, accomplishment (11.4%) verbs, and activity (4.2%) verbs. The order of development for the high-level group involved the link between the present form '-s' with stative (42.9%) verbs, which was more frequent with than achievement (32.5%) verbs, accomplishment (28.9%) verbs, and activity (25.0%) verbs. Therefore, the aspectual order for the G-f T and RT is: stative, achievement, accomplishment, and activity. Of the four aspectual values, the last one, i.e. observable end-states (non-process events) vs. no end-states (process events), seems to hold for the GJT. The mid and high groups judged the aspectual verbs with no end-states (stative and activity) to be more acceptable than the verbs with observable end-states (achievement and accomplishment). However, this value does not hold for the pattern of the G-f T and RT because the groups start off with the stative (i.e. with no end-states), achievement and accomplishment (with end-states), and finally activity (again no end-states). It means that the lower-level learners mark stative verbs with the present form '-s' to indicate no end-states and the higher-level learners extend the present form '-s' to activity verbs to show no end-sates again. Therefore, the fourth

aspectual value (i.e. observable end-states vs. no end-states) cannot hold for the tasks. The first aspectual value also cannot account for all the tasks because in the GJT and G-f T, the learners do not end with achievement (i.e. punctual verbs) verbs. The second aspectual value (the distinction between telic and atelic verbs) also cannot account for the data because in the G-f T and RT, the groups start to mark atelic verbs (i.e. stative) and finally end with another atelic verb (i.e. activity). So which aspectual could account uniformly for all the tasks? The best aspectual value is dynamic vs. non-dynamic value. The groups start to mark non-dynamic (i.e. stative) verbs first and then the present form morpheme extends to dynamic (achievement, accomplishment, and activity) verbs. In what follows, I will discuss the syntactic evidence of verbal morphemes across the groups.

5.2.3 Emergence and development of present tense form: Syntactic evidence

It was mentioned earlier that an aspectual projection is the interface between the lexicon and syntax (see Chapter 2 section 2.2.2). It was discussed that lexicon provides two types of information to build up syntax: the number of arguments and aspectual information. For example, the difference between the verbs 'die' and 'run' is that they both have one argument, while for the verb 'die', the argument is base-generated in Spec of the aspectual projection of measurer (i.e. Asp EM) but for the verb 'run', the argument is base-generated in Spec of the aspectual originator (i.e. AspOR). In the Minimalist Program framework, the NP argument in Spec of AspEM combines with the verb 'die' and the result is a telic interpretation (or achievement aspect), but for the verb 'run', its argument, which is generated in Spec of AspOR,

combines with the verb, 'run', and the result is an atelic interpretation (or activity aspect). There is no NP argument movement out of VP to the aspectual projections; rather they are based-generated in Spec of the aspectual projections. The assumption is that aspectual projections are below IP, where tense markers such as modals, auxiliaries, the correct target tense markers, and sentential negation with auxiliaries are checked. However, the biased association of the '-s', '-ing' and PAST with aspectual verbs: stative, activity, achievement, and accomplishment, infinitives, and negative markers without auxiliaries are checked below IP. Questions and Research Hypotheses 5a-5b involve whether the lower-level learners use more aspectual markers (or forms; i.e. those forms which are checked below IP) in proportion to all inflectional forms (i.e. those forms which are checked at IP) than the higher and NES groups and vice versa (see Questions and Research Hypotheses 5a-5b in Chapter 4 section 4.1). In what follows, I will analyze the GJT, G-f T, and RT, respectively to test Questions and Research Hypotheses 5a-5b.

5.2.3.1 Emergence and development of present tense in the GJT: Syntactic evidence

Since both the aspect markings (the '-s', '-ing', and PAST) and verb types (stative, activity, achievement, and accomplishment) were chosen before they were presented to the subjects, it was not necessary to identify the aspectual markers and inflectional markers. The aspectual markers included the biased association of the aspect markings with the verb types, while the inflectional marker was the non-biased use of the '-s' form with all verb types in the context of present tense. A Tukey test

showed that the mean acceptability ratings of the stative '-s', activity '-ing' and the achievement and accomplishment PAST (in proportion to all mean acceptability ratings of the inflectional marker '-s') for the low-level subjects outnumbered those of the higher groups (i.e. the mid, and high-level groups) and vice versa. These differences were all statistically significant ($P<0.05$). Therefore, the biased use of the aspect markings with the verb types indicates that the verbal morphemes are not checked by IP, rather they are checked by the aspectual projection for the low-level learners, while the use of the '-s' form with all verb types indicate that the '-s' form is checked by IP for the higher-level learners (cf. Questions and Research Hypotheses 5a-5b). The difference between the mid and the high-level groups was not significant, indicating that these two groups used the correct target tense form more independent than the aspectual markers, as shown in Figures 1-4.

5.2.3.2 Emergence and development of present tense in the G-f T: Syntactic evidence

As Appendix B-1 shows, the aspectual markers, i.e. the significant association of verb type with the '-s', '-ing', and PAST, were the only available aspectual markers for the target tense present. The assumption is that all markers that are below IP are considered as aspectual markers, thus, infinitives are also included as aspectual markers. Furthermore, the inflectional markers, i.e. the correct tense markers, and auxiliaries were the markers that were available in the G-f T. The low-level groups used more aspectual markers (X^2 (1, N = 662) =129.20, P < .000001) (in proportion to all inflectional markers) than the mid, high and NES (cf. Question and Research Hypothesis 5a). However, the mid group used more inflectional markers (X^2 (1, N =

662) =11.53, P < .0007) (in proportion to all aspectual markers) than the low-level group. The high and NES groups also used more inflectional markers (in proportion to all aspectual markers) than the low-level group (cf. Question and Research Hypothesis 5b).

5.2.3.2 Emergence and development of present tense in the RT: Syntactic evidence

In the RT the aspectual markers included the infinitive and the significant association of the '-s', '-ing', and PAST with verb types and the inflectional markers included the correct target tense form on main verbs, modal, auxiliaries, and the sentential negation with the auxiliaries. The low-and mid-level groups used more aspectual markers (X^2 (1, N = 1045) =122.18, P < .00001) and (X^2 (1, N = 1045) =37.47, P < .00001), respectively (in proportion to all inflectional markers) than the high and NES groups (cf. Question and Research Hypothesis 5a). However, the high group used more inflectional markers (X^2 (1, N = 1223) =79.09, P < .00001) and (X^2 (1, N = 1051) =78.74, P < .00001), respectively (in proportion to all aspectual markers) than the low and mid groups (cf. Question and Research Hypothesis 5b).

5.3 Target tense 'Present perfect'

5.3.1 The overall association of aspect marking with verb type in the GJT

The correlation of group by aspect marking was significant (F(27,504) = 7.16, P = 0.000) for the L1P and LE subjects. Figures 13-16 provide the bar charts for the

effect of each verb type by level (or group) by aspect markings.

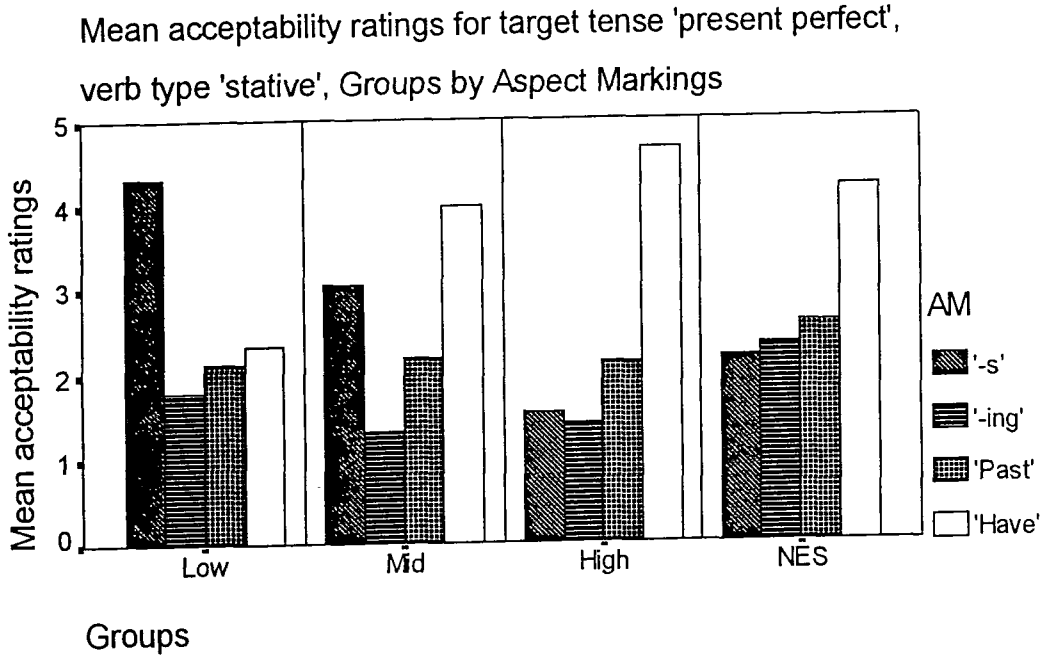

Figure 13

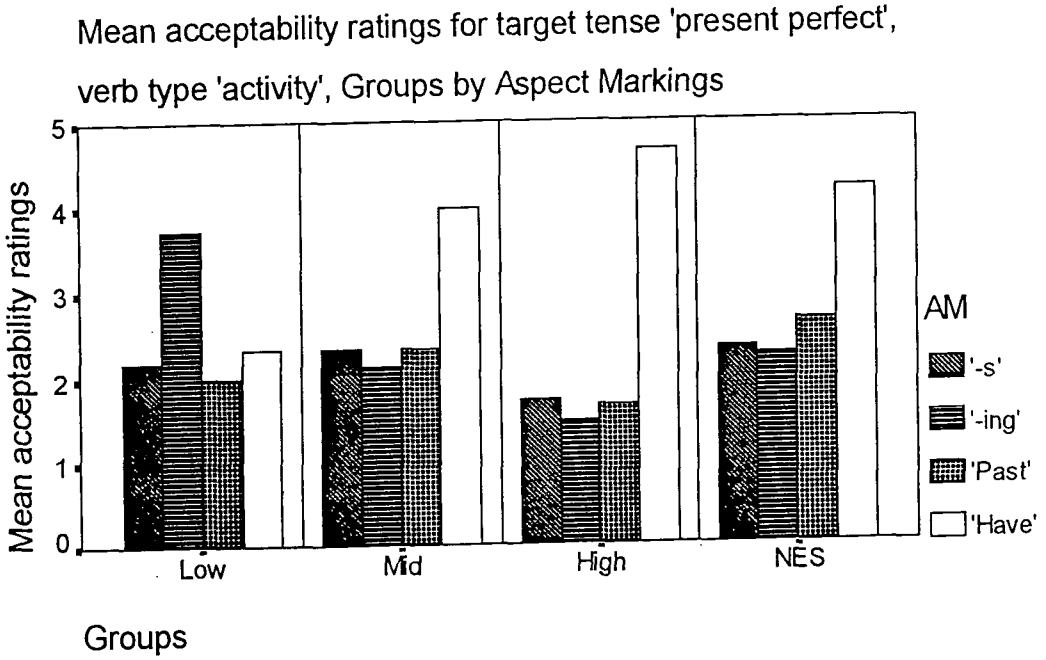

Figure 14

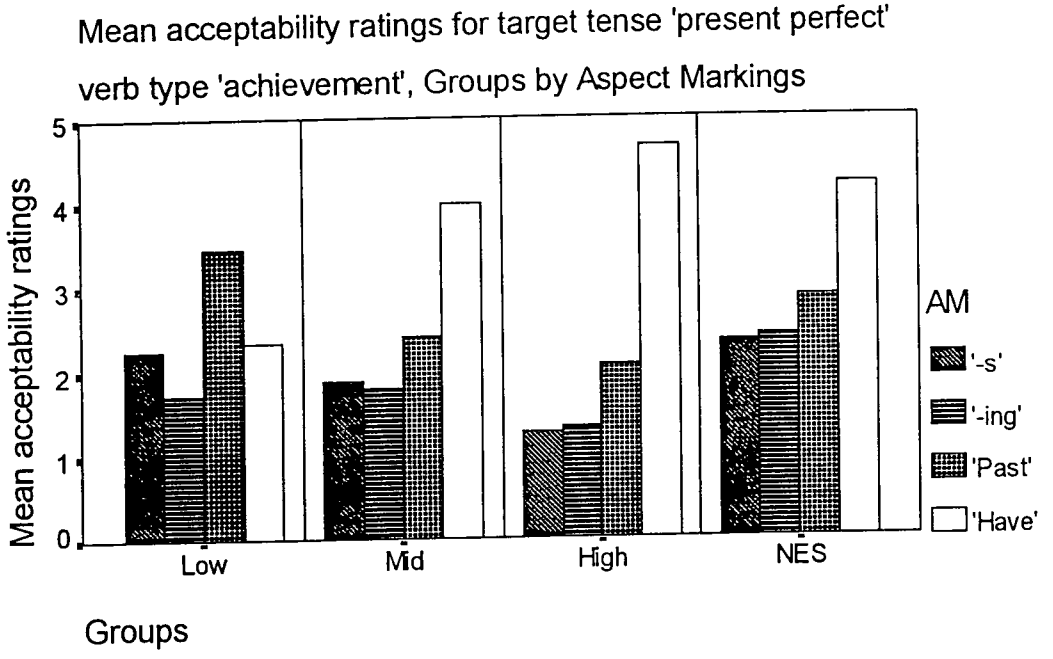

Figure 15

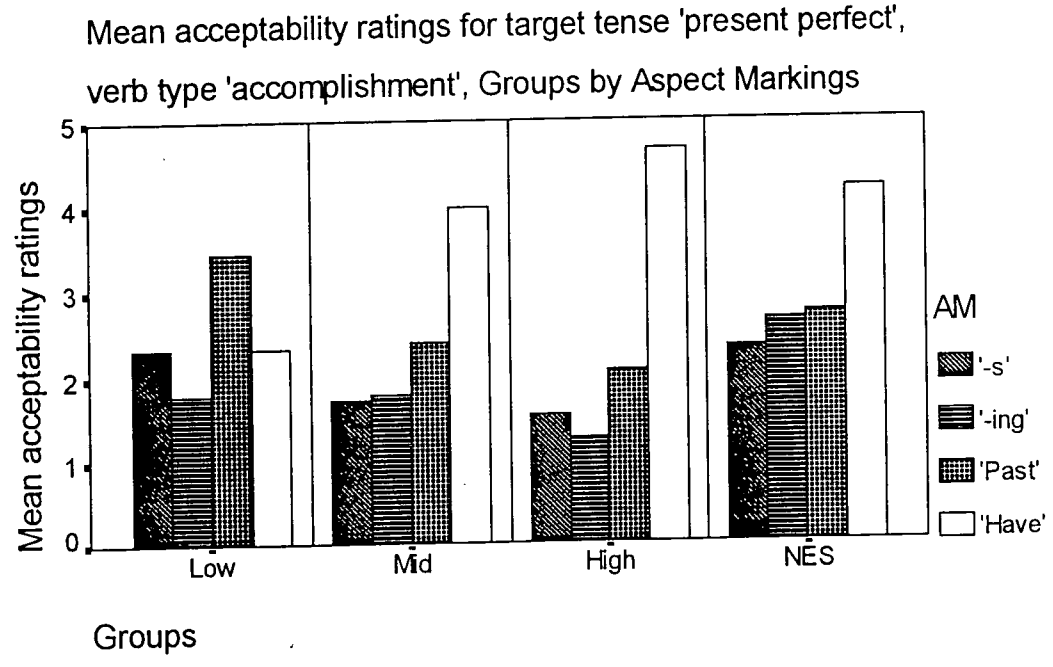

Figure 16

The low-level group was less accurate at judging the correct target tense form than the mid, high, and NES. A Tukey test showed that the '-s' aspect marking was

found to be more acceptable with stative (4.333) verbs (as in 96) than activity (2.200), achievement (2.267), or accomplishment (2.333) verbs as in (Figure 13). Furthermore, the '-ing' form was judged more accurately with activity (3.733) verbs (as in 97) than with stative (1.800), achievement (1.733), or accomplishment (1.800) verbs as in Figure 14 and PAST was judged more accurately with achievement (3.467) (as in 98) and accomplishment (3.467) verbs (as in 99) than stative (2.133) and activity (2.000) verbs for the low-level group as in Figures 15-16 (see Appendices A-1 and A-2). Examples of verb type by aspect marking judged by the lower-level learners in the context of 'present perfect' are:

(96) Reza ***likes*** to play golf in the last two years.

(97) Reza ***smoking*** a lot today and he is still smoking. It's strange!

(98) My brother ***started***[20] to build his house since last month and he hopes to finish it next year.

(99) The dentist ***checked*** five teeth since 5 o'clock today.

5.3.2 The overall association of aspect marking with verb type in the G-f T

The overall X^2 values for the low-and mid-level groups were statistically significant in present perfect tense. It seems that the cells which are contributing to the overall chi square values are the cells corresponding to the aspect marking '-s' with

[20] Although the NES group also judged present perfect form more acceptable than the past form with all verb types, they used more past form than the mid, and high Persian speakers (see Appendix B-3). It seems that the past form is actually acceptable for the target tense 'present perfect'. It should be stressed that although past forms were more often found acceptable by the NES than the higher-level Persian speakers, they did not associate the PAST form with the verb type (i.e. telic verbs); rather past forms were more often found acceptable with all verb types. For example, the association of telic verbs (i.e. achievement and accomplishment verbs) with the PAST form was not significant.

stative verbs for the low and mid groups and the aspect marking 'v + -ing' with activity and accomplishment verbs and the aspect marking PAST with achievement verb for the low-level subjects as shown in Appendix B-3. The following bar graphs show the association of each verb type with the aspect marking across groups:

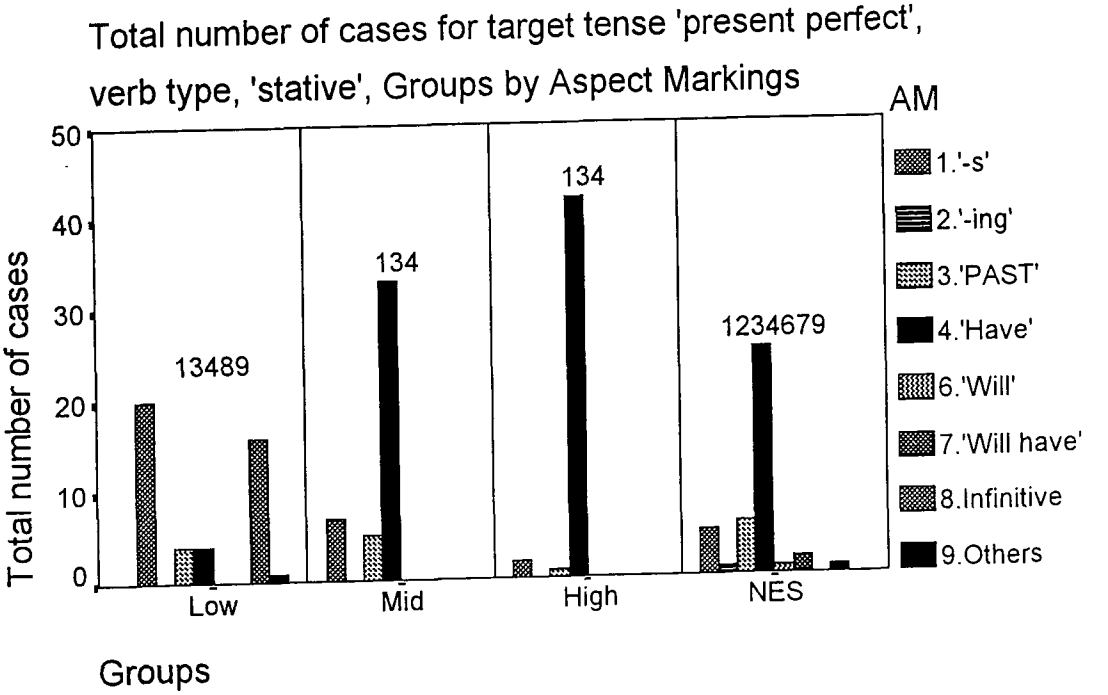

Figure 17

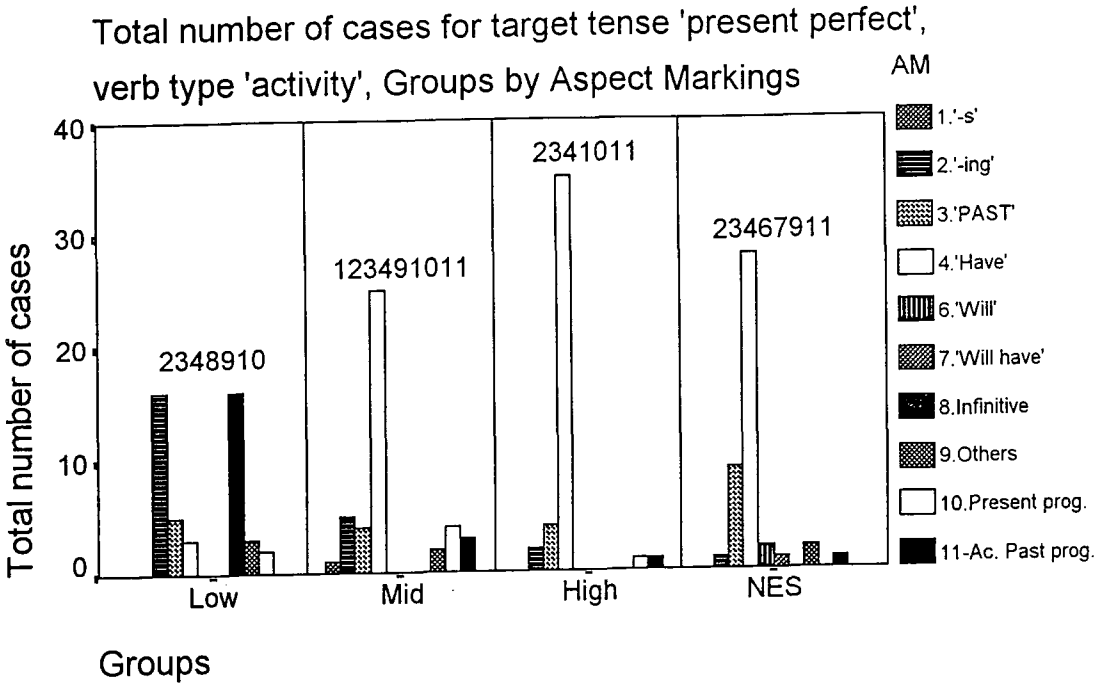

Figure 18

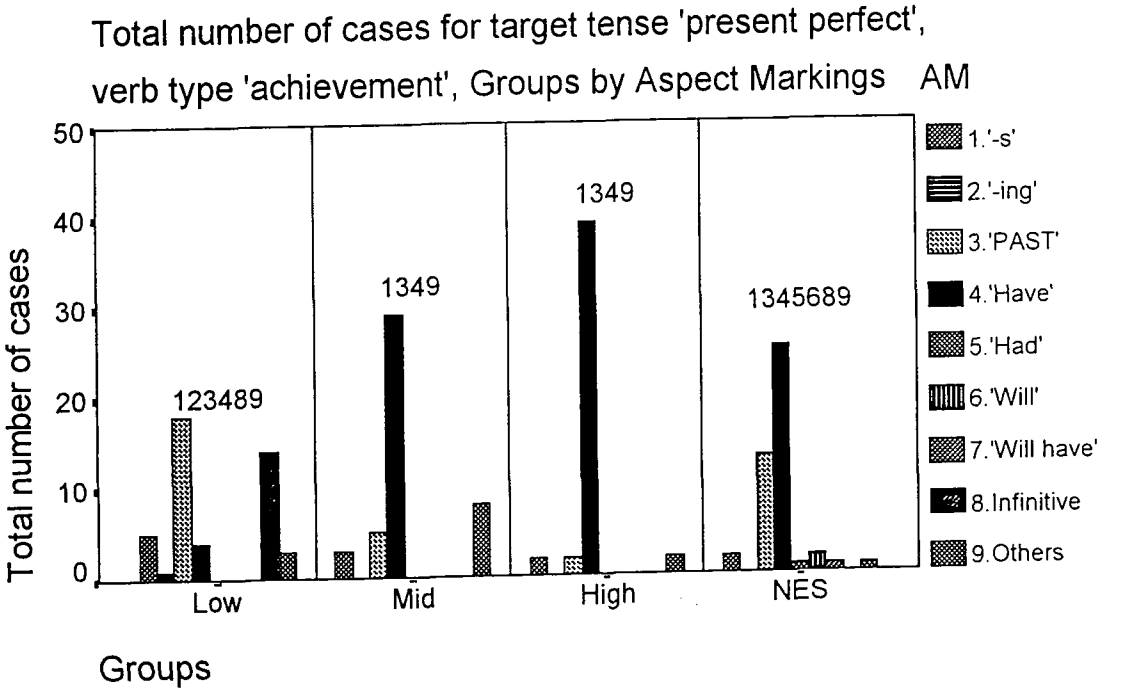

Figure 19

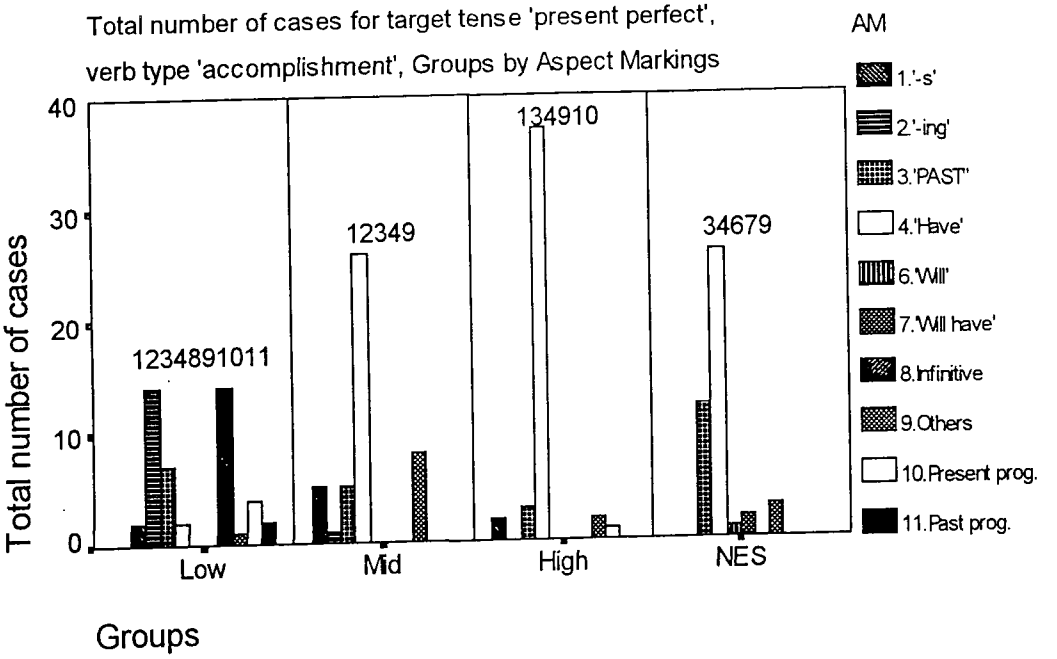

Figure 20

5.3.2.1 The use of the aspect marking '-s'

Appendix B-3 reveals that 44.4, 15.6, 4.4, and 12.2 percent of all stative tokens were in the verb inflection '-s' in the low through NES groups, respectively. The chi square value of this concentration was only statistically significant (X^2 (1, N = 180) = 37.77, P < .00001) for the low group. The results support Question and Research Hypothesis 4a. However, zero percent of all stative tokens were in progressive form, which rejects Question and Research Hypothesis 1 (i.e. transfer from Persian).

5.3.2.2 The use of progressive aspect marking

It is clear that 16 and 14 of all activities and accomplishments, respectively, with the V + ING form exceed 7.7 and 7.9 of the expected values of such verbs and

the verbal form, respectively for the low group (cf. Appendix B-3). The chi square value of the effect of activities and accomplishments with the '-ing' aspect marking without auxiliary was significant ($X^2(1, N = 180) = 12.48, P < .0005$) and ($X^2 (1, N = 180) = 6.87, P < .009$) respectively. The results are in agreement with Questions and Research Hypotheses 2 and 4b. However, the association of accomplishments with past form is not in agreement with Question and Research Hypothesis 4d. I will discuss these results latter.

5.3.2.3. The use of the aspect marking PAST

The PAST aspect marking significantly concentrates on achievements ($X(1, N = 180) = 15.66, P < .00009$), which is in accordance with the POA hypothesis or Question and Research Hypothesis 4c. The results indicate that the low-level learners align the aspect marking '-s' with statives, as in test item 100, the '-ing' aspect marking with activities and accomplishments, as in test items 101 and 102, respectively, and PAST with achievements, as in test item 103 for target tense of present perfect, while for the mid, high, and NES groups, verb categories align with correct target tense form regardless of the type of aspect (e.g. test item 104) (cf. Appendix B-3). Examples of verb type by aspect marking across the groups in the context of 'present perfect' tense are as follows:

(100) Hossein (enjoy) .....***enjoys***..... staying in a small flat rather than a big house in the last three years.

(101) This is the first time Jala (walk) .....***walking***..... in Tehran park.

(102) In the last two hours the dentist (fix) .....***fixing***..... three teeth and he's still fixing a few more.

(103) Karim (finish) .....***finished***..... his studies since September.

(104) This is the first time the secretary (type) .....***has typed***..... three letters in such a short time.

To sum up, the lower-level groups associated verb type with the aspect markings '-s', '-ing' and PAST. However, the difference between the GJT and G-f T for this effect is that in the former, the learners aligned the aspect marking PAST with accomplishment verbs, while in the latter task, the learners associated the '-ing' aspect marking with accomplishment verbs. When the learners use the PAST form to mark accomplishment, it indicates that the direct object of the verb measures out the action described by the verb. However, the use of '-ing' with accomplishments is an indication of the demotion of the direct object of accomplishment verb to form a unit with the verb. In this way, the accomplishment aspect switches into activity aspect. This effect indicates transfer of Persian aspect into English. Therefore, the use of accomplishment with either the PAST or '-ing' is in agreement with the universal semantics of aspect. That is to say that the PAST accomplishment shows that the object argument, which is referential, is the measurer of the verb, while the '-ing' accomplishment indicates that the argument of the verb is no longer referential and does not measure out the action described by the verb, i.e. accomplishment aspect switches into activity aspect. Thus, the use of the '-ing' with accomplishment verbs is indeed the use of activity verbs with the '-ing' aspect marking. However, in Persian, achievement verbs with direct object arguments are always referential, thus, the argument of the verb cannot switch into a non-referential argument. That is why the data do not show the use of the '-ing' with achievement verbs. Finally, although it was pointed out that a group of Persian stative verbs use the imperfective prefix *mi-* to

mark stative verbs, the data do not show the use of the English imperfective suffix '-ing' to mark stative verbs. The reason is the distinction between imperfectives in Persian and English. The Persian imperfective with stative verbs is not progressive, while the English imperfective is progressive. In other words, the imperfective with stative verbs is an aspect marker in Persian, while the imperfective in English is not a marker of inherent aspect rather it is a marker of grammatical aspect (Comrie 1976). Furthermore, it was mentioned earlier that stative verbs are not compatible with the '-ing' form because the use of the '-ing' with a verb indicates that the subject of the verb should be the originator of the action described by the verb (i.e. agent). Generally speaking, when the learners transfer their L1 aspect into English, the transfer has to be in agreement with the universal properties of inherent aspect. The question is when and how aspect marking shifts its concentration from verb type to target tense time reference.

5.4 Emergence and development of the 'present perfect' form: Semantic evidence

Four aspectual values were suggested to investigate the development of the present tense form: punctual vs. non-punctual, telic vs. non-telic, dynamic vs. non-dynamic, and observable end-states vs. no end states. The low-level learners acquired the marking of aspect first by associating the aspect markings '-s' with non-dynamic aspect, '-ing' with atelic aspect, and PAST with punctual and/or telic aspect. It is worth mentioning that the use of the '-s' form with dynamic verbs cannot be interpreted as habitual stative because the context is present perfect. In addition, as soon as the association of verb type with aspect marking weakens for the mid and

higher-level learners, all verb types (i.e. regardless of verb type) align with the correct target tense form. In this case, the association of verb type with target tense form is not significant (as shown in Figures 13-20). We can conclude that the lower-level learners acquired aspect first by marking it with morphemes, while the higher-level learners acquired the present perfect by acquiring present perfect relative tense form. That is to say, as the higher-level learners used the correct target tense, i.e. present perfect tense, they knew how to arrange the three time points for the present perfect tense: Reference, Event, and Speech time points (Reichenbach 1947):

(105) E_____R,S_____

5.5 Emergence and development of the 'present perfect' form: Syntactic evidence

It was suggested that aspectual projections are below IP, where telic or atelic interpretation is provided (cf. section 2.8). If the verbal morphemes '-s', '-ing' and PAST associate with aspectual verbs, the morphemes are checked by the aspectual projections below IP for the lower-level learners, while the correct tense form is checked by the IP. To test this hypothesis, all verbal forms that are checked by either aspectual projection or IP should be analyzed. Therefore, modals, auxiliaries, sentential negators with the auxiliaries with correct tense form should be included as IP markers, while the biased association of morphemes with the verb types, infinitives, and negative markers without auxiliaries were included as aspectual markers.

5.5.1 Emergence and development of 'present perfect' form in the GJT: Syntactic evidence

The link between statives with the '-s' form, activity with the '-ing' form, and achievement and accomplishment with the PAST form was significant for the low group, while this effect was not significant for the mid and high-level groups. Thus, the biased use of aspect markings with verb types were considered to be aspectual markers, while the use of the correct tense form, present perfect tense form, was considered to be inflectional markers. A Tukey test indicated that the low-level group used more aspectual markers (in proportion to inflectional markers) than the mid-and high-level groups and vice versa. The differences were significant at $P < 0.05$. Therefore, Questions and Research Hypotheses 5a-5b were verified.

5.5.2 Emergence and development of 'present perfect' form in the G-f T: Syntactic evidence

The association of verb type with aspect markers was significant for the low-level learners (see Appendix B-3). The aspectual markers were the stative '-s', activity and accomplishment '-ing', achievement PAST, and infinitives. The available inflectional marker was the correct tense form. A chi-square test was carried out to test whether the association between the aspectual markers and the inflectional markers across the groups was significant. The low-level group used more aspectual markers than the higher group and NES groups, while the mid, high used more inflectional markers than the low group (X^2 (1, N = 553) = 317.50, P < .00001). Therefore, Questions and Research Hypotheses 5a-b were confirmed.

5.6 Target tense 'Past'

5.6.1 The overall association of aspect marking with verb type in the GJT

The effect of group by aspect marking by verb type was significant ($F(18,336) = 12.24$, $p = 0.000$) for the learners and NES. The following bar graphs show the concentration of aspect markings across the groups for each verb type:

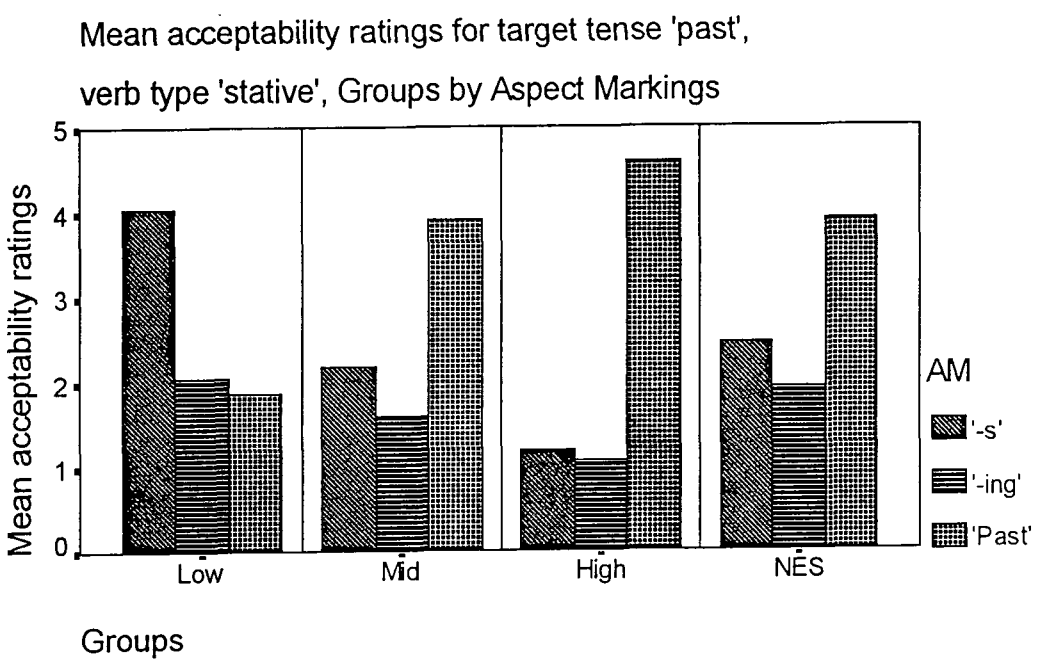

Figure 21

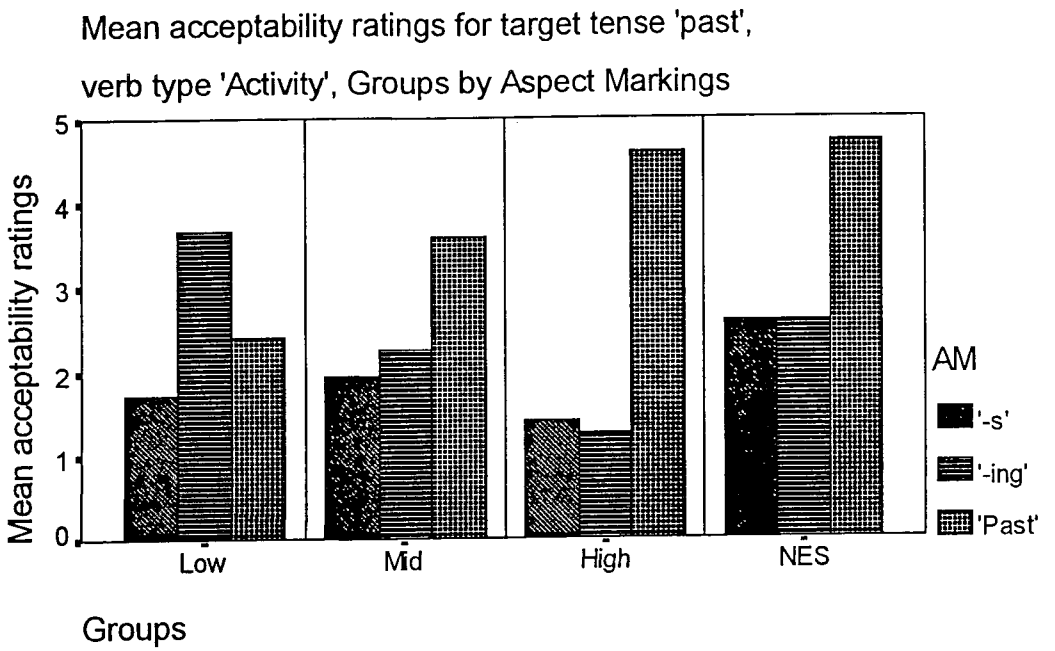

Figure 22

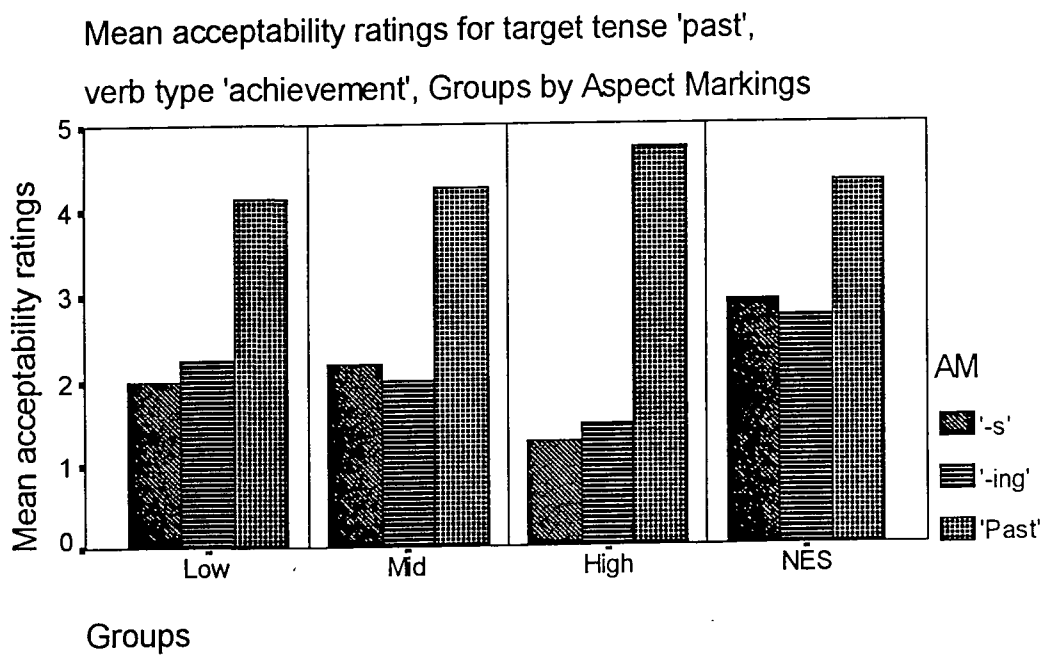

Figure 23

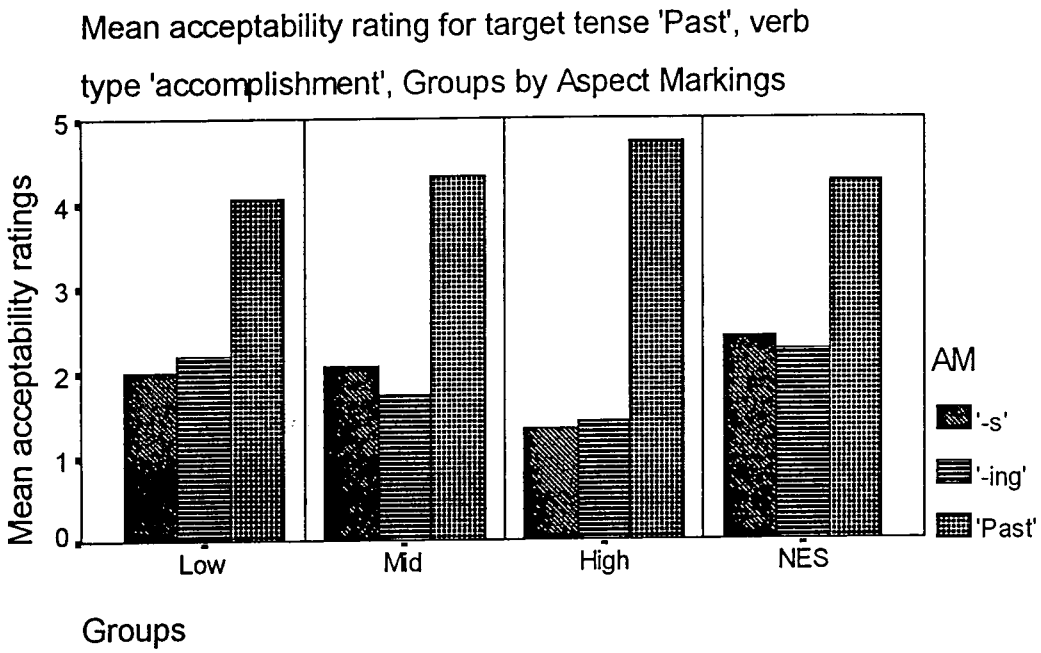

Figure 24

A Tukey test indicated that the low-level learners were biased in judging the correct aspect marking, i.e. the PAST form, whereas the mid, high, and NES were accurate in judging the correct aspect marking. The low-level group judged the '-s' form (as in 106) more accurately with stative (4.067) verbs than activity (1.733), or achievement and accomplishment (2.000) verbs. Moreover, the '-ing' form (as in 107) was associated more often with activity (3.667) verbs than with stative (2.067), achievement (2.267) or accomplishment (2.200) verbs and the PAST was preferred with achievement (4.133) (as in 108) and accomplishment (4.067) verb (as in 109) over stative (1.867) or activity (2.400) verbs. Examples of the association of verb type by aspect marking judged acceptable by the low-level group are:

(106) Last year Hossein could find a good job. He ***likes*** it very much but he lost it last month.

(107) Hossein went to the park and ***walking*** there for an hour.

(108) Reza ***finished*** writing his letter last night because he had to post it today.

(109) Amir: What did Ahmad do last week?
Reza: He ***posted*** his friend a letter.

5.6.2 The overall association of aspect marking with verb type in the G-f T

The link between the '-s' and '-ing' aspect markings with stative and activity aspects, respectively, as well as the PAST aspect marking with achievement stands out for the low and mid groups. Figures 25-28 show the link between aspect marking and verb type across the groups for each of verb type:

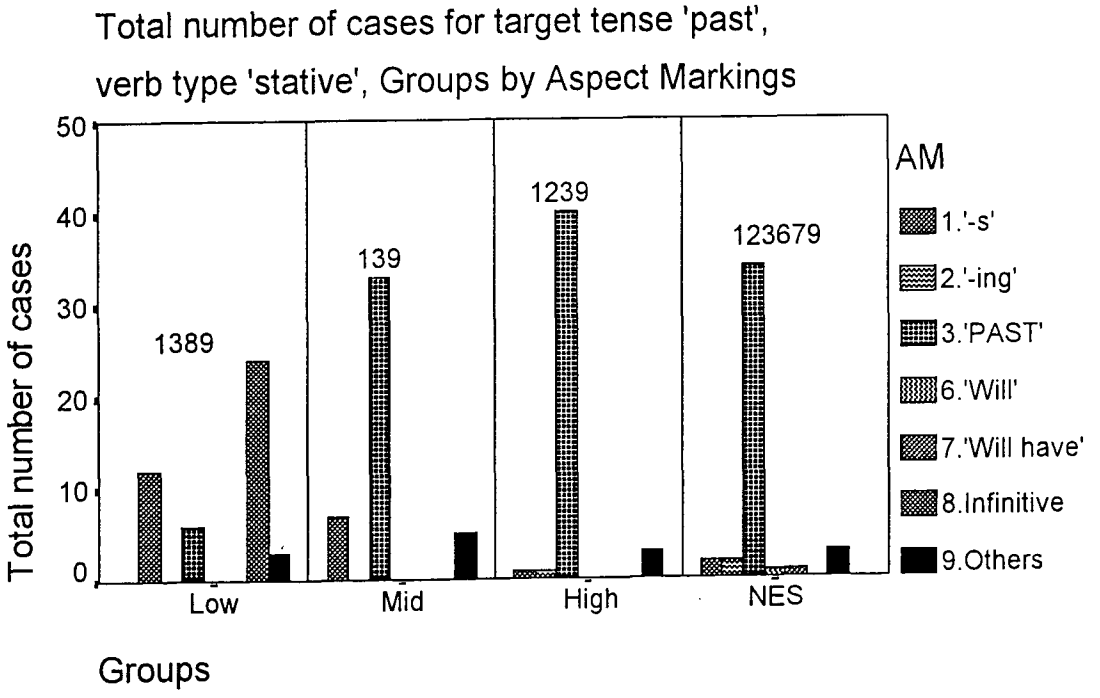

Figure 25

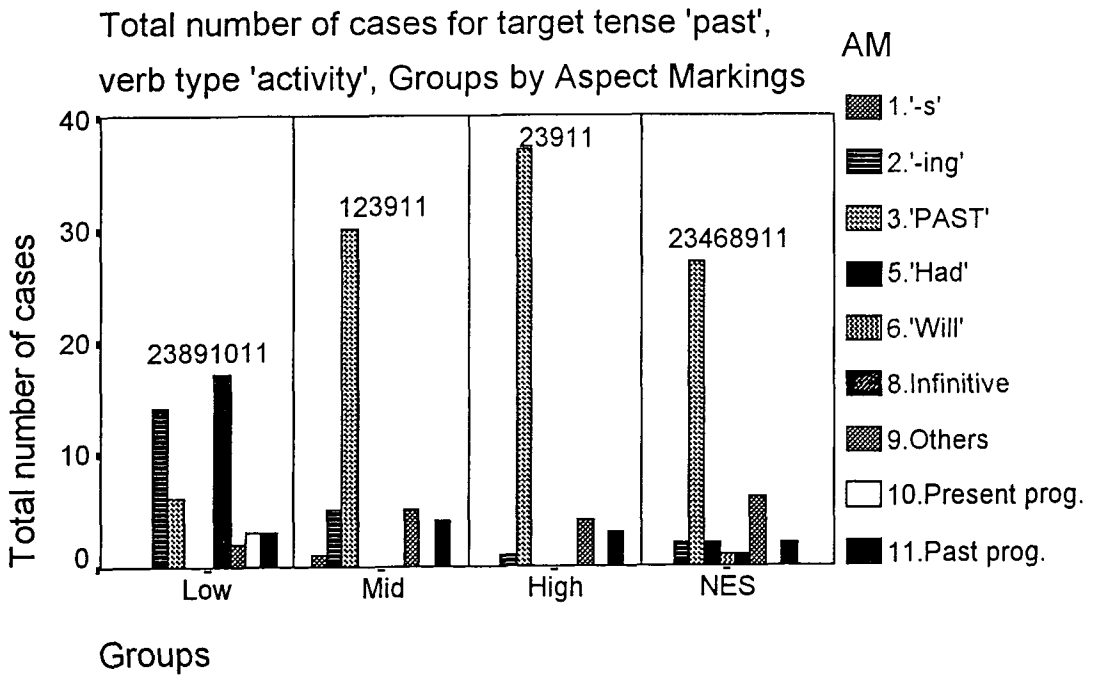

Figure 26

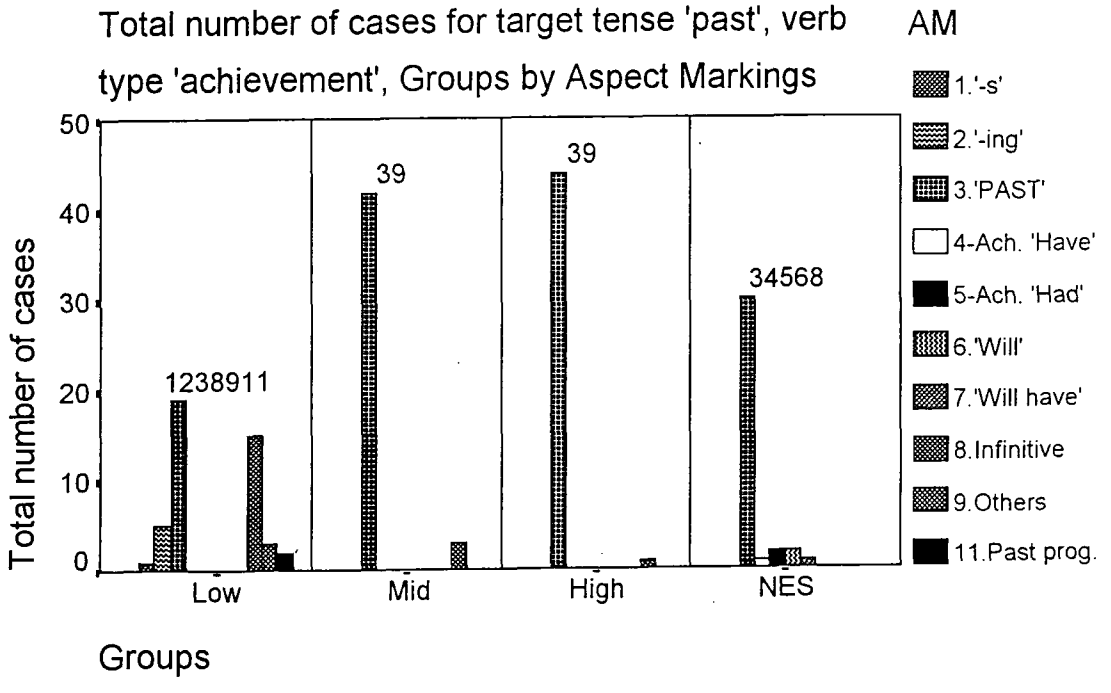

Figure 27

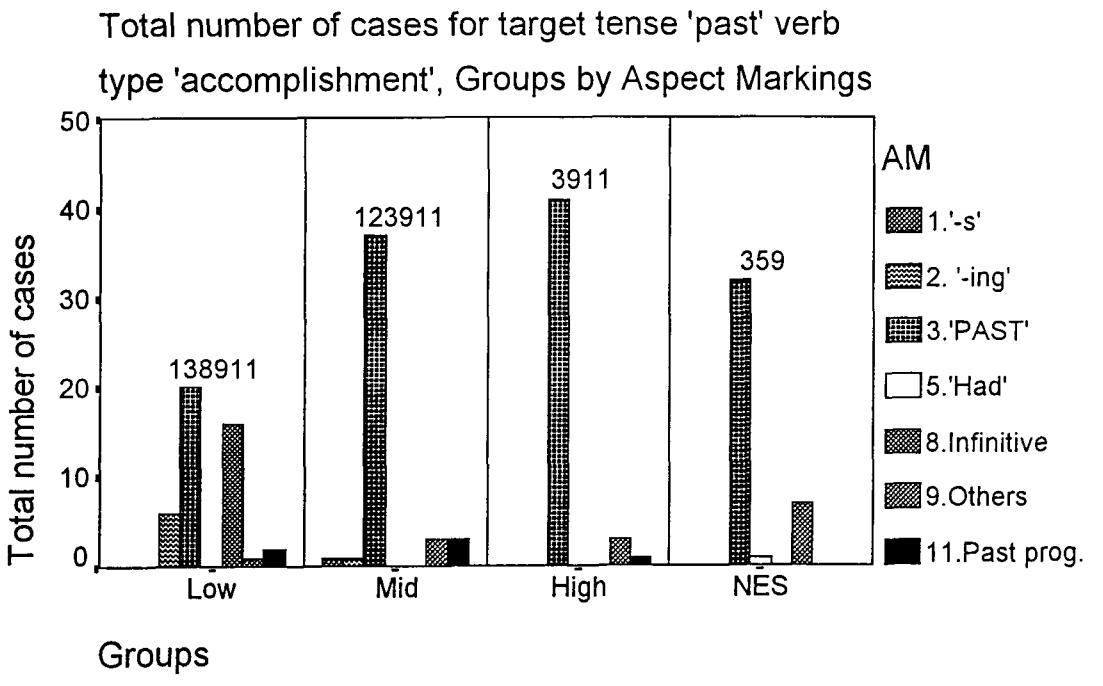

Figure 28

5.6.2.1 The use of the aspect marking '-s'

The data in Appendix B-4 provide more details for confirmation of the link between the present form '-s' and stative verbs for Question and Research Hypothesis 4a for the low and mid groups (as shown in 110). The null hypothesis, that morphological marking '-s' is independent of stative aspect, can be rejected at the α = .00000 confidence level.

5.6.2.2 The use of progressive aspect marking

The data also showed that the '-ing' morphology without auxiliary correlates strongly with activity aspect for the low and mid groups ($X^2(1, N = 180) = 13.02, P <$

.00032) and ($X^2(1, N = 180) = 8.27, P < .01$) respectively, (cf. Question and Research Hypothesis 4b) (as shown in 105).

5.6.2.3 The use of the PAST aspect marking

The dependence between aspect marking and telic events results largely from a skewing in the distribution of the PAST aspect marking. The X^2 values of PAST with achievement and accomplishment aspects can be rejected at the $\alpha = .028$ and $\alpha = 0.009$ confidence level, respectively, for the low-level group (cf. sentences 112-113) and the X^2 value of PAST with achievement aspect at the $\alpha = .01$ level of confidence for the mid group (cf. Questions and Research Hypotheses 4c-d), while for the high and NES groups, the subjects used a higher percentage of or token counts of the PAST form with all types of aspect (cf. Appendix B-4). Examples of the biased association of verb type by aspect marking for the lower-level group in the context of past tense are as follows:

(110) Majan: Reza took a trip to Spain last summer. Did he like it?
Karim: Yes, he (like) .....***likes***.....***it*** very much.

(111) Hossein went to the park and (walk) .....***walking***..... there for an hour.

(112) It was 1992 when my sister (graduate) .....***graduated***.....from high school. I'll never forget it.

(113) Amin (type) .....***typed***..... a letter and posted it yesterday.

5.6.3 The overall association of aspect marking with verb type in the RT

The chi-square test indicated that the overall association of verb type with aspect marking for the low and mid groups was significant (X^2 (1, N = 129) = 88.76, P < .00001) and (X^2 (1, N = 129) = 51.25, P < .00001) respectively. Figures 29-32 present this effect:

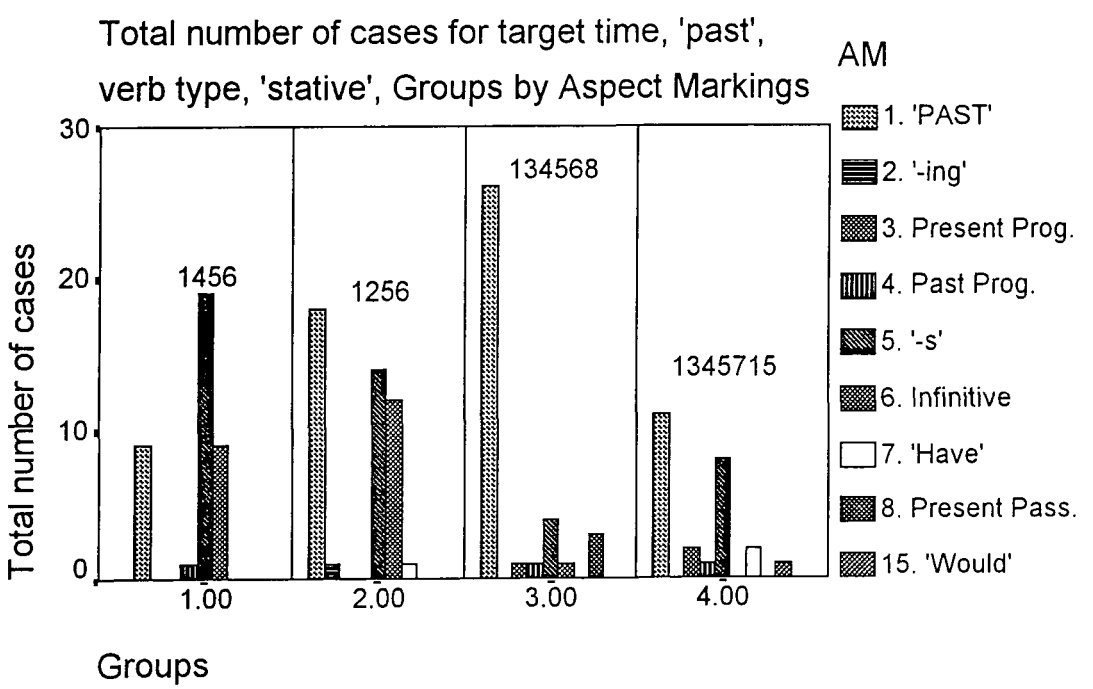

Figure 29

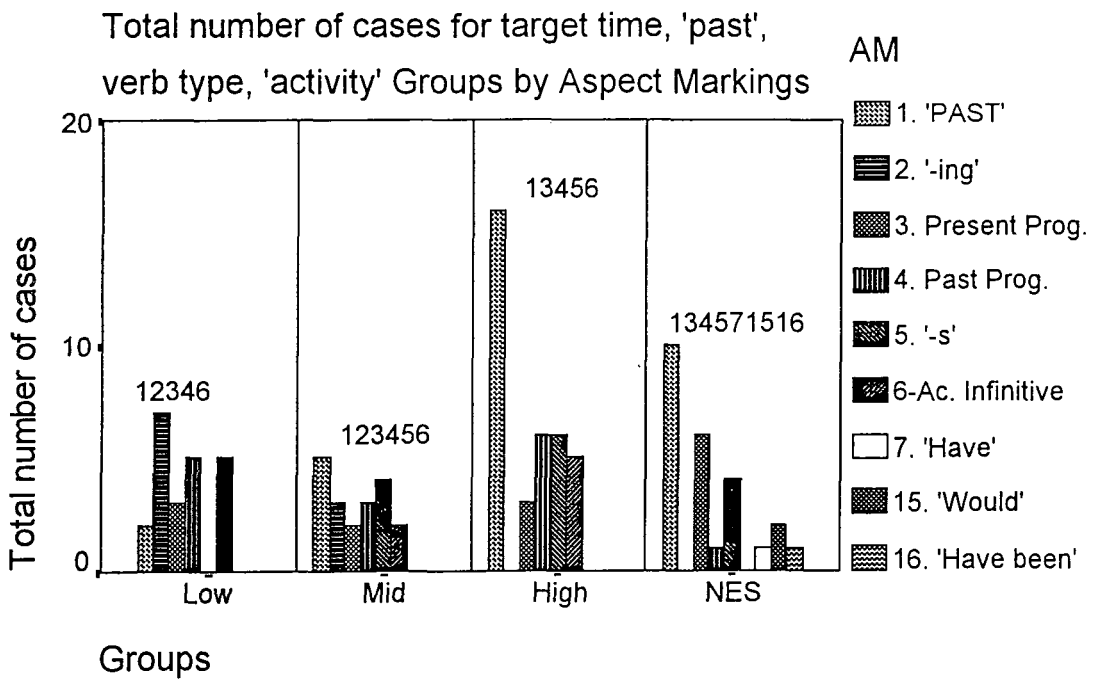

Figure 30

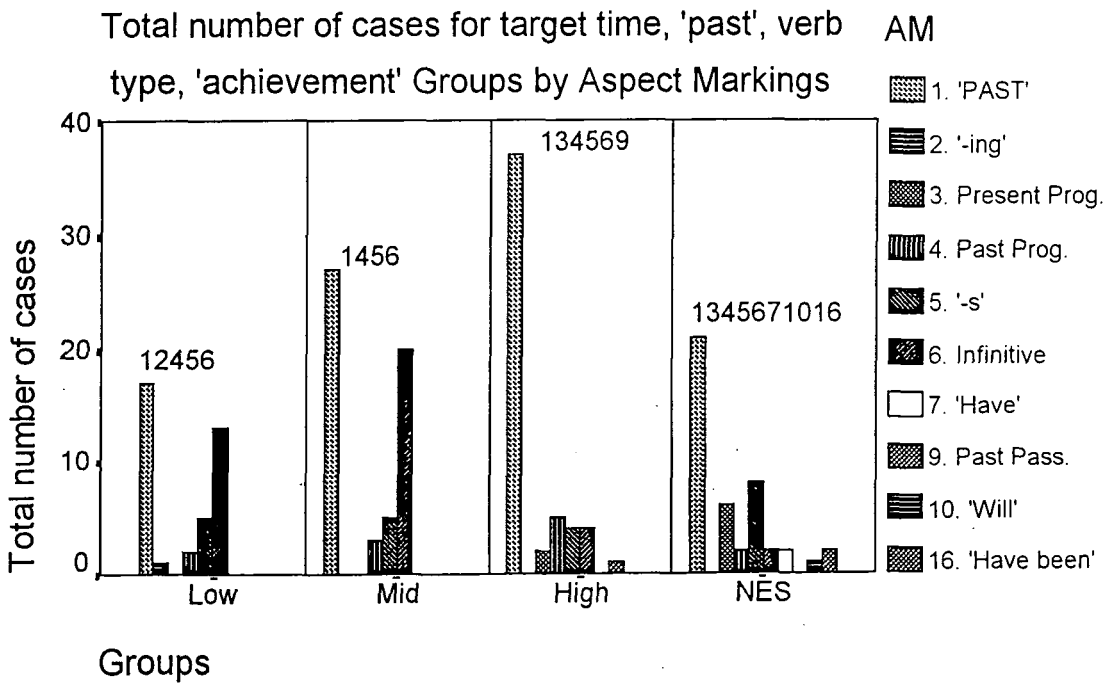

Figure 31

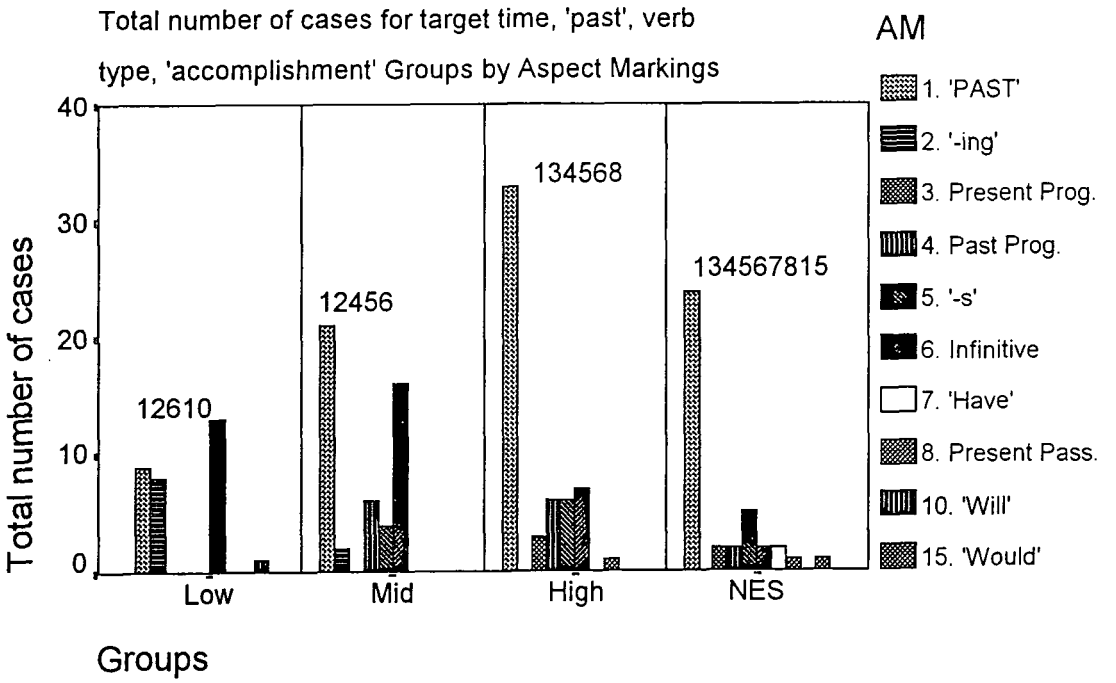

Figure 32

5.6.3.1 The use of present form

The low-level learners showed use of simple present form,'-s' with stative aspect in 50.0% of all aspect types that is quite significant (X^2 (1, N = 129) = 32.18, P < .001). However, the correlation of the '-s' form and with other aspects was not significant. Question and Research Hypothesis 4a, that the low-level learners associate the aspect marking '-s' with stative verbs, is verified. Examples of stative aspect with the present form '-s' for the low-level learners in the context of 'Past time' are as follows:

(114) The king ***wants*** see ... and his bear...

(115) He get his ear and hear the sound of money ***sees*** the money and get his money.

5.6.3.2 The use of progressive

The biased use of progressive without the auxiliary is the most significant feature of activity and accomplishment aspects for the low group (X^2 (1, N = 103) = 4.18, P < .05) and (X^2(1, N = 129) = 5.22, P < .05) respectively. The association of progressive without the auxiliary 'be' with activity aspect was also significant for the mid-group learners as well (X^2 (1, N = 169) = 5.77, P < .02). These findings confirm Questions and Research Hypotheses 2 and 4b, that the lower-level learners link the aspect marking '-ing' with accomplishment and activity aspects, respectively. Examples of progressive form with activities (sentences 117-119) and accomplishments (sentences 120-121) for the low-level group in the context of past time are as follows:

(117) And the bear come to the street and he ***walking*** and ***singing*** and he was see a one old man...

(118) The Robin Hood and the bear ***running*** and they say good-bye and ...

(119) And the bear walking and take the door and she ***listening***...

(120) Robin Hood and his friend bear, ***going*** to the coach and they tell the king...

(121) The bear and ***wearing*** and ***dressing*** something and...

Examples of activity progressive form with the auxiliary 'be' for mid-level learners in the context of 'Past time' are as follows:

(122) ...and Robin Hood was doing something like magical and he got and the snake ***was hitting*** and he can't do it...

(123) He took all jewelleries and he the king had and the snake ***was trying*** to tell him...

(124) And the bear the snake was Robin Hood dresses he ***is running*** to joking...

5.6.3.3 The use of past tense form

Appendix B-4 shows that 17 of all achievement tokens were in past form, which exceeds the expected values of 10.9 for the low-level learners. The X^2 value of this association was statistically significant at the $\alpha = .000$ confidence level. However, the link between past form and accomplishment aspect was not significant. There did not exist any dependence between achievements and past form for other groups. That is to say, the token and percentage counts of past form were high for all aspect types. It indicates that higher and NES groups used past tense form to mark verbs in accordance with the past context, with aspectual categories being ignored (cf. Appendix B-4).

The results of the association of verb type by aspect marking across the groups for the target tense PAST was similar to the above cited target tenses. The lower-level subjects used the '-s' form more significantly with stative verbs than activity, achievement or accomplishment verbs. They also affiliate the '-ing' form with activity verbs or with accomplishment verbs. However, they did not use the '-ing' form with stative verbs. That is to say, they distinguished between dynamic and non-dynamic aspects or as Bickerton (1981) terms it State-Process Distinction (SPD). Finally, they associated telic verbs with the PAST form but the higher-level learners extended the PAST form from its concentration on telic verbs to all verb types.

5.6.4 Emergence and development of PAST tense: Semantic evidence

For the low-level learners, past morphology is basically restricted to achievement verbs. By comparing the lower-level groups with the higher-level groups, the data on GJT, G-f T, and RT show how past marking develops from an aspectual marker into a deictic tense marker. As discussed in Chapter 3 researchers have different views concerning the development of PAST as a marker of aspect into a marker of tense. First, in accordance with Antinucci and Miller's (1976) observation on L1 language acquisition, the verbs used in the past form denote events that result in observable end-state at initial stages. This is natural for children since pay attention to the here and now. On the other hand, Bloom, Lifter, and Afitz (1980), Bickerton (1981), Andersen (1989), and Robison (1995) suggested that this phenomenon can be interpreted as evidence for the importance of the temporal contour (aspect) of events (i.e. non-durative, punctual, telic completive/perfective in guiding the acquisition of past morphology.

It was noted in Chapter 3 that there are four variables which overlap to a great degree: (1) punctual vs. non-punctual, (2) telic vs. non-telic (or atelic), (3) dynamic vs. non-dynamic (4) observable end-states vs. no end states. As discussed in Chapter 1, punctuality (i.e. achievement) refers to whether an event is instantaneous with the end-point or an event has duration without end-point (i.e. activity), and telicity (e.g., accomplishment) refers to whether an event has an inherent endpoint (e.g., achievement and accomplishment) or a situation has no end-point (e.g., activity and stative). These three semantic features are aspectual values. On the other hand, result-state is more related to the conceptual development of the child. Antinucci and Miller

(1976) attribute their finding to an assumed cognitive field deficit, i.e. that young children have no concept of deictic past and they can only refer to the present moment. Although it is very difficult to delineate between the three variables, I will try to investigate the possible effect of each variable by looking at the development of the past marking and comparing it with the other target tenses such as 'present' tense and 'present perfect' tenses'.

As far as the past form verbs for the lower-level groups are concerned, most of them are punctual and telic and they also denote events that result in an observable state. *Typed a letter* is telic and has an observable end-state. However, should we consider it as both telic and observable end-state or either telic or observable end-state? It might look suspicious in the context of 'past tense', because what could have both a telic and observable end-state meaning? However, the data on GJT, G-f T and RT showed that the lower-level learners used such utterances to refer to the other target tenses such as 'present', 'present perfect', 'future', etc. If that is the case, such utterances could not be coded for observable end-state because the utterance *typed a letter* for the present tense or future tense has no observable end-state. In contrast, they were coded for telicity (i.e. accomplishment), because, as was mentioned in Chapter 2, if one changes the target tense of the utterance, the type of inherent aspect remains constant. Therefore, the data in this study rejects Antinucci and Miller's (1976) idea of attributing their findings to children's cognitive deficit of the deictic tense. The data instead support Bickerton's (1981) and Robison's (1995) claim that the use of 'past form' as to refer to punctual or telic aspect without tense distinction is innate.

To investigate the relative importance of the aspectual values involved in this study, only the first three variables must be checked because the fourth variable (result-state) was ruled out. To study the relative importance of the three variables (punctuality, telicity, and dynamicity), the later development of verbal morphology (i.e. the mid-and high-level groups) must be checked. The mean acceptability ratings in the GJT was nearly the same for accomplishment (4.333 and 4.733) and achievement (4.267 and 4.733) with the PAST form for the mid-and high-level groups, respectively. However, the mean ratings of the achievement and accomplishment verbs were higher than stative (3.933 and 4.600) activity (3.600 and 4.600) with the PAST form for the mid-and high-level groups, respectively. Telic verbs (both achievement and accomplishment verbs) were marked by the PAST form more often than atelic verbs (both stative and activity verbs). In other words, the order of the PAST was accomplishment, achievement, stative, and activity. The pattern that is predicted by POA is achievement, accomplishment, activity, and stative. Although the pattern of the PAST marking on the verb type is not the same as the pattern which is predicted by POA, telic verbs are the first candidates to receive the PAST morphology and atelic verbs are the last to receive the PAST morphology. This effect is in general accordance with POA.

What is the developmental pattern of the PAST morphology for the mid- and high-level groups in the G-f T? I use the percentage of the association of verb type tokens to compare the pattern between the groups. As Appendix B-4 shows, the developmental pattern for the mid and high groups, respectively, is achievement (93.3% and 100.0%), accomplishment (82.2% and 77.8%), stative (66.7% and 86.1%), and activity (66.7% and 77.8%). Furthermore, the pattern of the PAST

morphology for the mid-level group in the RT (cf. Appendix B-5) is achievement (49.1%), accomplishment (42.9%), stative (39.1%), and activity (26.3%), while this effect for the high-level groups is: stative (72.2%), achievement (69.8%), accomplishment (58.9%), and activity (44.4%). In all tasks, the mid-and high-level groups start to mark telic verbs (accomplishment first or achievement first) and finally mark atelic verbs (first stative and then activity), except the high-level group for the RT. Generally speaking, the data in this study support the predictions of POA, that the PAST morphology is first assigned to telic verbs and then to atelic verbs[21].

What about the role of the three variables discussed above? It appears that there are no conspicuous differences among punctual telic event (i.e. achievement) and durative telic event (i.e. accomplishment) because the mid-and high-level groups mark either starting with accomplishment or achievement with the PAST morphology. However, they distinguish between the telic (i.e. achievement and accomplishment) and atelic situations (stative and activity). The second aspectual value, telic vs. non-telic, can account for the extension of the tense form across the groups.

5.6.5 Emergence and development of past tense: Syntactic evidence

5.6.5.1 Emergence and development of the 'Past' tense form in the GJT: Syntactic evidence

The aspectual markers included the biased use of the stative '-s', activity '-ing',

[21] The question that arises is whether the extension of past form from telic verbs to atelic verbs for the higher-level groups indicates that there is a biased association between telic verbs and past form. As was mention in section 5.6.3.3, there is no biased association between telic verbs and past form for the higher-level learners.

and achievement and accomplishment PAST, while the inflectional marker included the correct target tense forms, 'past form'. A Tukey test indicated that the low-level learners used more aspectual markers than inflectional markers, while the mid and high-level groups used more inflectional markers than the aspectual markers (see Figures 21-24). The differences were significant ($P<0.05$). Thus, the biased use of the verbal morphemes with verb type is checked by the aspectual projections, while the correct target tense form is checked at IP (cf. Questions and Research Hypotheses 5a-5b).

5.6.5.2 Emergence and development of the 'Past' tense form in the G-fT: Syntactic evidence

The association of verb type with aspect markers was significant for the lower-level learners (see Appendix B-4). The aspectual markers were the stative '-s', activity '-ing', achievement and accomplishment PAST, and infinitives. The available inflectional markers included simple past or past progressive forms. A chi-square test was carried out to determine whether the association between the aspectual markers and the inflectional markers was significant. The low-level group used more aspectual markers (in proportion to all inflectional markers) than the mid, higher and NES groups, while the mid, high, and NES used more inflectional markers (in proportion to all aspectual markers) than the low-level group (X^2 (1, N = 859) = 68.02, P < .00001). Furthermore, the high-level group used significantly more inflectional markers than the low-level group (X^2 (1, N = 447) = 56.21, P < .00001). The difference between use of inflectional markers and aspectual markers for the high and mid groups was not significant (X^2 (1, N = 489) = 0.22, P > .05). Therefore, Questions and Research

Hypotheses 5a-5b, that the lower-level learners use more inflectional markers (in proportion to all aspectual markers) than the higher-level and NES groups, were confirmed.

5.6.5.3 Emergence and development of the 'Past' tense form in the RT: Syntactic evidence

The aspectual markers included the biased association of the '-s', '-ing', and PAST morphemes with verb types and infinitives for the lower-level groups, while the inflectional markers included modals, auxiliaries, with the correct target tense form for the higher-level and NES groups. A Chi-square test showed that the difference between the aspectual and inflectional markers for the low-level group and the mid and high and NES groups, respectively, was highly significant (X^2 (1, N = 633) = 36.00, P < .00001). Furthermore, the low-level group used significantly more aspectual markers (in proportion to all inflectional markers) than inflectional markers compared to the mid, and high-level groups respectively (X^2 (1, N = 316) = 68.02, P < .03) and (X^2 (1, N = 328) = 41.79, P < .00001) respectively. Thus, Questions and Research Hypotheses 5a-5b were confirmed.

5.7 Target tense 'Past perfect'

5.7.1 The overall association of aspect marking with verb type in the GJT

Repeated measurement of variance indicated that the association of group by verb type by aspect marking was significant across the groups (F(27,504) = 7.55, P <

0.001). The following bar graphs show the association of aspect markings with each verb type across the groups:

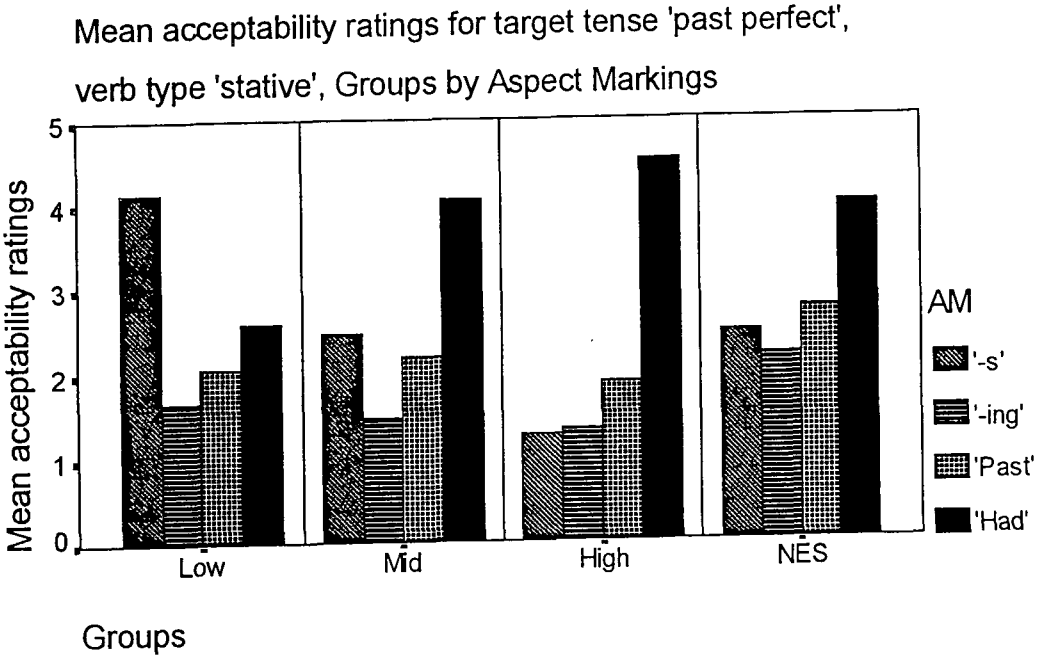

Figure 33

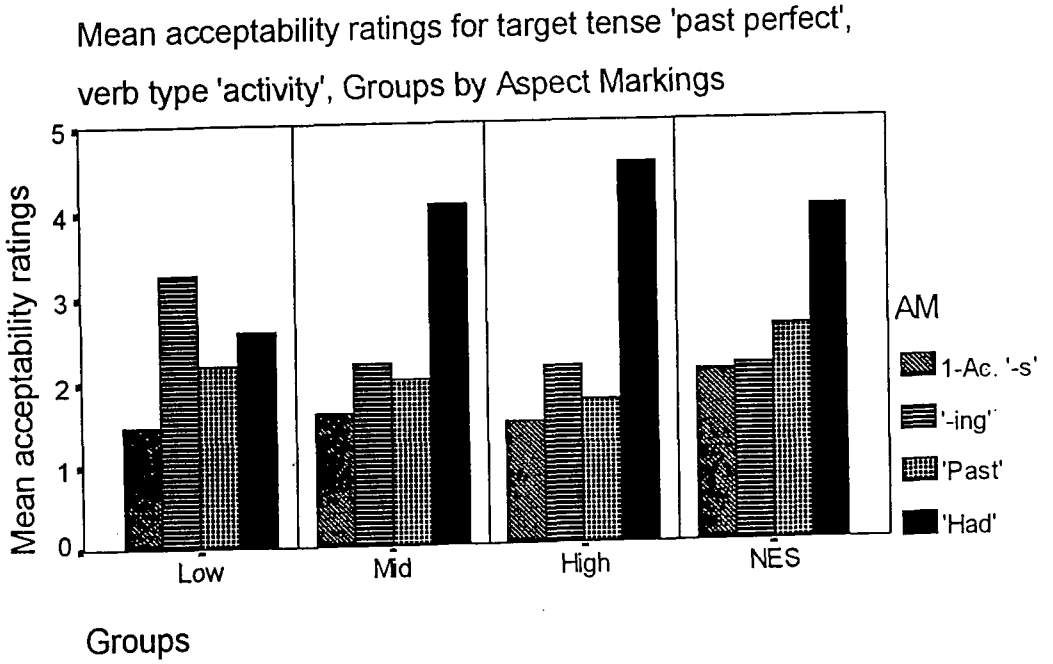

Figure 34

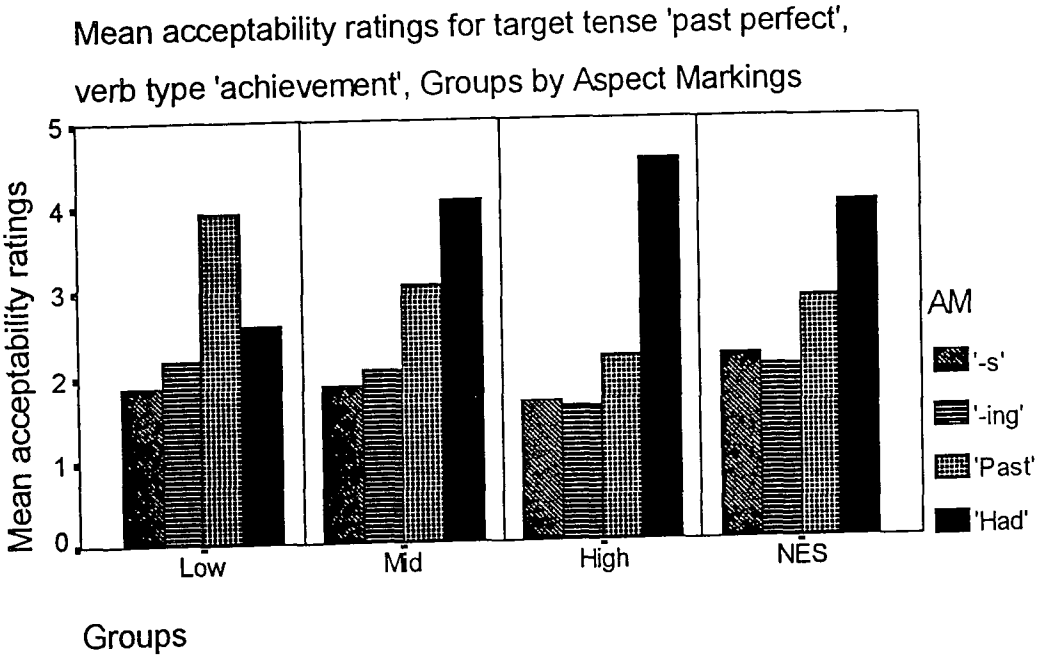

Figure 35

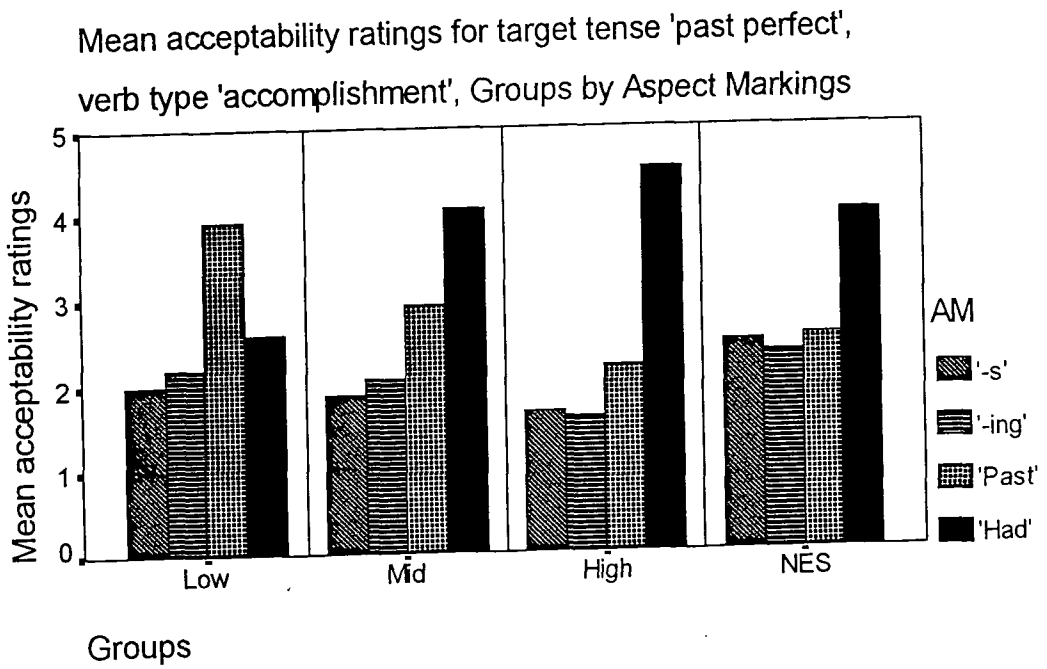

Figure 36

A Tukey test showed that the low-level subjects used the '-s' form more selectively to mark stative (4.133) verbs than activity (1.467), achievement (1.867) or accomplishment (2.000) verbs. Furthermore, they used the '-ing' form more with activity (3.267) verbs than with stative (1.667), achievement (2.200) or accomplishment (2.200) verbs and PAST with achievement (3.933) and accomplishment (3.033) verbs than with stative (2.067) and activity (2.200) verbs. These differences were statistically significant ($P < 0.05$; see the bar graphs 33-36). The following examples for target tense 'past perfect' show the biased association of stative with the '-s' form (as shown in 125), activity with '-ing' form (see 126), and achievement and accomplishment with the PAST for the low-level group (as shown in 127 and 128, respectively). Examples of the association of verb type by aspect marking across the groups for target tense 'past perfect' are as follows:

(125) Yesterday Reza met one of his old friends whom he not ***sees*** for several years.

(126) Reza was not in the football field when you arrived. He just ***playing*** there.

(127) I didn't know that Ali already ***started*** building his house.

(128) Reza, who already ***passed*** all his exams, was very happy today.

5.7.2 The overall association of aspect marking with verb type in the G-f T

The X^2 value of the effect of aspect markings across verb types and groups was statistically significant for the low-level group. The null hypothesis was rejected at the $\alpha = .00001$. Figures 37-40 show the association of aspect marking with verb type

across the groups:

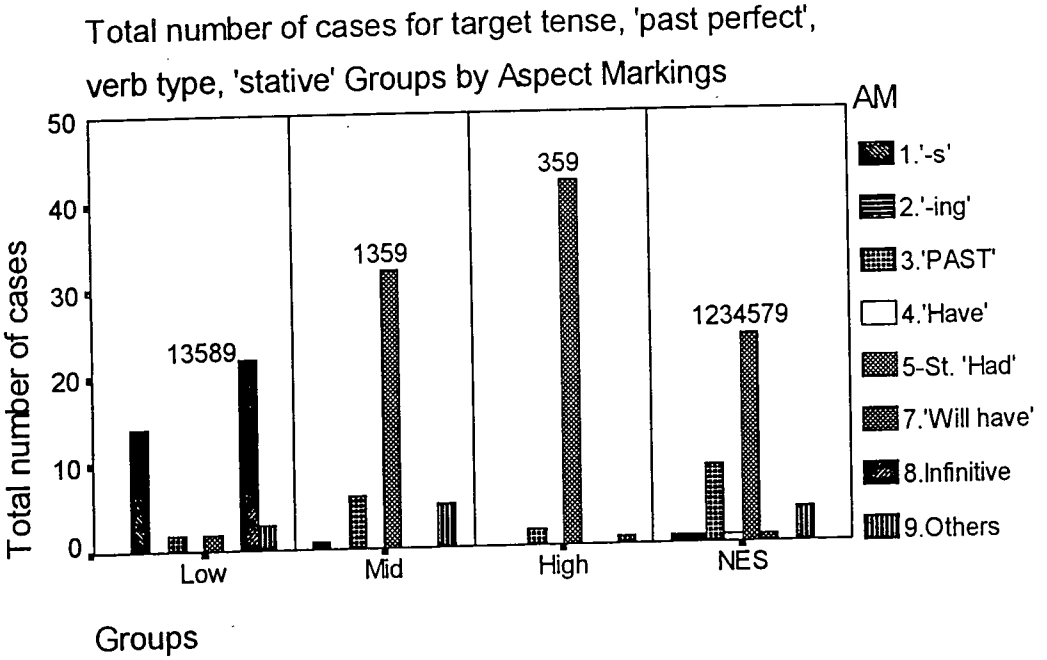

Figure 37

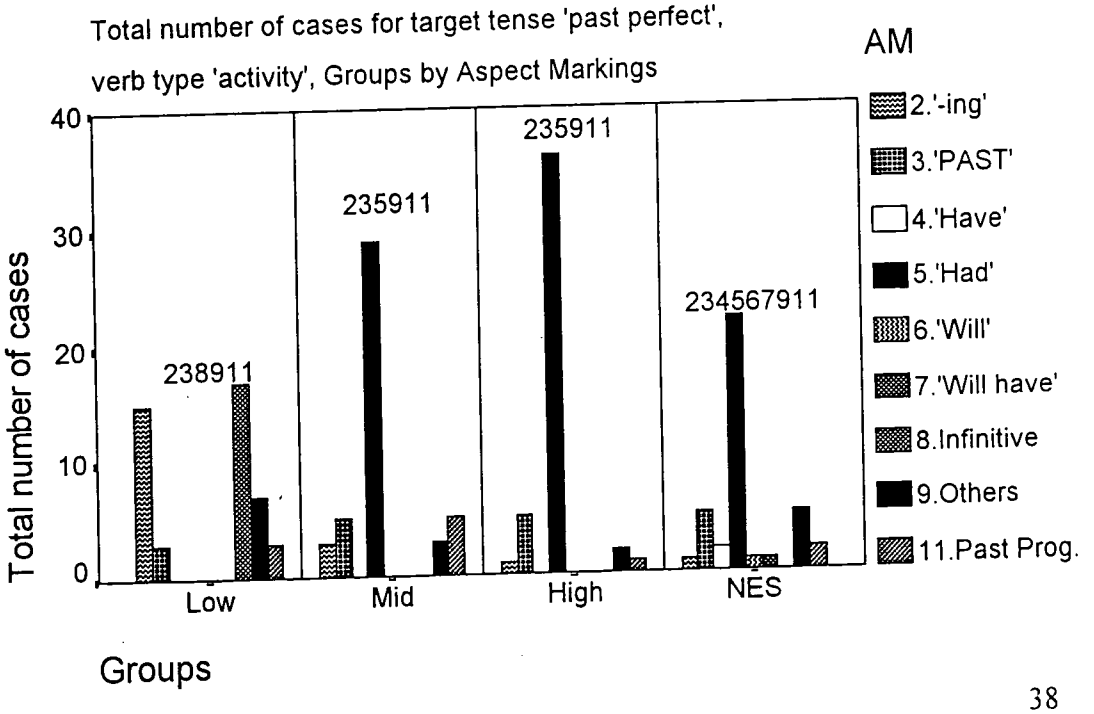

Figure 38

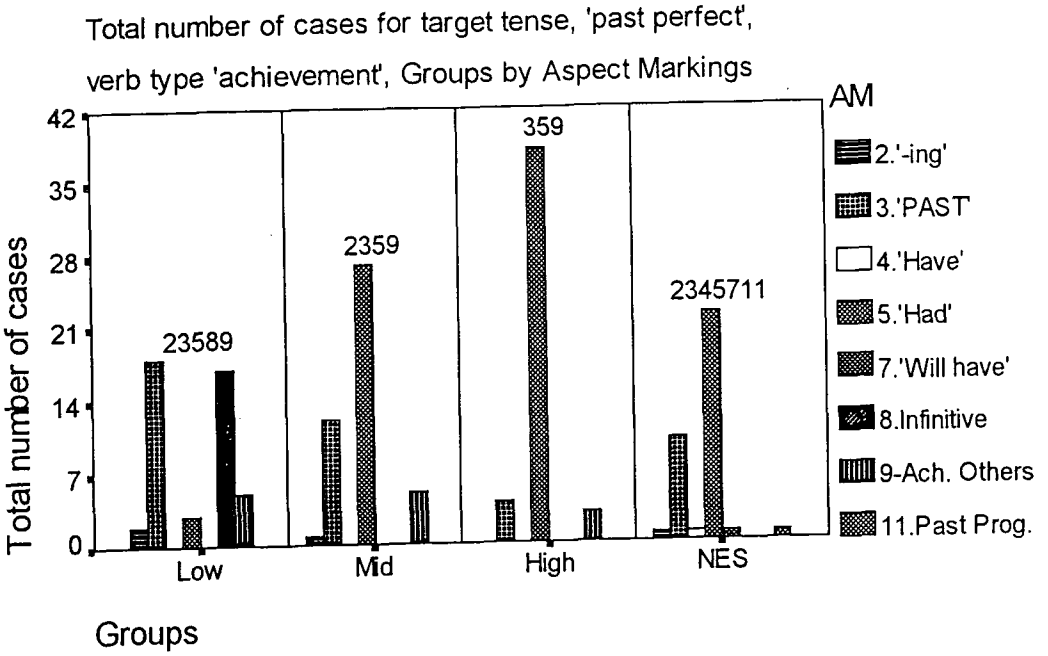

Figure 39

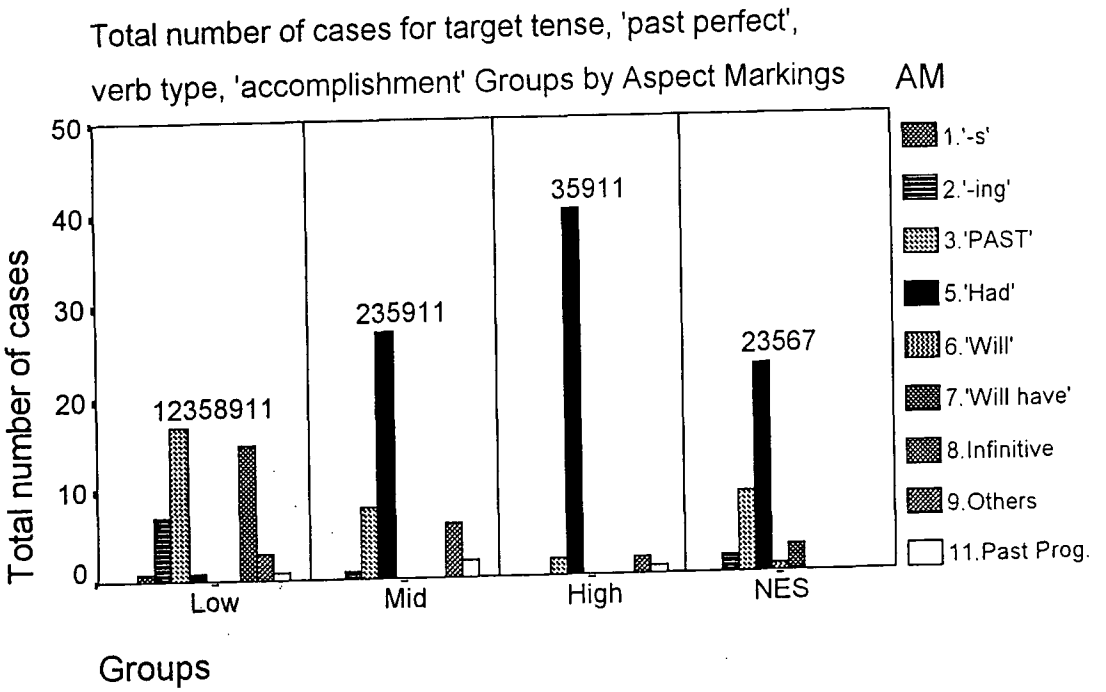

Figure 40

5.7.2.1 The use of aspect marking '-s'

The results showed that the distribution of the morpheme '-s' skewed with statives ($X^2(1, N = 178) = 38.75, P < .00001$) for the low-level group (as shown in 129; cf. Question and Research Hypothesis 4a).

5.7.2.2 The use of progressive aspect marking

The data indicated that the verb inflection '-ing' without auxiliary with activity aspect (see sentence 130) was significant ($X^2(1, N = 178) = 18.12, P < .00003$) for the low-level group (cf. Question and Research Hypothesis 4b). The dependence between the past progressive aspect marking (i.e. with the auxiliary 'be') and activity for the low-level learners was not significant for the low-level group, while this effect was significant for the mid-level group.

5.7.2.3 The use of PAST aspect marking

Appendix B-6 shows that 18 and 17 of all achievement (as shown in 131) and accomplishment (as shown in 132) tokens were in PAST form, which exceeds the expected values of 10.1. The X^2 values of the effect of PAST form with achievement and accomplishment were rejected at the $\alpha = .003$ and 0.009 confidence level (cf. Questions and Research Hypotheses 4c-4d, i.e. the biased use of telic aspects with PAST form for the lower-level learners). Examples of the biased association of verb

type by aspect marking for the lower-level group in the context of past perfect tense are as follows:

(129) It was not the first time that Jalal could answer his teacher's questions. He (know) .....***knows***..... the answers before.

(130) When I saw Majid he was playing football again. He (not play) .....***not Playing*** ..... football for several years.

(131) A thief entered a bank yesterday. When the police got there the thief (just/escape) .....***just escaped***..... .

(132) Amir Did Mary carry her books upstairs when Reza got to home.
Mahin: No, she (already/carry) .....***already carried*** ..... them.

5.7.3 Emergence and development of 'past perfect': Semantic evidence

In both GJT and G-f T, the lower-level learners used the '-s' form significantly more often with non-dynamic aspectual value (i.e. stative verbs) regardless of the correct target tense form ('past perfect'). That is, they affiliated the present morpheme with the stative aspect. Furthermore, they used the morpheme '-ing' more with non-atelic event (activity aspect) and the PAST form with telic aspectual values (achievement and accomplishment verbs).

It appears that the lower-level learners used the same type of the morphemes with aspect, i.e. the stative '-s', the activity '-ing', and the achievement and accomplishment PAST for the target tense past perfect that they used with present, present perfect, and past tenses. Thus, we can propose that the acquisition of aspectual values precedes that of target tense time references.

The emergence and development of the target tense, 'past perfect', coincides with the disassociation of the aspectual values with the aspect markings '-s', '-ing', and

PAST. The link between verb type and aspect marking was not significant for the mid- and high-level groups. At these non-beginner levels, stative, activity, achievement, and accomplishment verbs were marked with a similar degree of frequency with the correct target tense form (see Appendix B-6). The mid-and high-level learners acquire the association of all verb types with past perfect time points: Reference, Event, and Speech time points (Reichenbach 1947):

(133) E_____R_____S

5.7.5 Emergence and development of past perfect tense: Syntactic evidence

5.7.5.1 Emergence and development of the 'Past Perfect' tense form in the GJT: Syntactic evidence

For the lower-level learners, the aspect marking '-s', '-ing', and PAST linked with stative, activity, achievement, and accomplishment verbs. However, there was no such link with the verb types for the higher-level learners, rather the correct target tense form was used with all verb types. A Tukey test indicated that the low-level groups used more aspectual markers (in proportion to inflectional markers) than the higher-level groups. These differences were significant ($P < 0.05$). Aspectual markers are checked below IP, where aspectual projections are located, while the target tense form, 'past perfect', is checked in IP (cf. Figures 33-36).

5.7.5.2 Emergence and development of the 'Past Perfect' tense form in the G-f T: Syntactic evidence

The aspectual markers included the biased association of the '-s', '-ing', and PAST with verb types and infinitive, while the inflectional markers included the correct target tense form and the auxiliaries. The difference between the low group and the mid, high, and NES groups was strongly significant (X^2 (1, N = 310) = 241.92, P < .00001). Furthermore, the difference between the low-level group and each of the mid, and high groups was also significant (X^2 (1, N = 273) = 209.29, P < .00001) and (X^2 (1, N = 633) = 241.92, P < .00001) respectively. It means the low-level learners use aspectual markers more often (in proportion to all inflectional markers) than the mid, high, and NES groups (cf. Questions and Research Hypotheses 5a-5b). However, the difference between the mid-and high-level groups was not significant (X^2 (1, N = 293) = 0.00, P > .05).

5.8 Target tense 'Future'

5.8.1 The overall association of aspect marking with verb type in the GJT

The association of aspect marking by verb type across the groups was significant (F(27,504) = 6.42, P = 0.000). Figures 41-44 present the link between aspect marking with the groups for each verb type:

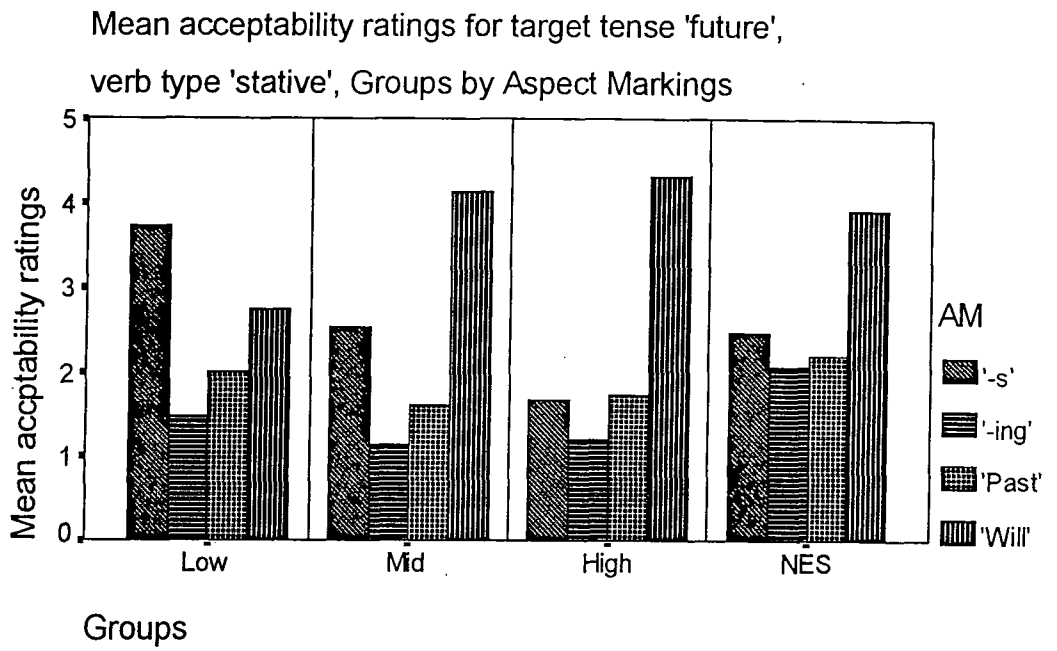

Figure 41

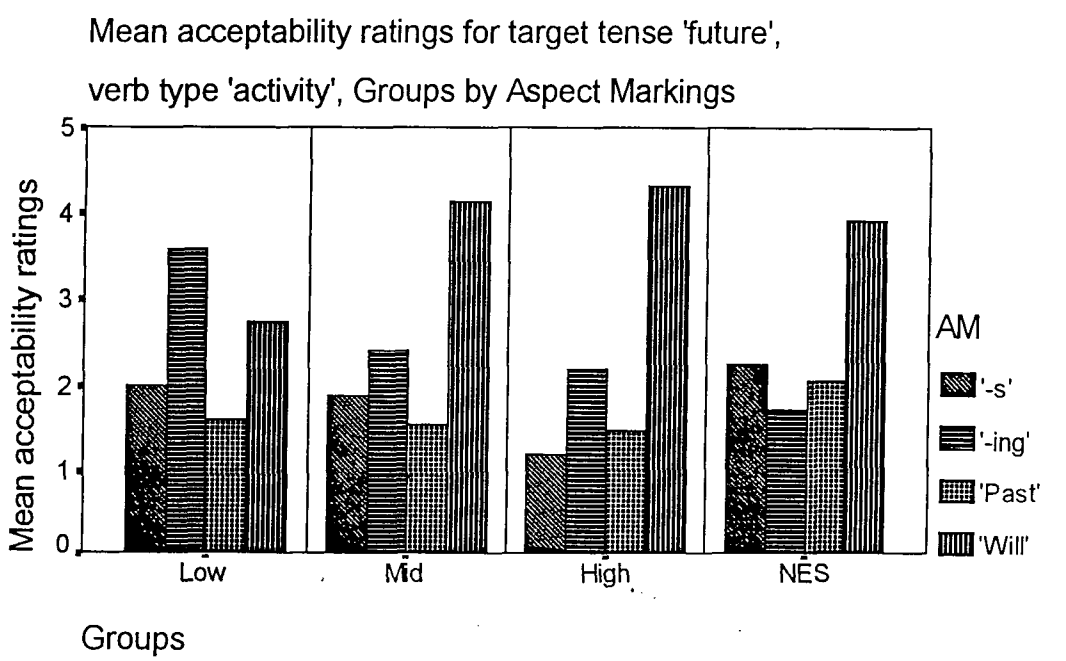

Figure 42

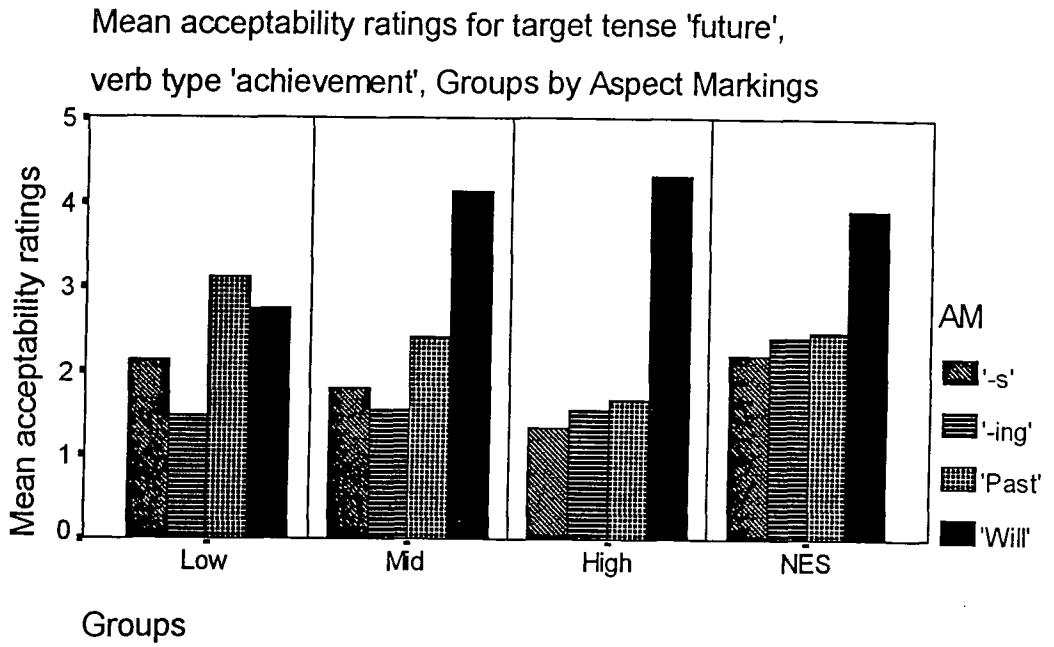

Figure 43

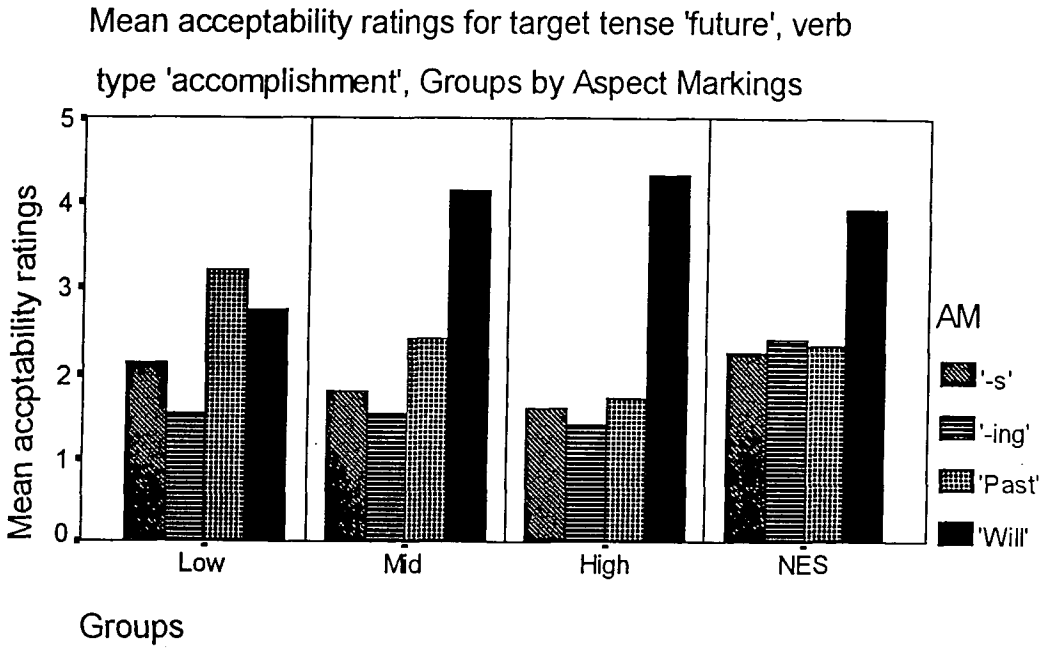

Figure 44

A Tukey test showed that for the low-level group, the '-s' form was more often judged acceptable for stative (3.733) verbs (as in test item 133) than for activity (2.000), achievement (2.133), and accomplishment (2.133) verbs. Furthermore, the '-ing' form was more often judged more acceptable for activity (3.600) verbs (as in test item 134) than for stative (1.467), achievement (1.467) and accomplishment (1.533) verbs (as in 135-136 respectively) and the PAST form was preferred with achievement (3.133) and accomplishment (3.200) verbs than with stative (2.000) and activity (1.600) verbs. However, for the mid-and high-level groups the correct aspect marking, i.e. 'will' was more acceptable than the other aspect markings for each verb type. The following sentences are examples of the biased association of each verb type with aspect marking in the context of 'future' tense. These sentences were judged as acceptable by the low-level group.

(133) Amir ***hears*** some good news about his family in the next three days.

(134) Morad: What would Afsar like to do?
Ashraf: Oh, I think she ***chatting*** with us.

(135) It's 10 o'clock and the train has not arrived yet. I don't know when it ***arrived*** in Newcastle.

(136) Jalal ***decorated*** his classroom himself; it might be in the near future.

5.8.2 The overall association of aspect marking with verb type in the G-f T

Appendix B-7 displays the results of the effect of lexical aspects by aspect markings across the Persian and NES groups. The X^2 value of this effect was statistically significant at the $\alpha = .00000$ confidence level for the low group. However, more calculation is required to identify the precise source of significant value of X^2.

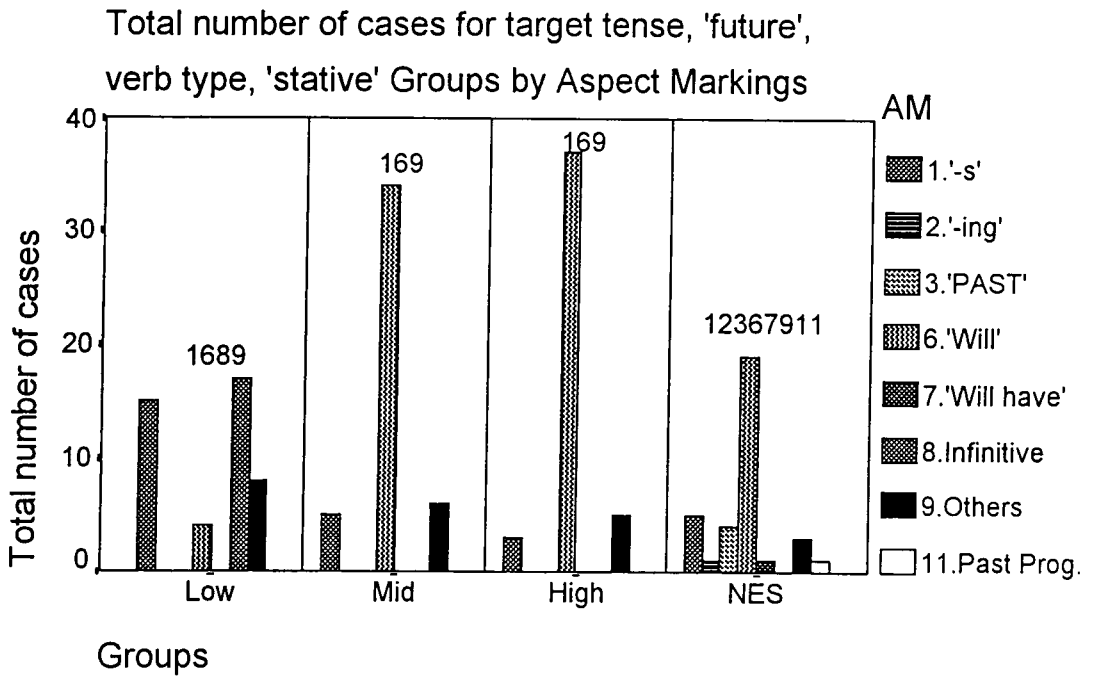

Figure 45

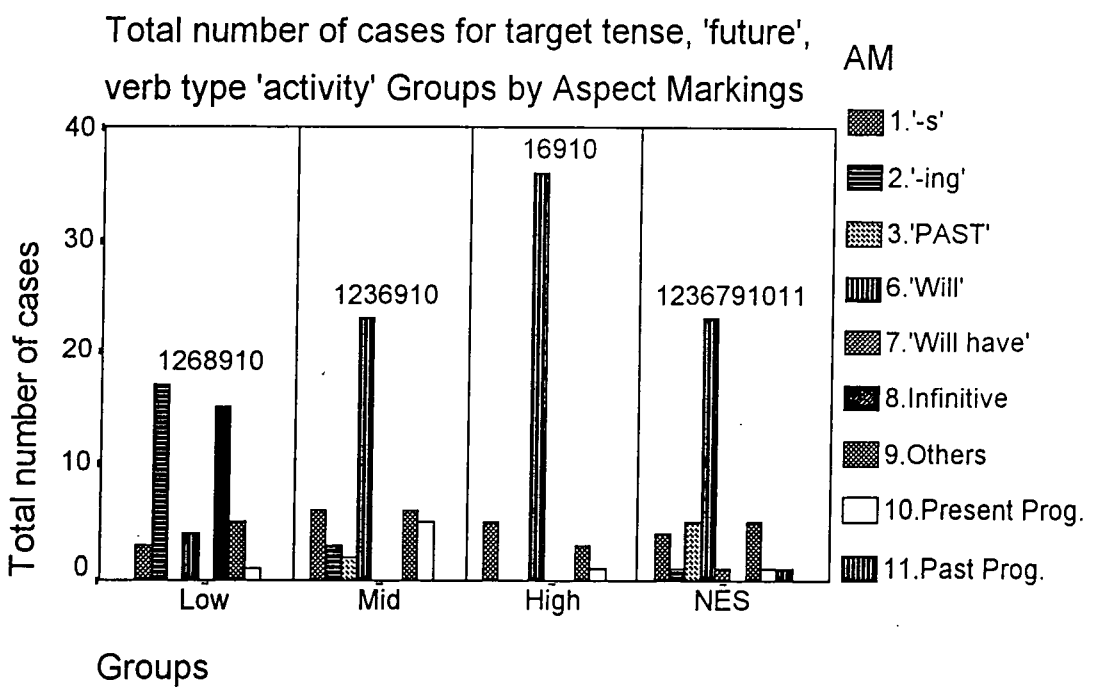

Figure 46

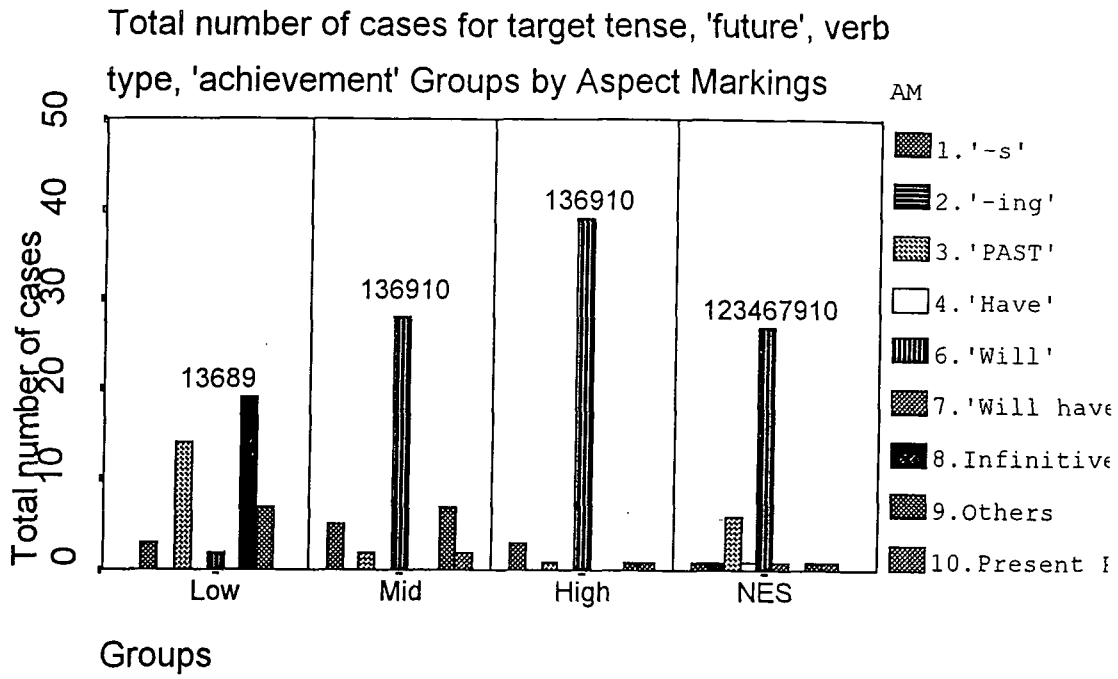

Figure 47

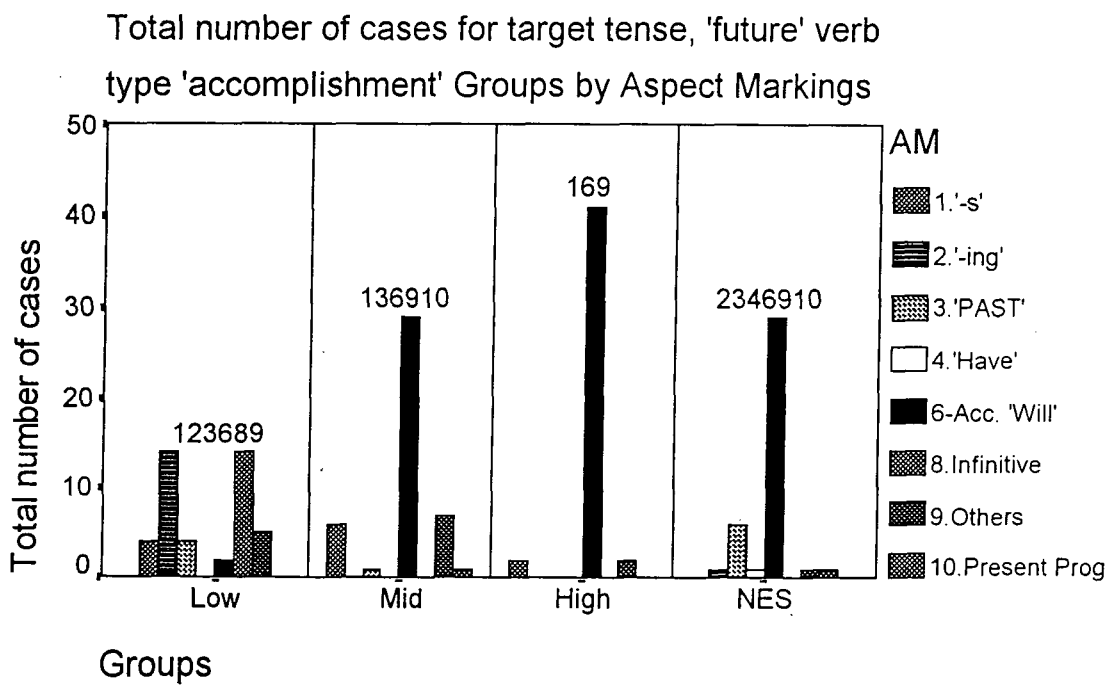

Figure 48

5.8.2.1 The use of the '-s' form

The total frequency of the aspect marking '-s' tokens with all aspect types, i.e. stative, activity, achievement, and accomplishment aspects was 25, which outnumbers that of the correct target tense form 'will' (i.e. 12) (cf. Appendix B-7) for the low-level group. However, the difference between the aspect marking '-s' with all types of aspects was statistically significant at $\alpha = .002$, whereas this effect was not significant between the correct target tense form and stative aspect. Moreover, 15 of all statives (as shown in the test item 137) were in the present form, i.e. the '-s' form was more frequent than the other verb types (cf. Appendix B-7). The null hypothesis for this effect can be rejected at the $\alpha = .00009$ level of confidence.

5.8.2.2 The use of the '-ing' form

The token counts of all '-ing' aspect marking without auxiliary with activities and accomplishments (as shown in the test items 138 and 140 respectively) exceeded that of expected values (i.e. 7.9 and 7.5 respectively) for the low-level group (cf. Appendix B-7). The effect of the '-ing' aspect marking with activity verbs rejected the null hypothesis at the $\alpha = .00009$ and .01964 levels of confidence for the low and mid groups respectively, which is in agreement with Question and Research Hypothesis 4b (i.e. the biased use of the '-ing' form with activity verbs for the lower-level learners). The link between the '-ing' aspect marking and accomplishment was also significant for the low group (X^2 (1, N = 177) = 7.57, P < .006). This effect confirms Question

and Research Hypothesis 2, that the lower-level learners associate accomplishment aspect with the aspect marking '-ing'.

5.8.2.3 The use of the PAST form

The X^2 value of the concentration of achievement aspect (as shown in the test item 139) and the PAST aspect marking was significant ($X^2(1, N = 178) = 24.79, P < .00001$), which is in accordance with Question and Research Hypothesis 4c (i.e. the biased use of the PAST form with achievement aspect), while that of accomplishment aspect was not statistically significant for the low-level group, which is contrary to Question and Research Hypothesis 4d, that the lower-level learners link the aspect marking PAST with accomplishments. Examples of the biased association of verb type by aspect marking for the lower-level group in the context of 'future' tense are:

(137) Amir (hear) .....***hears***..... some good news about his family in the next three days.

(138) Mohsen: What would Reza like to do?
Saleh: Oh, I think he (walk) .....***walking*** .....in the park.

(139) It's 10 o'clock and the train has not arrived yet. I think that it (arrive) .....***arrived*** ..... in Newcastle soon.

(140) The tables are not polished. I think that Hamid (polish) .....***polishing*** ..... them up soon.

5.8.3 The overall association of aspect marking with verb type in the RT

The overall association between aspect marking and the groups for each verb

type was significant. The following figures display these effects:

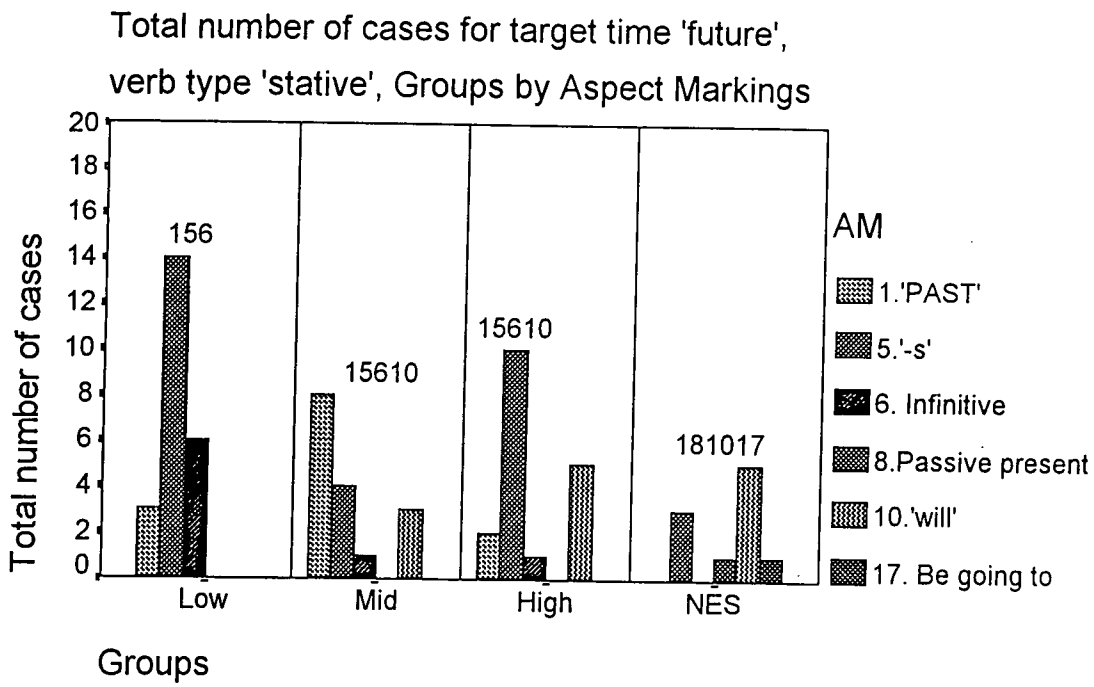

Figure 49

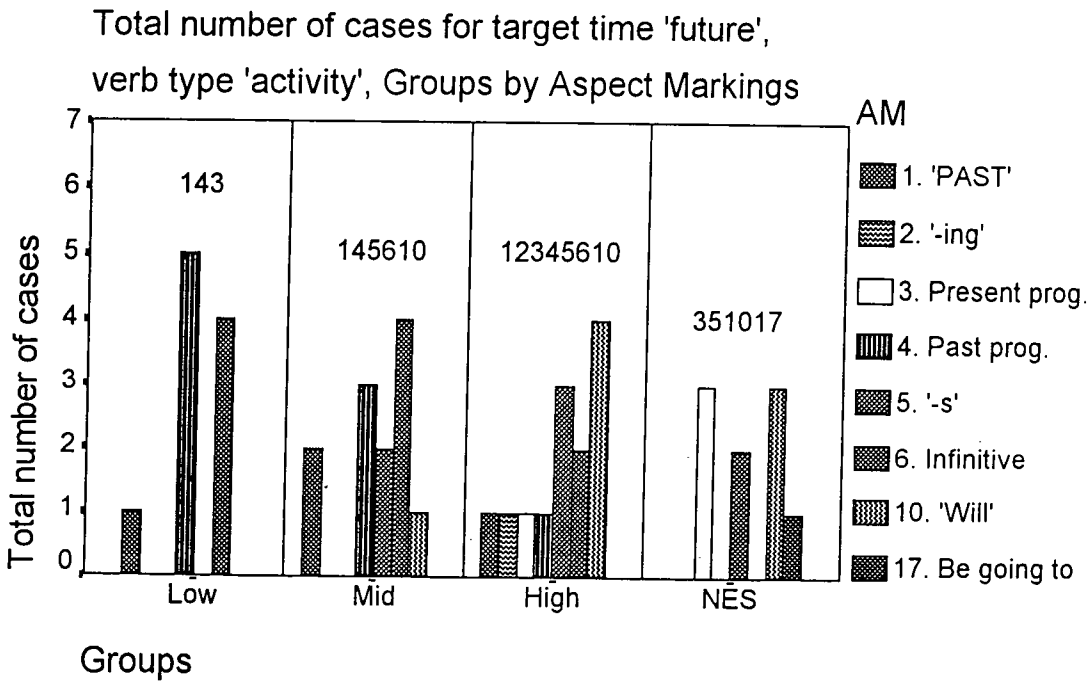

Figure 50

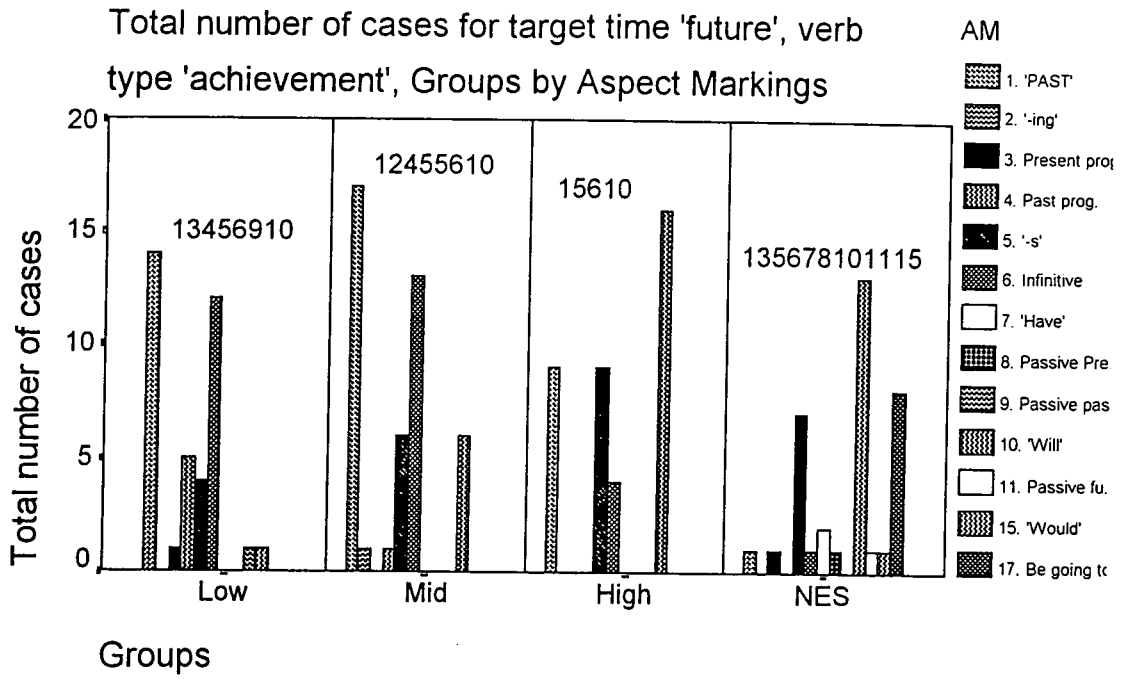

Figure 51

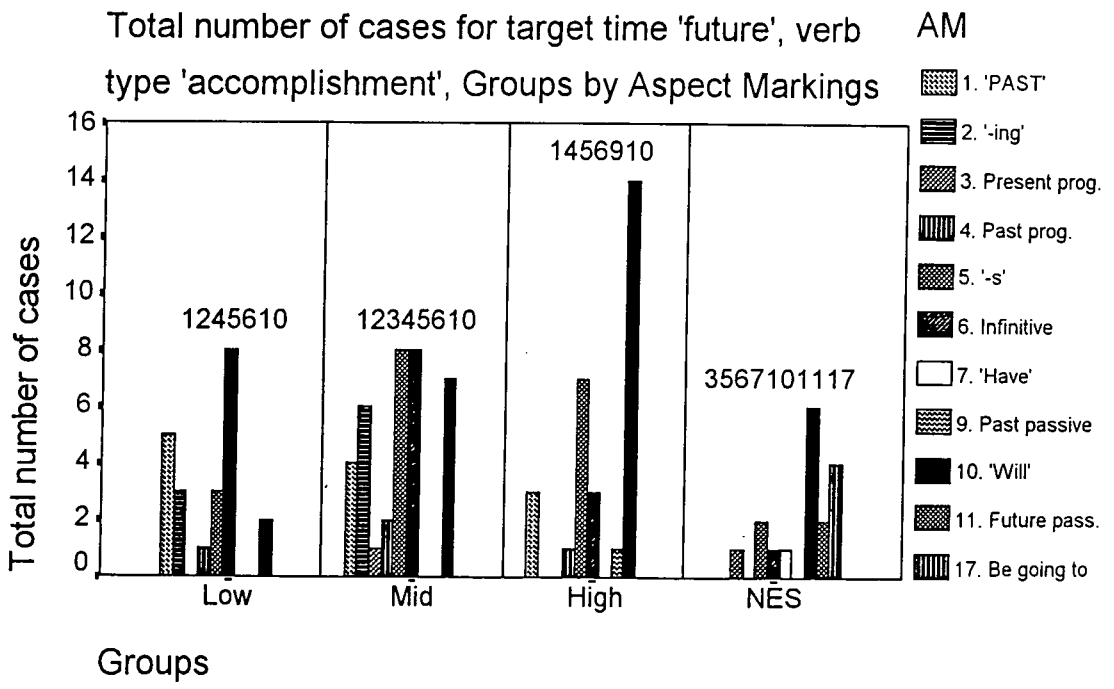

Figure 52

5.8.3.1 The use of present form

Appendix B-8 shows that 60.9% of all statives were in the present form '-s' for the low-level learners, which is highly significant ($X^2(1, N = 93) = 22.79, P < .001$). The other groups showed dissociation between present form and stative aspect. Examples of the present '-s' form with stative aspect for the level learners in the context of 'Future time' are:

(141) I was something and the Robin Hood no no and ... and Robin Hood ***sees*** the bear in and the out...

(142) The this ***is*** only the king and snake and smashed on the head...

(143) And he get the balls and then he ***sees*** the four soldiers ***has*** all the moneys and he get a sword...

5.8.3.2 The use of progressive form

The low-and mid-level groups used the verb inflection '-ing' without the auxiliary 'be' with accomplishment aspect to refer to future time ($X^2(1, N = 93) = 6.11, P < .02$) and ($X^2(1, N = 108) = 6.89, P < .001$) respectively. The results were in line with Question and Research Hypothesis 2 that the lower-level learners associate the '-ing' aspect marking with accomplishments. There did not exist any dependence between the type of aspect and progressive form for the high and NES groups (cf. Appendix B-8). Examples of accomplishment aspect progressive form without the auxiliary 'be' (sentences 144-145) for low and mid groups in the context of 'Future time' are:

(144) And bear doesn't don't go and the bear and Robin Hood go and go and the king not ***going***...

(145) And they steal all the jewels and the bear another thing there and the king was had I think they ***putting*** the king away off the city...

5.8.3.3 The use of PAST form

The results show that 14 of all achievement token counts and 9.4 of the expected values were in past form for the low-level learners (see Appendix B-8). The token counts exceeded that of the expected values and the chi square test indicates that the link between the achievement aspect and the past form is significant ($X^2(1, N = 93) = 4.02, P < .05$). Examples of achievement past form for the low-level learners in the context of 'Future time' are as follows:

(146) And he get it and ***catched*** in his blouse and...

(147) And Robin Hood will make a trick. Then Robin Hood ***throwed*** something...

There did not exist any association between achievement aspect and past tense form for the other groups. Question and Research Hypothesis 4c for the low-level learners is verified.

5.8.4 Emergence and development of 'Future' tense: Semantic evidence

Before the emergence of future tense form, the lower-level groups linked the '-s' form with stative verbs, the '-ing' with activity (and accomplishment in the G-f T and RT), and achievement (and accomplishment) with the PAST form. The three

aspectual values punctuality, telicity, and dynamicity are the criteria used by the lower learners to mark aspect rather than tense. Moreover, the fourth aspectual value, i.e. observable end-state vs. no end-state is clearly ruled out because for the target tense 'future' there is no observable end-state to be cognitively realized by the learners. In the higher-level groups, however, the learners do not associate verb type with aspect markings rather they use the correct tense form. The point is that as soon as the association of verb type with aspect marking weakens, use of correct target tense form increases. Furthermore, there is no association between the verb type (or the type of aspect) with target tense form for the higher-level groups because tense is deictic while aspect is non-deictic. Thus, the higher-level learners have acquired the marking of verbs (regardless of the type of verb) with the correct tense form. If it is the case that the lower-level learners associate aspect marking with aspectual values and the higher-level groups use the correct target tense form, all inflectional markers including modals and auxiliaries with correct target tense form should outnumber that of the biased use of aspectual markers. This is the topic of the next section.

5.8.5 Emergence and development of 'Future' tense: Syntactic evidence

It was suggested that aspectual projections are below IP where telic or atelic interpretation is provided (cf. section 2.8). If the verbal morphemes '-s', '-ing' and PAST associate with aspectual verbs, the morphemes are checked by the aspectual projections below IP for the lower-level learners, while the correct tense form is checked at the IP. To test this effect, all verbal forms that are checked by either an aspectual projection or IP should be analyzed. Therefore, modals, auxiliaries and

sentential negators with auxiliaries, with the correct tense form should be included as IP markers, while the biased association of morphemes with verb types and infinitives and negative markers without auxiliaries can be included as aspectual markers.

5.8.5.1 Emergence and development of the 'Future' tense form in the GJT: Syntactic evidence

For the target tense 'future', the aspectual markers were the stative '-s', activity '-ing', achievement and accomplishment PAST, whereas the inflectional marker was the use of 'will'. A Tukey test showed that the low-level learners used more aspectual markers (in proportion to the inflectional markers) than the mid-and high-level groups. These differences were significant ($P<0.05$). Therefore, Questions and Research Hypotheses 5a-5b were confirmed (cf. Figure 41-44).

5.8.5.2 Emergence and development of the 'Future' tense form in the G-f T: Syntactic evidence

The aspectual markers were the biased association of verb type with aspect marking and infinitives, while the inflectional markers were auxiliaries, and modals with correct target tense form. The difference between the low-level group and the higher groups (i.e. the mid, high, and NES groups) was strongly significant ($X^2(1, N = 547) = 358.47$, $P < .00001$). Further chi-square tests were carried out to test the significant difference for each of pairwise groups, i.e. the low-and mid-level groups ($X^2(1, N = 270) = 182.62$, $P < .00001$), the low-and high-level groups ($X^2(1, N = 297) = 229.63$, $P < .00001$), and the mid-and high-level groups ($X^2(1, N = 291) = 3.00$, P

>.05). All pairwise differences were significant except the difference between the mid- and high-level groups. The lower-level groups used significantly more aspectual markers (in proportion to all inflectional markers) than the higher-level groups and the vice versa (cf. the Questions and Research Hypotheses 5a-5b).

5.8.5.3 Emergence and development of the 'Future' tense form in the RT: Syntactic evidence

The difference between the aspectual markers and inflectional markers for the low-level and the higher-level groups was significant ($X^2(1, N = 261) = 45.76$, $P < .00001$). Further chi-square tests were carried out to test whether the difference between the pairwise-observed frequency of aspectual and inflectional markers was significant. The difference between the low-level group and the mid-level group, the low-and high-level group, and the mid-and high-level group were significant, respectively $X^2(1, N = 136) = 7.86$, $P < .006$), $X^2(1, N = 133) = 38.43$, $P < .00001$), and $X^2(1, N = 140) = 14.02$, $P < .0002$). Therefore, Questions and Research Hypotheses 5a-5b were confirmed.

5.9 Target tense 'Future Perfect'

5.9.1 The overall association of aspect marking with verb type in the GJT

The association of verb type by aspect marking by group was significant ($F(36,672) = 3.69$, $P = 0.000$). Figures 53-56 present the effect of each verb type by group by aspect marking.

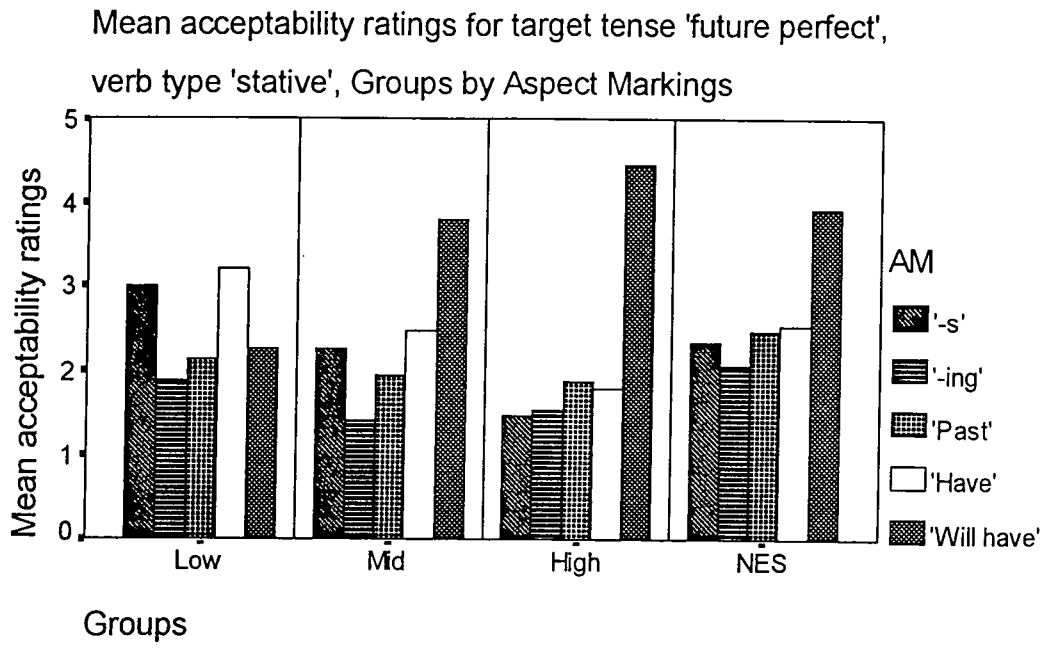

Figure 53

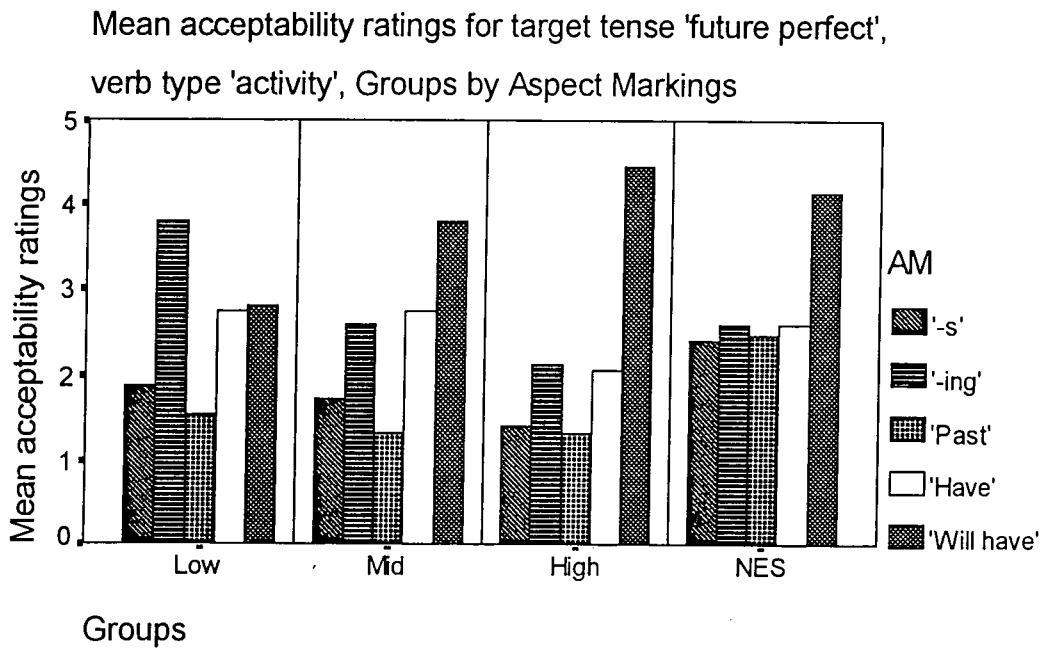

Figure 54

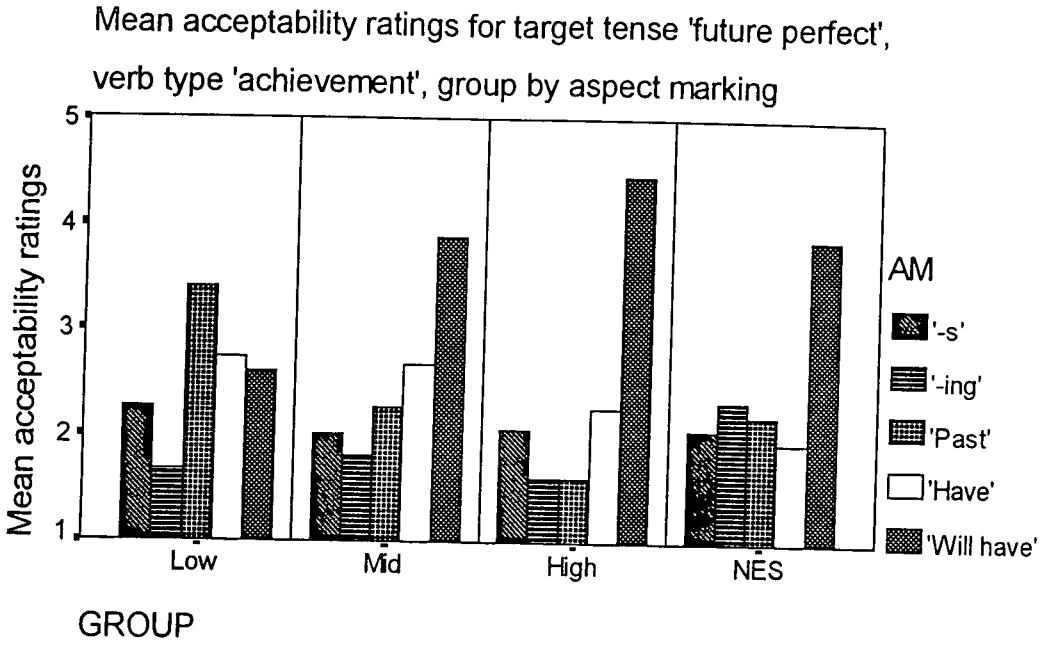

Figure 55

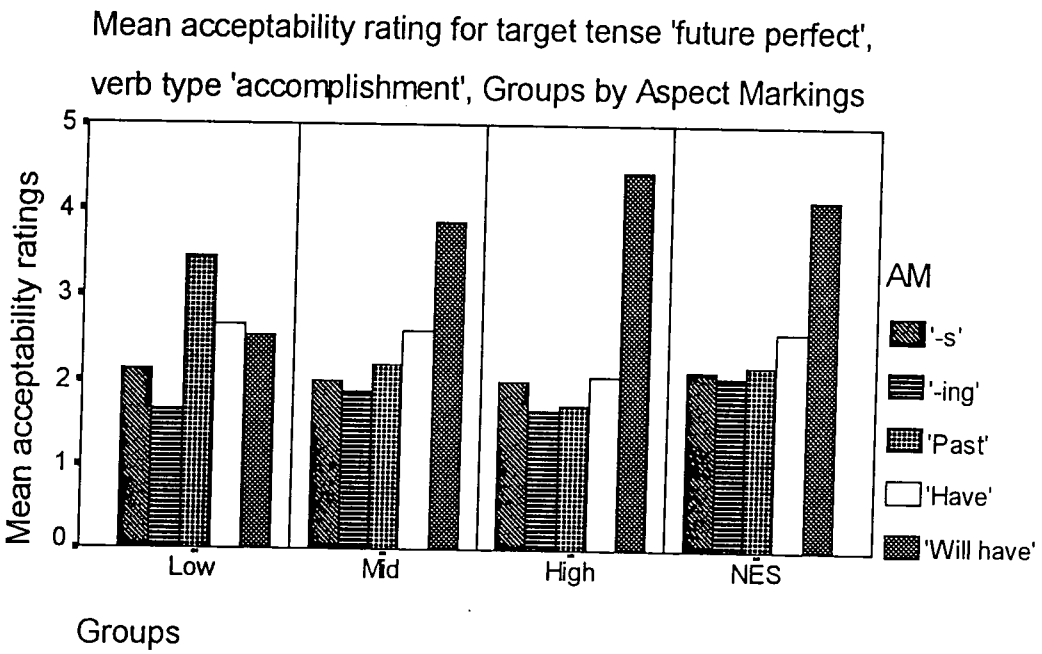

Figure 56

A Tukey test showed that this effect was due to significant differences between the correct aspect marking and the other aspect markings for the mid-and high-level groups. In the low-level group, the 'present perfect' form was more acceptable for stative (3.200) verbs (e.g., 148) than for activity (2.733), achievement (2.533) and accomplishment (2.667) verbs. It indicates that the low-level learners transfer the Persian present perfect to the English future perfect and link it to stative aspect. The question is why present perfect associates with stative aspect. Perfect constructions in Persian are formed by the past participle and the verb *budan* 'be' and all verbs with 'be' are stative. This means that the low-level learners did not transfer Persian present perfect tense to English future perfect; rather they interpreted the English future perfect as stative aspect. In addition to equating 'be' with *budan*, the '-ing' form was judged as acceptable more often with activity (3.800) verbs (e.g., 149) than with stative (1.867), achievement (1.667) and accomplishment (1.667) verbs and the PAST form was judged as more acceptable with achievement (3.400) and accomplishment (3.467) verbs (e.g., 150 and 151, respectively) than with stative (2.133) and activity (1.600) verbs. These differences were all statistically significant ($P < 0.05$). The sentences 147-150 show the biased association of verb type by aspect for the low-level learners:

(148) Jalal has loved his job for six years. By next month he ***has loved*** it for seven years.

(149) Marjan is going to play her violin at her home at 7 o'clock but Reza is going to be there to see how she plays her violin at 7.30. Then, Marjan ***playing*** it by 7.30.

(150) Reza is going to start his studies next week but Mary is going to start her studies next month. It means that when Mary starts her studies Reza already ***started*** his studies.

(151) Mary is going to type her letter at 10 o'clock tonight but Mahammad is going to type his letter at 11 o'clock tonight. It means that when Mohammad types his letter Mary already ***typed*** her letter.

5.9.2 The overal association of aspect marking with verb type in the G-f T

The X^2 values for the effects of verb types by aspect markings across Persian and English groups were significant at the $\alpha = .00000$ and $\alpha = .00012$ in low and mid groups respectively for this tense, as shown in Appendix B-9. The null hypothesis that the effect of aspect and aspect marking is independent is rejected. Figures 57-60 display the link between the aspect marking and each verb type across the groups:

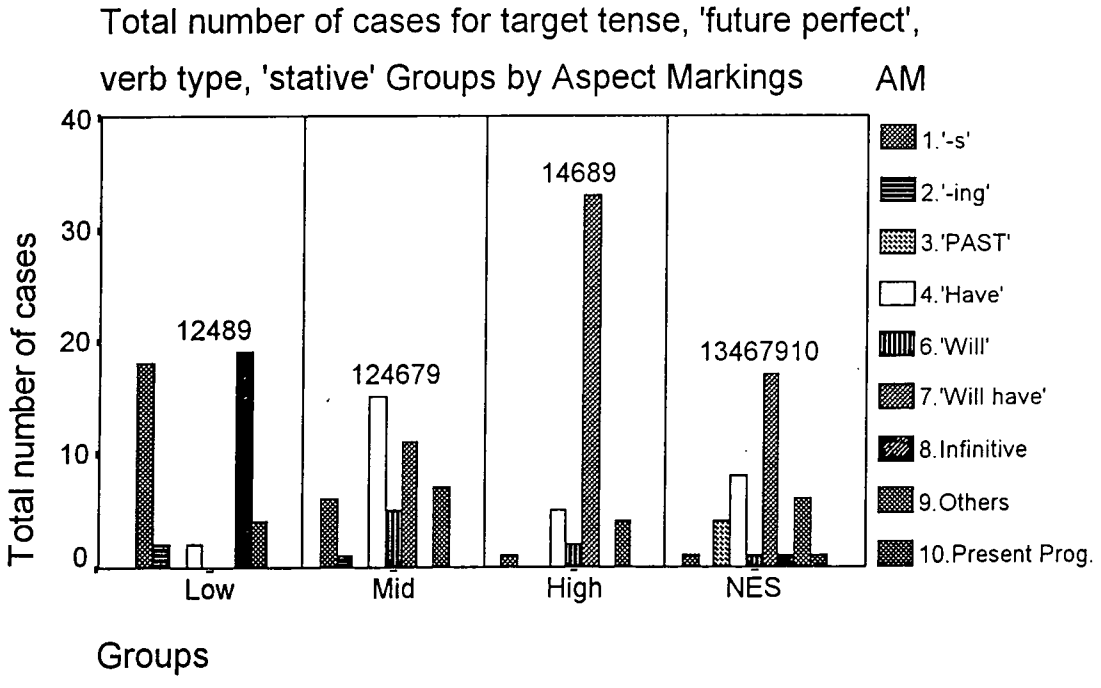

Figure 57

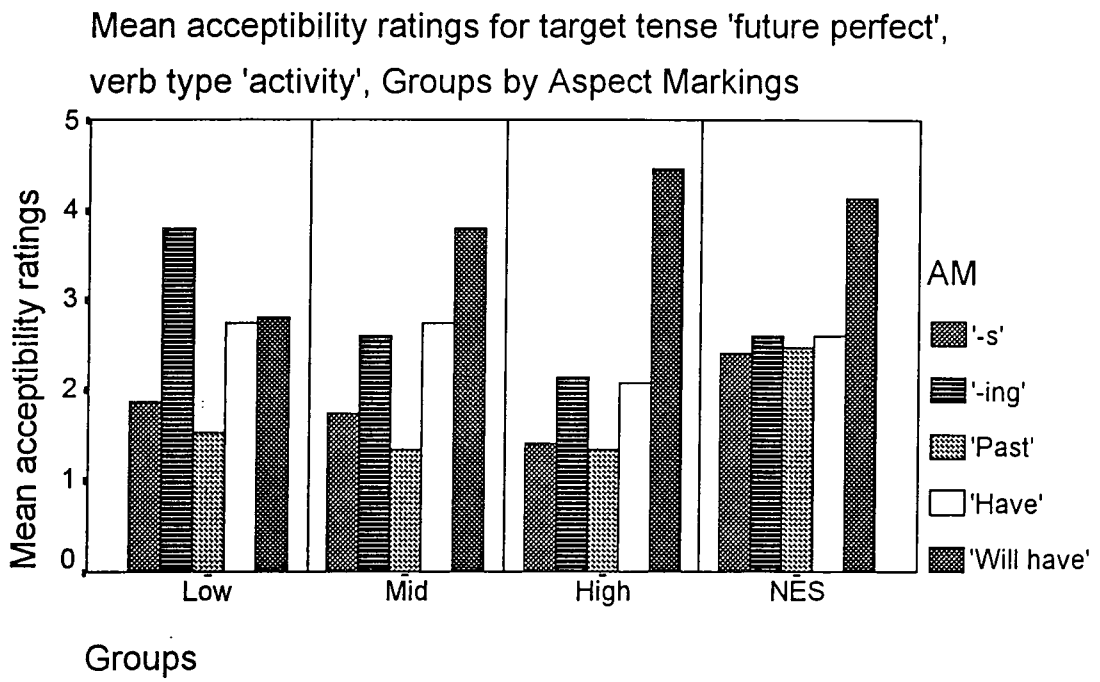

Figure 58

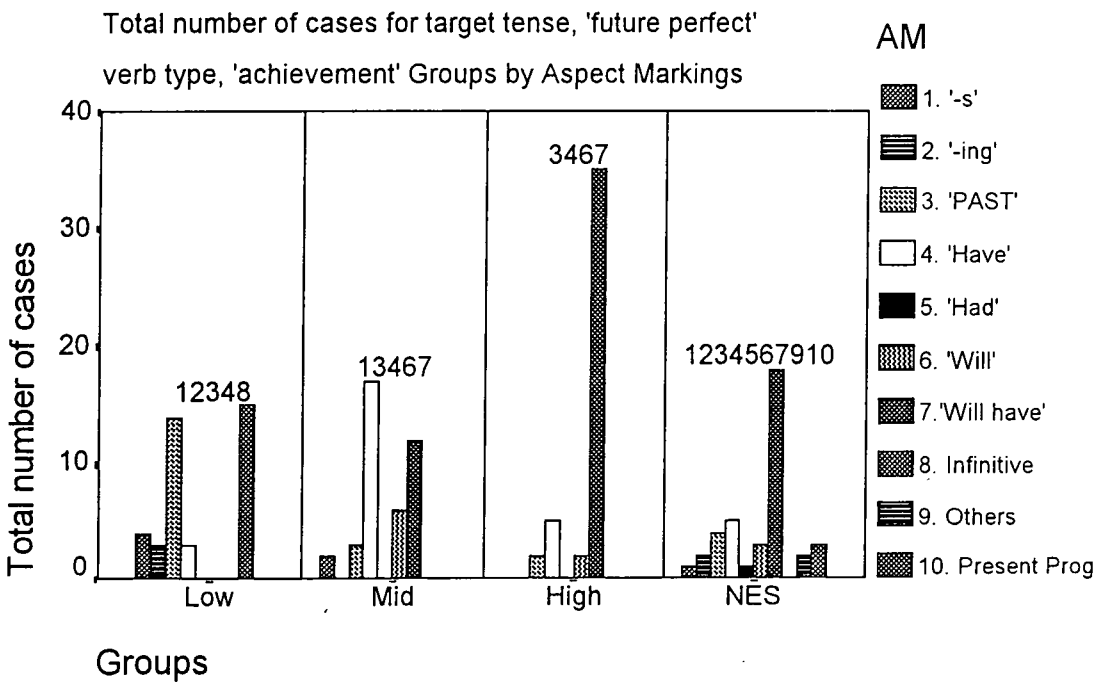

Figure 59

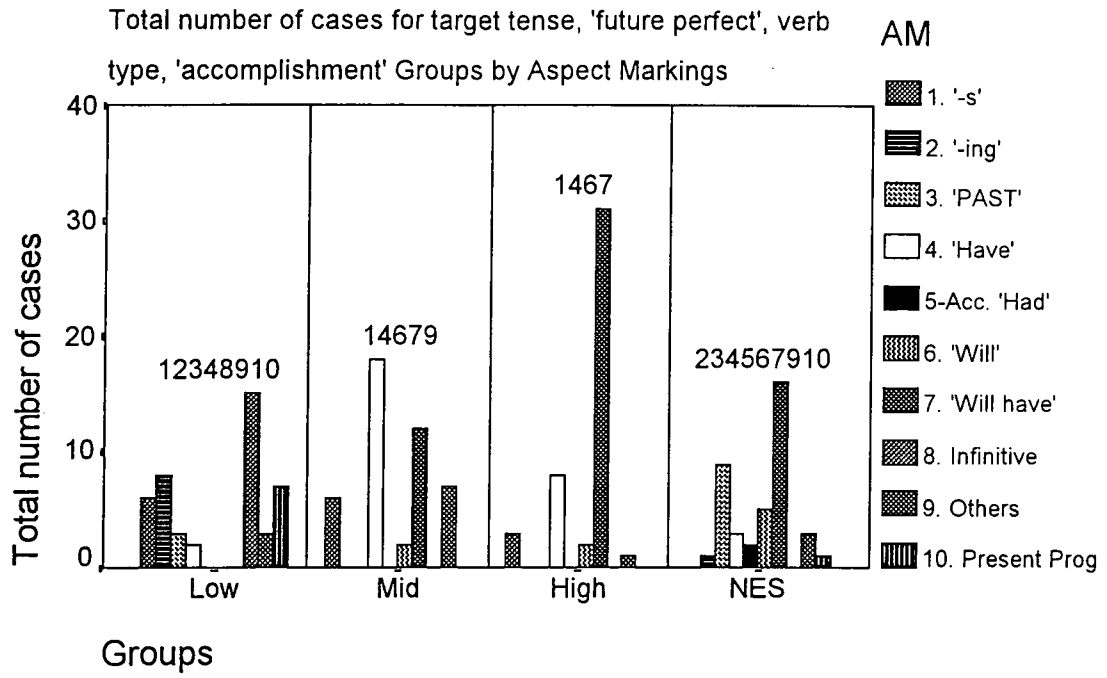

Figure 60

5.9.2.1 The use of aspect marking '-s'

Appendix B-9 provides confirmation that the association between the aspect marking '-s' and statives (as in the test item 152) is statistically significant ($X^2(1, N = 171) = 13.84$, $P < .00009$) for the low-level group (cf. Question and Research Hypothesis 4a).

5.9.2.2 The use of progressive aspect marking

The data indicate that the concentration of the aspect marking V + -ING and present progressive with activity aspect (as in the test item 153) was significant ($X^2(1, N = 171) = 10.52$, $P < .002$) and ($X^2(1, N = 174) = 4.99$, $P < .0002$), respectively for the low-and mid-level subjects and the effect of present progressive with accomplishment

aspect (as in the test item 155) was also significant ($X^2(1, N = 171) = 17.20, P < .0004$) for the mid-level group (cf. the Questions and Research Hypotheses 4b and 2).

5.9.2.3 The use of PAST aspect marking

The use of PAST aspect marking was statistically aligned with achievement aspect ($X^2(1, N = 181) = 37.16, P < .00001$) for the low group (as in the test item 154) but this effect was not significant with accomplishment aspects (cf. Questions and Research Hypotheses 4c-d).

5.9.2.4 The use of present perfect tense

Persian speakers did not transfer present perfect tense for target tenses of present, past, past perfect, and future tenses but they transferred present perfect tense for future perfect tense (cf. Appendixes B-1 through B-9). Appendix B-9 shows that all groups used present perfect for target tense future perfect but that the association of present perfect tense with aspect types was not significant. That is to say that there is no association between the type of aspect and present perfect form. Moreover, 10, 59, and 22 of all aspect markings were in present perfect tense in the low through high-level groups, respectively. This effect is not in agreement with Question and Research Hypothesis 5, which predicts that the lower-level subjects will transfer present perfect for future perfect tense. Examples of the biased association of verb type by aspect marking for the lower-level group in the context of 'future perfect' tense are as follows:

(152) Next year is ten years that Reza and Roya are close friends. It means that Reza (love) .....***loves***..... her for ten years. Now they have been friends for nine years.

(153) Mohammad is going to walk in the park at 5 o'clock but Reza is going to play at 6 o'clock. Then, Mohammad (walk) .....***walking*** ..... there by 6 o'clock.

(154) Reza is going to reach the top of Mt. Shirkoh at 5 o'clock but Amir (reach) .....***reached*** ..... by 5 o'clock.

(155) Javad: Is Morad going to build his house next month?
Jalal: NO, he (build) .....***is building*** ..... his house by the next month.

5.9.3 Emergence and development of 'Future Perfect': Semantic evidence

As the data on GJT and G-f T show, the lower-level groups distinguished the aspect values of punctuality, telicity, and dynamicity by marking them with the aspect marking PAST, '-ing' and '-s' respectively. During the emergence of the correct target tense, the higher-level learners did not mark verbs based on the type of aspect as indicated by the chi-square tests showing that the association of verb type with aspect marking was not significant. Furthermore, the higher-level learners used significantly more deictic target tense forms regardless the type of aspect. In other words, the deictic target tense reference (i.e. the precedence of Event time to Reference time) was used as a criterion to mark the verb rather than the aspectual values of punctuality, telicity, and dynamicity:

(156) _____S_____E_____R_____

5.9.4 Emergence and development of 'future perfect' tense: Syntactic evidence

In section 5.9.3, the semantic evidence for the emergence and development of future perfect tense was discussed. In this section, I will discuss the syntactic evidence from the GJT and G-f T data for the lower-and higher-level learners. I will compare the aspectual markers and the inflectional markers for the lower-level and higher-level groups to see whether the difference between the two types of the markers is significant.

5.9.4.1 Emergence and development of the 'Future Perfect' tense form in the GJT: Syntactic evidence

The aspectual markers were the biased judgements on use of the stative '-s', activity '-ing', and achievement and accomplishment PAST, while the inflectional markers were judgements on the correct target tense form. The low-level learners used the biased application of aspect marking with verb type (in proportion to the inflectional marker) as more acceptable than the higher-level groups (as shown in Figures 53-56). These differences were significant ($P < 0.05$). The aspectual markers are thus checked by aspectual projections, whereas the inflectional marker is checked at IP (cf. Questions and Research Hypotheses 5a-5b).

5.9.4.2 Emergence and development of the 'Future Perfect' tense form in the G-f T: Syntactic evidence

The stative '-s' form, activity '-ing' form, accomplishment present progressive form, the achievement PAST form, and infinitives were the aspectual markers, while modals, auxiliaries with the correct target tense form were the inflectional markers. Chi-square tests indicated that the lower-level learners used more aspectual markers (in proportion to all inflectional markers) than the higher-level groups. The difference between the low-level group and the mid-level group ($X^2(1, N = 197) = 154.59, P < .00001$), and the mid-and high-level groups ($X^2(1, N = 222) = 7.02, P < .009$) were significant. Thus, Questions and Research Hypotheses 5a-5b were confirmed.

So far, I have presented the results of the study, and discussed them as they relate to specific Questions and Research Hypotheses. In what follows, I will discuss the findings in relation to broader issues of the acquisition of tense/aspect.

5.10 General discussion

In this section, I will discuss the results of the present study, relating them to learnability theory, which addresses two long-standing issues in language acquisition: the logical problem, or how language learners are successful, and the developmental problem, or how learners enter and leave a developmental stage. Linguistic approaches to language acquisition have emphasized the logical problem and how a language learner, faced with language input that is considered degenerate and without error correction, can acquire the target language successfully (Atkinson 1982; Hornstein & Lightfoot 1981). Psychological approaches have focused primarily on stages of

development; faced with the target language input, how does a learner form initial hypotheses and develop through stages (Pinker 1984, Slobin 1971)? Pinker (1984) suggests a learnability condition or theory, claiming a good theory of language acquisition must account simultaneously for both ultimate success and developmental stages in the environment of input. In this study, the solution to the logical and developmental problems within learnability will be treated in terms of two types of principles available to the learner: linguistic and learning principles. In Pinker's theory, linguistic principles include knowledge of semantic and syntactic correspondences, lexical and functional categories, and X-bar theory. The learning principles include mechanisms designed to acquire target language phrase structure, lexical entries, and morphological and lexical alternations.

Wolfe-Quintero (1992) proposes a simple model to depict the relationship between language principles and learning principles. In this model, input is processed and represented by forming hypotheses generated by the interaction of linguistic and learning principles. Success is derived from the language principles that provide information about linguistic categories and structures, and developmental stages are derived from the learning principles that narrow down what can be noticed and interpreted in the input.

For second language acquisition, researchers propose that the universal language principles involved in L1 acquisition are gradually replaced by the L1-values of these principles. The L2 input interacts with the L1 realisation of language principles, delimiting the possible structures and so leading to transfer effects. That means that in SLA, input is processed and represented by means of hypotheses generated by the interaction of L1-based language principles and learning principles.

What is the role of the input that the Persian speakers receive via native English speakers? This is the topic of the following discussion.

5.10.1 Distributional Bias Hypothesis (DBH) and the L2 input

This study had two groups of subjects: PS (Persian Speakers) as the experimental group and Native English Speaker (NES) as a control group. In Chapter 3, studies were discussed on the first language acquisition of tense and aspect (e.g., Andersen 1989; Andersen and Shirai 1994; Ramsay 1989a) that claim that learners acquire verbal aspect simply from the input of adult native speakers in terms of aspectual categories. If it were the case that first language learners mirrored the adult speakers' speech, then what would the role of language principles be? There would be no role here, since according to the DBH, first language acquisition is reduced to an input phenomenon (Rohde 1996). In the present study, the NES did all the tasks that the PS did. The data on GJT, G-f T, and RT showed that NES did not use verbal aspects to mark aspectual categories neglecting the tense distinction, which is against the DBH; rather they marked verbs in agreement with correct target tense forms.

The assumption is that by the interaction of universal aspectual values with the L2 input, the lower-level learners formed their initial L2 grammar. Furthermore, by exposure to more target language input, the higher-level learners did use verbal aspects to mark correct target tense forms. This study may reject[19] the DBH that the lower-level learners' speech mirrors native English speakers' speech. If it did, there would not have been a final state at which the higher-level learners used verbal morphemes to

[19] One possibility is that the NES-directed speech addressed to the learners in the present study might be consistent with the DBH. In this case, the NES' results would not reject the DBH.

mark correct target tense forms. Which linguistic principles or values do the lower-level learners follow or use to mark the verbs? The linguistic principles or values that the lower-level learners followed should involve semantic and syntactic correspondences (i.e. referring to Pinker's learnability theory). In this regard, I would like to discuss the semantic values of this study and compare it with the issue concerning two hypotheses claimed by Bickerton (1981): the State-Process Distinction (SPD) hypothesis and the Punctual-Non-Punctual Distinction (PNPD) hypothesis, which is the topic of the next section.

5.10.2 The Language Bioprogram Hypothesis

5.10.2.1 The State-Process Distinction (SPD) Hypothesis

Cziko (1989) points out that SPD seems to be concerned with inherent aspectual values in Bickerton (1981, 1989) rather than grammatical aspect. But how does his Bioprogram tell the child that in English, for example, prototypical stative verbs are usually incompatible with the '-ing' form? The child receives a lot of input in which verbs receive the '-ing' form. The child who is not programmed with SPD would produce stative verbs with the '-ing' form. Let me quote Bickerton (1981) here:

> [T]he use of progressive '-ing' with statives would surely appear, to a child not programmed with the SPD, to be the most natural thing in the world. For '-ing' is applied to verbs with present reference, and when a child wants or sees or likes something, it is right now that he does it. **I wanting teddy* (now) or *I seeing pussy* (now) would surely appear, to such a child, every bit as grammatical as *I playing peekaboo* (now) or *I sitting potty* (now). Nobody could claim that the distinction emerged from experience, or from context (p. 158).

In fact, neither the lower-level learners nor the higher-level learners judged the GJT sentences with the stative '-ing' form as being more acceptable than activity, achievement, or accomplishment '-ing' form. Accordingly, neither the lower-level learners nor the higher-level learners produced the stative '-ing' form significantly. The findings of the present study thus supports Bickerton's SPD. Secondly, given that overextension occurs, the rarity of overextension here must be explained. Both Brown (1973) and Bickerton (1981) argue that the non-existence of such overextension is surprising because children make overgeneralization errors else where very frequently (*goed, comed*, etc). However, these two types of overgeneralizations should not be compared on the same grounds, since they are qualitatively quite different, as Kuczaj (1978) pointed out. The overgeneralization of '-ed' only involves confusion of a morphological process, while the overextension of '-ing' to stative verbs is primarily in the realm of semantics, since the morphological operation is the same for all verbs-attachment of '-ing'. Therefore, the analogy to the overregularization of PAST is faulty. The present study provides more convincing evidence on whether L2 learners mark stative verbs with the '-ing' form. As I mentioned earlier some Persian stative verbs are grammaticalized by the prefix *mi-* attached to stative verb stem. The stative prefix *mi-* is imperfective and it was hypothesized that the lower-level learners would not transfer the Persian imperfective stative verbs into English through use of the English imperfective '-ing' form (i.e. Research Hypothesis 4a). The data on all tasks showed that stative verbs were not marked with the '-ing' form. Why did even the lower-level learners not mark the stative verbs with the '-ing' form? The reason is that the semantic universal entailment of stative verbs is not compatible with the ongoing

aspectual marker '-ing'. Stative aspect is an aspectual value, a universal principle which is innate and not violated by first or second language learners.

Another piece of evidence for the interaction of language principles or values with the Persian-speaking subjects' first language was that in Persian, accomplishment aspect can switch into activity aspect. In this case, accomplishment verbs can associate with the '-ing' aspect marking. The data in this study revealed that the lower-level learners did use accomplishment verbs with either the '-ing' or the PAST form. When the lower-level learners used accomplishment verbs with the '-ing' form, a clear case of transfer was found. Because the learners also used accomplishment with the PAST form, this indicates that they did not simply switch accomplishment into activity. On the contrary, the second aspectual value, i.e. process (P) in Bickerton's SPD hypothesis, associates with the aspectual value of activity verbs. The assumption is that the '-ing' form would be marked on activity verbs rather than stative verbs. The present study and the general findings in L1 and L2 acquisition of tense and aspect as well have shown that activity verbs are the first candidates to receive the '-ing' form, thus, the aspectual value of activity is innate.

5.10.2.2 The Punctual Non-Punctual Distinction (PNPD) Hypothesis

By PNPD Bickerton (1981) means:

> For the punctual-nonpunctual opposition must ... be marked in the semantic features of individual verbs. That is to say, some verbs are inherently punctual, while others are inherently nonpunctual. If you hit something for five minutes, it must be that you hit it many times; similarly, if you jump for five minutes, you must jump many times; both *hit* and *jump* express inherently punctual actions. But on the other hand, if you push something for five minutes, you do not necessarily push it more than once, and if something rolls for five minutes, it does not necessarily roll more than once; both *push* and *roll* express inherently nonpunctual actions (pp. 170-171).

Bickerton discusses Bronckart and Sinclair's (1973) study of 74 French-speaking children and Antinucci and Miller's (1976) study of seven Italian-speaking children in which they concluded that the children used past form first on punctual verbs and then they extended it to non-punctual verbs in the context of PAST tense. Bickerton concludes that the aspectual values 'PNPD' are innate.

The data in the present study include not only past tense but also the other English tenses; these results support the language Bioprogram hypothesis. That is to say, the lower-level learners used the PAST form to mark punctual (i.e. achievement) verbs with tense distinction being neglected (see the use of aspect marking PAST for all target tenses in Chapter 5). In addition, the present study indicated that the lower-level learners marked stative verbs with the '-s' form with tense distinction being neglected (see the use of aspect marking '-s' for all target tenses in Chapter 5). Thus, dynamicity is also a basic innate aspectual value. Generally speaking, there are three aspectual values that learners used to mark verbs at initial stages, [punctual], [telic], and [dynamic], which also cover Bickerton's SPD and PNPD. That is to say, State corresponds to [-dynamic], Process to [+dynamic] and [-telic], and Punctual to [+punctual] and [+telic] (cf. section 2.1.1.3).

So far, I have discussed the semantic features of language principles. The question which next arises, what is the syntactic correspondence of the semantic aspectual values?

5.10.3 Aspectual projections and the acquisition of tense/aspect markers

I mentioned earlier that aspectual projections are the interface between the lexicon and syntax (cf. section 2.2.2). In this regard, what the lexicon provides is the number of arguments and aspectual information. Thus, if the argument which is base-generated in Spec of aspectual measurer (AspEM) combines with the verb, the result will be telic interpretation (i.e. achievement and accomplishment). If the argument which is base-generated in Spec of aspectual originator (AspOR) combines with the verb the result will be non-telic interpretation (i.e. atelic or non-punctual based on Bickerton's terminology). In the case of stative verbs, the arguments, which are base-generated in the aspectual projections (AspEM and AspOR), do not combine with a stative verb and the result is non-dynamic interpretation. Furthermore, aspectual projections are below IP. Aspectual projection markers including the biased use of verbal forms with aspectual values (e.g., the biased use of PAST form with telic aspect, '-ing' with non-punctual aspect or atelic, and the present form with non-dynamic aspect) are checked by aspectual projections. Inflectional markers including the correct target tense, modals, auxiliaries, etc. are checked by inflectional projection.

It was hypothesized that the lower-level learners associated the verbal morphemes PAST, '-ing' and '-s' with aspectual values, which are checked by aspectual projections, while the higher-level learners used correct target tense forms regardless the type of aspectual values, which are checked by inflectional projection. Therefore, the biased use of verbal morphemes should be significantly more than target tense forms for the lower learners and vice versa. The data in GJT, G-f T, and RT

confirmed that the lower-level learners have acquired verb phrase and its properties (i.e. aspectual projections), while the higher-level learners have acquired the IP system.

To sum up, the language principles or values that are related to this study included the semantic and syntactic correspondences of inherent aspect. The semantic values include punctuality, telicity, and dynamicity. The lower-level learners used these aspectual values to mark stative, activity, accomplishment, and achievement verbs, while the higher-level learners used target tense 'time references' as criteria to mark all verb types. The syntactic correspondence of the semantic aspect includes the aspectual projections of measurer and aspectual projection of originator. When the argument, which is base-generated in Spec of aspectual measurer is combined with the verb, the result is telic interpretation (e.g. *open*). Furthermore, if the argument, which is base-generated in Spec of aspectual originator, combines with the verb, the result will be atelic interpretation (e.g. *walk*). Finally in non-dynamic (or stative aspect), the arguments which are base-generated in the Spec of aspectual measurer and originator are not affected by the stative verb, and the result is stative aspect (e.g. *John knows the truth*) (cf. section 2.2.2). For the lower-level learners, the association of the aspect markings '-s', '-ing', and PAST with the aspectual projections was significantly more frequent than for the higher-level learners, while for the higher-level learners, the correct target tense forms, which are checked in IP, were significantly more frequent than for the lower-level learners. The next question is, which strategies or mechanisms are necessary to interpret aspectual values and eventually to develop target tense forms? This deals with the second learnability principle, i.e. learning principles, which is the topic of the following section.

5.10.4 Emergence and development of English target tenses: Learning principles

Researchers who discuss the acquisition of syntax in the first and second language acquisition refer to learning principles. I will explain these and then relate them to the present study.

5.10.4.1 Conservatism

The hypothesis testing of a language learner needs to be constrained and it has been suggested that the initial hypotheses about syntax are conservative. The Subset Condition on parameters proposed by Wexler and Manzini (1987) claims that a learner is constrained from choosing a more marked parameter setting that is also consistent with the input data. The Conservatism Thesis proposed by O'Grady (1987) states that the initial hypothesis will be the most conservative possible even if a more marked hypothesis is consistent with the input data.

5.10.4.2 Uniqueness

This principle was originally proposed by Slobin (1971) and refers to learners' initial preference for one-to-one correspondences between forms and their functions or meanings, formulated as Operating Principle D. More recently, this has been called the Uniqueness Principle by Wexler (1979) and Pinker (1984).

5.10.4.3 Continuity

Within categorical grammar this principle refers for items and how they combine, for example, to verbs and direct objects occurring next to each other (O'Grady 1987). Noncontinuous structures arise as a result of movement, for example, extraction phenomena. There is abundant evidence that in first and second language acquisition there is an initial preference for canonical word order (Bates & MacWhinney 1987, Clahsen 1984, Pienemann & Johnston 1987, Slobin 1971, 1984). Within categorical grammar, the canonical word order principle refers to the cross-linguistic preference for items that combine to be adjacent, for example, for verbs and direct objects to occur next to each other (O'Grady 1987).

5.10.4.4 Cumulative Development

O'Grady (1987) proposed a Developmental Law which maintains that development must proceed in stages and that each stage will contain the previous stage plus something more, in an inherently implicational relationship. For instance, for a learner to acquire correct target tense forms, he has to acquired aspect first.

As was mentioned most of data in first and second language acquisition, which refer to these learning principles, deal with syntax. However, the learning principles that discussed above can handle the data in this study, which are based on semantic and syntactic correspondences of the acquisition of tense and aspect. That is to say, provided with input, the learners would initially form conservative hypotheses based on

assumption of the uniqueness and continuity of the tense and aspect. Uniqueness deals with the biased association of verbal morpheme with inherent aspect (I will elaborate on this principle in the following paragraph) and the continuity has to do with the acquisition of aspect in both L1 and L2 acquisition. There is abundant evidence that in L1 and L2 acquisition there is initial preference for marking inherent aspectual verbs with tense distinction being neglected. Eventually, through the process of further input or loss of a tentative hypothesis, the correct target tense is acquired.

In learning a morphological category, under the Uniqueness principle, the lower-level learner has to acquire a form, a function, and the form-function mapping. It would be easier for the learner to do so if the form-function relationship were straightforward, preferably one-to-one. Even if the form-function mapping is not one-to-one, the child tends to create a one-to-one mapping initially (e.g., Karmiloff-Smith 1984). In terms of the progressive category, if progressive marker is predominantly attached to activity verbs, and the meaning is always "action in progress," as universal aspectual value then it is easier for the learner to create an initial hypothesis about the form-function mapping. 'Action in progress' also covers the case of accomplishment verbs, when the learner switches the accomplishment aspect into activity aspect. Furthermore, the PAST forms are mainly attached to telic events (achievement and accomplishment) and the meaning is always "complete action" regardless of the type of target tense. Finally, in terms of the present '-s' form, if the present form is predominantly attached to stative verbs and the meaning is always "a timeless situation". These constitute the prototypes on which later development rests. At this stage, a meaning is given to the morphological form, which is productively attached to the verb stem. The learner, by this time, will unconsciously have noticed the

ontological distinctions between statives, telic events (achievement and accomplishment), and processes (activity). These would be the basis for "functions" that the lower-level learners discover/notice around them—a system of 3-way ontological distinctions, on which they map linguistic forms they hear. In other words, according to the O'Grady's Conservatism principle, these are the initial hypotheses upon which the learners map linguistic forms onto the verb stems.

The results of the study also indicate that the lower-level learners marked stative verbs with the present tense form for the target tense 'present' and the higher-level learners extended the present tense form to the adjacent aspectual categories, i.e. activity, achievement, and accomplishment aspects for the target tense, 'present'. Moreover, the lower-level learners used the PAST form with telic verbs and the higher-level learners extended it to non-telic verbs (stative and activity). This could be accounted for by the cumulative learning principle. That is to say, the lower-level learners begin with the least marked hypothesis possible which maintains the development of the later stage. But how do the processes or stages of the other target tense forms such as present perfect, past perfect and future tenses take place? The results indicated that the lower-level learners used the aspect marking '-s', '-ing', and PAST in agreement with verb types, while the higher-level learners used the correct tense forms regardless of the verb type. According to both Continuity Principle and Cumulative Learning Principle, there is abundant evidence in the first and second language acquisition of tense and aspect that the higher-level learners prefer to disassociate the biased use of verbal morphemes with the type of verb and to use the perfect target tense forms regardless of the verb types. The present study indicated that while the lower-level learners used the verbal morphemes '-s', '-ing' and PAST to

mark stative, activity, accomplishment, and achievement verbs regardless of perfect target tenses such as present perfect and past perfect, the higher-level learners disassociated the verbal morphemes with aspectual verb types and used perfect target forms to mark all verb types. In other words, the acquisition of aspect precedes that of tense. Thus, one would claim that the acquisition of aspect facilitates that of tense. Therefore, the development from aspect to tense is continuous rather than discontinuous.

To summarize, in this chapter, the results of the GJT, G-f T, and RT were discussed according to the acquisition of English target tenses: present, present perfect, past, past perfect, future, and future perfect tenses. Based on the findings of the study, I concluded that the early use of verbal morphology was semantically governed by inherent aspect for the lower-level groups, while the later use of verbal morphology came to be governed by target tense 'time reference', rather than inherent aspect for the higher-level learners and NES. In addition, I explained that the lower-level learners' use of verbal morphology can be described as being governed by the aspectual projections, whereas the higher-level learners' and NES' use of verbal morphology was governed by the IP. These issues were related to linguistic principles concerning Pinker's (1984) learnability theory that includes both linguistic principles and learning principles. The learning principles such as Uniqueness and Continuity accounted for how the learners aligned form (verbal morphemes) and function (inherent aspect and target tense).

In Chapter 6, I will discuss implications and conclusions with respect to the present study. First, I will discuss the implications of the present data with regard to the validity of a 4-way Vendlerian aspectual classification. Second, the implications of

the acquisition of tense and aspect by Persian speakers will be discussed in relation to the Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996) and the Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). Finally, I will suggest possible future research in the acquisition of tense and aspect.

Chapter 6

Implications and conclusions of the study

6.0 Introduction

This chapter consists of two sections. In the first section, I will discuss the implications of the present study in terms of (1) the study of inherent aspect, and (2) the acquisition of tense and aspect. In the second section, I will summarize the main points made in the first section of this chapter and in previous chapters, and conclude by suggesting possible future research in the area of POA.

6.1 Category structures for inherent aspect

What is the boundary line dividing aspectual categories? What is the validity of four aspectual categories? How are these categories related? In this section, I will discuss these questions based on the process of classification of tokens in the GJT, G-f T and RT.

As has been noted in Chapter 4, we have to admit that there is variation in the degree of representiveness within each inherent aspectual category. For example, some tokens are typical accomplishment (e.g. make a cake), while others may be less typical (e.g. put on clothes[22]). However, as Armstrong, Gleitman and Gleitman (1983) have shown, even a clearly classical category such as odd number has different degrees of

[22] One may pay attention to the end-point of 'putting on' or the process leading to 'putting on'. In the former case, the inherent aspect is achievement, while in the latter case, the inherent aspect is accomplishment.

representativeness among its members. In the present study, I used typical members of aspectual categories in the GJT and G-f T. Furthermore, in the RT; the verbs that did not fit stative, activity, achievement, and accomplishment aspects never appeared.

What about boundaries between four inherent aspect categories? As was discussed earlier in Chapters 2 and 4 it appears that there are a few fuzzy boundaries between classes. The most controversial was between achievement and accomplishment. This distinction indeed may be fuzzy, which is why some researchers collapse them into one category "event" (Verkuyl 1989).

Why should we not collapse accomplishment and achievement and just call it event? The rationale I gave was to investigate the effects of the distinction of accomplishment and achievement aspects in Persian, for the purpose of acquisition research as a linguistic marker (see section 2.1.1.5). If I had given up the achievement/accomplishment distinction, I would not have found that for the lower level learners, the association of PAST marking with [+ punctual] [+telic] verbs, i.e. achievement verbs, was more significant than for [-punctual] [+ telic] verbs, i.e. accomplishment verbs, for all target tenses. Even the low-level learners started to mark achievement verbs with the PAST marking in the context of past tense in the GJT, G-f T, and RT.

If these four categories are linguistic or cognitive universals, as has been discussed by Smith & Weist (1987), then we should explore why it is that in English the distinction is so difficult to distinguish. The difficulty in making this distinction may come from the fact that in English, progressive expresses both "action in progress" and "futurate". It may be possible that the accomplishment/achievement distinction has been blurred in English because of this accidental overlap between the two different

entities: (1) accomplishment combined with progressive, signifying a durative process leading up to a necessary endpoint (e.g. John is building a house), and (2) achievement combined with progressive also signifying process leading up to a punctual endpoint (e.g. John is winning the race). If this is the case, this difficulty should not arise in languages in which progressive expresses both action in progress and futurate like English provides; but there are other linguistic markers which distinguish accomplishments from achievements, such as those in Persian (see 2.1.1.4). In Persian, progressive indicates both "action in progress" and "futurate" similar to English. However I would further argue that the question of whether to maintain the accomplishment/achievement distinction is by itself an important issue for linguistics, because in Persian, accomplishments, i.e. [-punctual] [+ telic] without direct object markers switch into activity [-punctual] [-telic] (cf. 2.1.1.5). In this case, the accomplishments without direct object markers (i.e. the direct object markers are 'ra', '-I', and '-I ra') are compatible with atelic adverbials (e.g. for an hour) as shown in sentence 157, while achievements without direct object markers are not compatible with atelic adverbials as shown in sentence 158:

(157) ue baraye yek mah xa'neh sakh-t
She/He for a month house built-3SG
'She/he was house building for a month'

(158) *ue baraye yek saat mo'sabegheh barandeh sho-d
She/he for an hour race won did-3SG
'She/he was race winning for an hour'

If in English because of overlap between progressive and futurate, the distinction between accomplishment and achievement is blurred[23] and there is no other linguistic markers such as the acceptability of the deletion of direct object NP marker with accomplishments in Persian, this difficulty may not arise in languages that do not have both progressive expressing 'action approaching endpoint' and 'futurate'. In Japanese at least, this type of difficulty is not present. In fact, if literally translated using the progressive/continuative *–te riru*, accomplishment terms have the sense of "action in progress" (as in English) as in (159), while achievement terms have a resultative or perfective sense[24] as in (160):

(159) Gohan-o tabete-iru
Dinner eating-is
'(T) is eating dinner'

(160) Ima sinde-iru
Now dying-are or now have died
'(T) are dead now or have died now'
(McClure 1994, p:111)

Cross-linguistic research can validate whether other languages that have a futurate progressive also have difficulty marking the accomplishment/achievement distinction. If there are languages like English and Persian (having progressive that can also express futurate meaning) but could employ other linguistic markers (e.g. the deletion of direct object markers) like Persian to make an accomplishment/achievement

[23] It should be noted here, as Vlach (1981) suggests, *he is winning the race* may not be futurate. He proposes that a futurate progressive can only be used when the event involves "the notion of planning, scheduling, or predetermination" (P. 280). Thus, *they are winning tomorrow* is odd without the game being fixed.

[24] It should be noted that the resultative sense is obtained only in the case of intransitive punctual verbs. In the case of transitive punctual verbs, *-te aru* must be used to signify resultative. *–te iru* used with transitive punctual verbs has an iterative reading.

distinction, it is supportive evidence for accomplishment/achievement distinction. However, further cross-linguistic research can validate whether other languages that have futurate progressive do employ linguistic markers such as Persian and whether other languages that do not have futurate progressive like Japanese do make an accomplishment/achievement distinction.

6.1.1 How are inherent aspect categories related?

So far we have discussed the notion that although not all of the aspectual categories are completely gradient, it appears that some categories have clearer boundaries than others do. It is also clear from the preceding discussion that the relationship between the aspectual categories is intertwined. Andersen (1990, 1991), proposed four aspectual categories that can be defined by three aspectual values [+dynamic, +durative, and +telic], following Mourelatos (1981) and Comrie (1976). According to this scheme, achievement is closer to accomplishment than to activity, because achievement and accomplishment differ only in one aspectual value [+/-durative], whereas achievement and activity differ on two aspectual features [+/-durative], [+/-telic]. I proposed the [+dynamic, +punctual, +telic] aspectual values for the four aspectual categories. According to these aspectual values, achievement and accomplishment also differ on one aspectual value [+/-punctual], whereas achievement and activity differ on two aspectual values [+/-punctual], [+/-telic].

So far, I have discussed the implications of the present study in relationship to the theory of inherent aspect. Particularly emphasized were the structures of inherent aspectual classes and the distinction between achievement and accomplishment. In the

following, I will turn to the initial stages of the acquisition of tense and aspect with regard to the Strong Continuity Hypothesis and the Weak Continuity Hypothesis, in L1 and L2 acquisition. However, before dealing with these issues, I will discuss the role of the Strong Continuity Hypothesis, the Weak Continuity Hypothesis, and Maturational Hypothesis[25] in the L1 and L2 acquisition of functional categories because the present study of tense and aspect by the Persian speakers has implications for the Strong and Weak Continuity Hypotheses. Finally, I will discuss the implications of the present study for The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), The Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996) and The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996).

6.1 Functional categories in L1 acquisition

Lexical categories are open-class elements consisting of nouns, verbs, adjectives, and prepositions, while functional categories are closed-class elements such as determiners, inflections and complementizers (e.g. Chomsky 1986). There are three hypotheses of the acquisition of functional categories in the early child grammar: (1) the Maturation Hypothesis, (2) the Strong Continuity Hypothesis and (3) the Weak Continuity Hypothesis.

[25] Maturational hypothesis has its application in L1 acquisition because the assumption is that a L2 learner has already instantiated both lexical and functional categories in his L1.

6.2.1 The Strong Continuity Hypothesis

Under the Strong Continuity Hypothesis, the child's grammar has only properties that are fully compatible with the principles of Universal Grammar (UG) at all stages of development (e.g. Hyams 1992; Pinker 1984; Poeppel & Wexler 1993; Weissenborn 1993; Whitman, Lee & Lust 1990). Hence, even though the child's grammar is a grammar of an intermediary stage in the acquisition process, it is a complete grammar.

6.2.2 The Weak Continuity Hypothesis

Proponents of the Weak Continuity Hypothesis argue that functional categories are absent at the earliest stages of language development but emerge gradually via interaction between input and X'-theory (Vainikka 1993/94).

6.2.3 The Maturation Hypothesis

Borer and Wexler (1987) proposed the Maturational Hypothesis. They claim that certain aspects of linguistic competence develop later, as certain linguistic principles have to mature. They argue that there is no a priori reason to assume that a continuity hypothesis is the simplest hypothesis. Borer and Wexler explain for example the course of development of verbal and adjectival passives they find by assuming that A-chains have to mature. This explains why initially, children do not have verbal passives, i.e. because they cannot yet form A-chains.

It seems that both the Weak Continuity and the Maturational Hypotheses are similar. The former, however, differs from the latter in that functional categories develop gradually, through lexical learning. The proposal for the former is that VP is acquired first, followed by IP, which is in turn followed by CP.

The 'logical problem of language acquisition' indicates that the child has to have access to linguistic knowledge given the limited input s/he receives in the course of acquisition. The underlying assumption for all these hypotheses is that there is an innate body of linguistic knowledge guiding L1 acquisition. The question that now arises is what is similar UG-based hypotheses for L2 acquisition?

6.2 UG and Functional categories in L2 acquisition

The Maturational Hypothesis is concerned with biological maturation and second language learners have already matured. Therefore, it has no role to play in L2 acquisition. In addition, many studies on L2 acquisition in the 1980s investigated whether or not L2 grammars are subject to the constraints imposed by UG on L1 grammars. The strongest form of L2 acquisition hypothesis would be one that claims that there is no difference between L1 acquisition and L2, at least as far as UG is concerned (Mazurkewich 1984). There is no need for the strong theory to deny the fact of, for example, foreign accent, but L1-related errors pose a threat to the strong theory of L2 acquisition (Gregg 1996). The proponents of the equation of L1 and L2 acquisition, however, find themselves in difficult situations for lack of a theoretical foundation for interpreting empirical data. For instance, not all principles of UG are equally universal without exception. So, for example, the principle of Subjacency,

which constrains Wh-movement, has been held to apply to languages that lack wh-movement. The strong theory the SLA claims this principle will apply but real empirical data seem very unlikely to show the errors caused by the ignorance of the Subjacency principle. Similarly, parametric variation across languages can be used to distinguish both between the strong theory and real data and between the stronger and weaker theories of L2 acquisition. For instance, it was mentioned that by deleting the direct object NP markers such as 'ra' or '-I', [-punctual], [+telic], accomplishment can switch into [-punctual], [-telic], (activity), while such a parametric variation is impossible in English. It was discussed that native English-speaking children use past form with accomplishment verbs to refer to the aspectual values [-punctual], [+telic] at early stages, and that the low level Persian speakers in this study used the '-ing' form when they used accomplishment verbs without direct object markers. A strong theory would predict that the L2 learner adopts the L2 parameter directly, just as a native speaker of the L1 does during the childhood; thus, the L2 learners would use PAST form with accomplishment verbs. However, the present data indicated when the learners switched accomplishments into activities, they associated the verbal morpheme '-ing', rather than verbal PAST, with accomplishments. A weaker theory, and one that is no doubt more tenable, is that the learner may pass through a stage where the L1 parameter setting is applied to the L2, but will eventually reset it at the L2 value. Therefore, the transfer of accomplishment to activity by associating the '-ing' form with accomplishment was an indication of L1 aspectual parametric setting for the L2 acquisition of tense and aspect, which supports the weaker theory of L2 acquisition. In addition, it is hard to conceive of how the learner could ignore the L1 grammar when first processing L2 input, especially if, as many theorists claim (e.g. Schwartz 1986,

1987; Schwartz & Gubala-Ryzak 1992), conscious knowledge is irrelevant to L2 acquisition.

With regard to the strong and weak position of UG availability, it was concluded that the equation of L1 and L2 acquisition, i.e. the strong position, is very unlikely. However, the weak position of UG availability in L2 acquisition was confirmed in the present study. That is to say that the fact that L2 learner already has a previous instantiation of UG principles and parameters in their L1 raises the issue of L1 influence in interlanguage grammar. Therefore, the role of UG in L1 and L2 is not equal (e.g. du Plessis, Solin, Travis & White 1987; Tomaselli & Schwartz 1990; White 1989). Although one group of researchers argues for the view that adult L2 acquisition falls within the limits of the weak position of UG availability, others argue that UG is not accessible to adult L2 learners at all. So far, I have discussed the availability of the strong and weak position of UG in L2 acquisition. I will discuss why some L2 researchers reject the availability of UG in the L2 acquisition and then I will compare their view with the L2 researchers who argue for the weak position of UG availability in L2 acquisition. The results of the present study indicate that the lower-level learners use L1 related universal aspectual features [dynamic, telic, and punctual] as a criterion to mark the verbs. Therefore, UG is available for the learners of the present study (See section 6.6.2 form more detailed discussion.).

6.4 UG is not available in L2 acquisition

The proponents of non-availability of UG as a source of L2 knowledge claim that since there is general failure of adult L2 acquisition, there must be other sources of

knowledge driving L2 acquisition instead of UG. In his Fundamental Difference Hypothesis, Bley-Vroman (1990) mentions various differences between L1 acquisition and L2 acquisition. He claims that in the place of UG as a source of knowledge, there is the learner's native language knowledge; in the place of language-specific learning mechanisms, there are only problem-solving systems such as hypothesis testing and analogy. Although, it is generally accepted that there is a great deal of variation across individuals in the ability to use problem-solving systems, reliance on language-specific learning mechanisms might also be used to explain this variation in L2 acquisition (Gregg 1996).

Bley-Vroman's main argumentation is to compare the ultimate attainment of young L1 children and adult L2 learners. He states that unlike a L1 learner, who attains native speaker competence, a L2 learner is very unlikely to attain a native-like competence. Finally, he claims that unlike L1 learners, L2 learners are instructed and they are characterized by controlled systematic practice and error correction. Schwartz (1990) criticizes Bley-Vroman's Fundamental Difference Hypothesis. While she accepts that there are differences between L1 acquisition and L2 acquisition, she claims that the type of L1 and L2 knowledge created is epistemological equivalent. What she concludes is that lack of L2 success alone does not entail the non-availability of UG in L2 acquisition. The present study confirms that UG plays a crucial role in SLA in that lower-level learners use universal aspectual features [punctual, daynamic, and telic] to mark aspectual categories with the tense distinction being neglected, while higher-level learners use correct target tense forms.

In this section, we have discussed one of the major issues in recent L2 research, namely, whether or not UG continues to operate in L2 acquisition. For one group of

researchers, there are fundamental differences between L1 and L2 acquisition, and therefore, L2 learners have no direct access to UG and their interlanguage grammars are guided by non-linguistic general problem-solving mechanisms, i.e. L2 acquisition is not domain-specific. For others, who assume a weaker version of this hypothesis, only L1-related UG principles are available to the L2 learner. The claim is that L2 learners cannot reactivate UG but they use L1 parameter settings and UG principles. Another group of L2 researchers claims that even though some L1 parameter values form the initial hypothesis, interlanguages are constrained by UG, and so we expect to find parameter resetting in L2 acquisition.

6.5 The role of UG in L1 and L2 acquisition of tense and aspect

How can children acquiring their L1 discover the features of inherent aspect and target tense forms? How were the learners in the present study acquiring their L2 able to discover the features of inherent aspect and target tense forms? Do they follow the same course of development? Which of the hypotheses presented above could account for the present data on the acquisition of tense and aspect?

Consider the phenomenon of inherent aspect from the learner's point of view. On the surface, all types of verbs look alike: they all denote an event or situation in which the verb combines with the argument(s) in the aspectual projection of measurer (i.e. AspEM) and/or the aspectual projection of originator (i.e. AspOR). So neither the type of event arguments involved in the event nor the surface configuration the verb appears in distinguish the four aspectual categories. This poses a learnability problem: as the surface configurations of the four types of inherent aspects are the same, how

can the learner discover that there is a distinction in the first place? Even if the learner knows that there is such a distinction, how can the learner determine the classification of a new verb into one of the four categories? I will first discuss these questions, as they constitute the core issues of the learning task and embed them in the debate on semantic versus syntactic bootstrapping (see the following sections). I will then discuss the process of learning tense and aspect by discussing the results in terms of the Strong and Weak Continuity Hypotheses. Finally, I will conclude that L1-related UG principles are available to the L2 learner, and that Weak Continuity explains development.

6.5.1 The role of UG in L1 acquisition of tense and aspect

As for the first question, I assume the learner does not need to learn that there are three kinds of aspectual values that look similar on the surface but differ underlyingly. Since UG allows for an option in mapping aspectual values onto syntax, as an aspectual measurer (i.e. telic for achievement and accomplishment verbs), aspectual originator (i.e. atelic for activity verbs) or no aspectual structure (i.e. non-dynamic for stative verbs)[26], the knowledge that there is a distinction among these three is innate. The child starts the language acquisition process knowing that aspectual verbs come in three kinds. S/He will probably even be on the look-out for different distributional patterns across aspectual values.

[26] The assumption is that stative verbs are aspectually empty. The NP complement of a stative verb and the subject of a stative verb are not affected by the verb. In other words, stative verbs have no aspectual structure.

Assuming then that the child comes equipped with the knowledge that there are three kinds of aspectual values, acquisition involves finding out the lexicon-syntax interface through an event-predicate-based approach for each verb type, so that the child can use the verb appropriately for telicity, non-telicity (i.e. atelic), and non-dynamicity. The association of verbal morpheme PAST with telic verbs, '-ing' with atelic verbs, and '-s' with non-dynamic verbs can help determine which class a certain verb belongs to without tense distinction being involved. The child may deduce the aspectual features of a new verb when it is presented in one of these patterns. However, there must be something beyond learning from these distributional patterns associated with inherent aspect. The child cannot learn her/his complete verbal lexicon by being a conservative learner. Instead, s/he must draw generalization form various associations of verbal morphemes with correct target tense forms, so that he can associate verbal morphemes with the aspectual verbs that s/he happens to hear by forming 'conservative' hypotheses. Suppose the child hears from adult speakers that verbs with PAST form refer to an action with a complete end-point, verbs with progressive form refer to a process and verbs with present tense form refer to the present moment. Although he cannot use correct target tense forms as adult native speakers do, s/he can make simple hypothesis by generalizing PAST form with telic verb (i.e. verbs with end-point), progressive form with atelic verbs (verbs with a process without end-point, e.g. activity verbs), and present form with stative verbs. Bybee (1985) has suggested that the more 'relevant' a semantic category is to the meaning of the verb, the more likely is it to fuse with the verb. She notes that aspect is the category that is more directly and exclusively relevant to the verb itself than tense, mood, or person. On the basis of a systematic sample of the world's languages, she has

found that aspect conditions change on the verb more frequently than any other inflectional category. Slobin (1985) provides some evidence on the acquisition of aspect, tense, or person from Slavic languages where verb stems change for aspect, tense, or person, that children readily acquire verb forms to express the basic distinction between perfective and imperfective aspect. For example, Smoczynska (1985) observed that a Polish child could distinguish aspectual properties from early stages. However, Slobin (1985) argues that in Romance, Germanic, and Slavic languages children tend to use one tense and person for all tenses and persons in the early stages, i.e. they were not distinguishing the properties of tense and person. Therefore, the child uses verbal morphemes to mark the type of aspectual verb regardless of correct target tense form; the early use of verbal morphemes is associated with verb type (see Chapter 3 for the acquisition of tense and aspect in L1 acquisition). This effect shows that the child posited aspectual projections rather than inflectional projections at early stages.

Now consider that learning target tense forms involves the disassociation of verbal morphemes with verb type. At this stage, the child must have acquired the inflectional projection (IP). The child should now be using the '-s', and past tense morphology, and the '-ing' form with the correct form of the auxiliary 'be'[27]. Lexical verbs in English are taken not to raise to INFL overtly to obtain verbal inflections such as the 's- form and PAST tense form. On Chomsky's account verbs raise to check their inflectional features, but in English only the auxiliaries 'have' and 'be', and modals raise to INFL. The question that arises is how the child moves from marking aspectual

[27] In the studies in L1 and L2 acquisition of tense and aspect, the bound morphemes '-s', '-ing' and '-ed' are taken into consideration, while the free morphemes 'will', 'have', 'had', and 'will have' are not. However, the present study has taken both bound and free morphemes into consideration.

verb types with bound morphemes, which are checked by lexical categories of verb types (i.e. below IP), to marking all verb types (i.e. regardless of the type of aspectual verb) with bound morphemes for correct target tense forms, which are checked at IP. The acquisition of the functional target tense form is driven by the interaction of IP with the target tense form because at the later stages the child uses bound morphemes to mark deictic target tense forms.

6.5.2 The role of UG in the L2 acquisition of tense and aspect

What is the course of the acquisition of inherent aspect and target tense form for Persian learners of English? Do they follow the same path of development as L1 learners of English do? The results showed that the low-level learners accessed universal aspectual values by marking inherent aspect. The learners did start off with marking their L1 inherent aspect. Yet even where Persian inherent aspects were interpreted like English ones, they used the same markers as L1 child English learners at early stages. For instance, activity (i.e. [-punctual] and [-telic]) and achievement (i.e. [+punctual] and [+telic]) aspects are semantically interpreted and syntactically instantiated the same in both languages. The only argument of an intransitive activity verb (e.g. *run*), for instance, is syntactically instantiated in Spec of aspectual originator, while the only argument of an intransitive achievement verb (e.g. *die*) is instantiated in Spec of aspectual measurer. Do the low-level learners know how activity and achievement aspects are semantically interpreted and syntactically instantiated? In other words, do they show knowledge of activity and achievement aspects with one argument (or unergative and unaccusative verbs) from the beginning? They show

knowledge of activity and achievement aspects from the beginning because they marked activity verbs with the '-ing' form, without the auxiliary 'be', and achievement verbs with PAST form in all tasks (GJT, G-f T, and RT). However, accomplishment verbs are semantically interpreted as [-punctual] and [+telic] in English and all accomplishment verbs are transitive. Therefore, one argument of an accomplishment verb is instantiated in Spec of aspectual measurer and the other one in Spec of aspectual originator in English. In Persian, accomplishment verbs with direct object markers function semantically and syntactically like their English counterpart. In this case, both the native English children at early stages and the low-level Persian speakers mark accomplishment verbs with PAST form. However, accomplishment aspect without direct object markers switch into activity aspect in Persian, while in English accomplishments cannot be interpreted and instantiated without direct object markers (e.g. **chair making* or **house building*)[28]. The data in the present study indicated that when the low-level learners switch accomplishments into activities, they use the '-ing' form rather than PAST form. We can conclude the low-level learners start off with their Persian aspectual verb type in this instance as a criterion to associate inherent aspect with verbal morpheme.

What about stative verbs? It was noted earlier that a group of Persian stative verbs uses the imperfective aspectual *mi-*, while English stative verbs are perfective. It was hypothesized that the low level learners would not use the English imperfective marker '-ing' to mark stative verbs (see Question and Research Hypothesis 1). The results indicated that the low-level learners do not transfer these imperfective statives into English. It may appear somehow contradictory as one compares this effect with

[28] For more details on the difference between Persian and English accomplishment verbs refer to Chapter 2.

the transfer of accomplishment into activity from Persian. The reason is that the internal structure of imperfective does not entail a situation in progress, whereas the internal structure of progressive entails a situation in progress (Comrie 1976). In other words, the reason that the low-level learners did not use stative verbs with the '-ing' form in English shows that transfer was overridden by their following universal aspectual value [-dynamic] of stative verbs. Furthermore, the subject and object arguments of stative verbs that are base-generated at aspectual projections of originator and measurer, respectively, are not affected by the stative verb. Thus, the subject of the stative verb is not the originator (or agent) of an action and the object of the stative verb is not measured out by the stative verb. Therefore, the progressive form, '-ing', is not compatible with non-agent arguments. In general, the low-level learners only start off with their L1 inherent aspectual values to mark English aspectual verbs (e.g. accomplishment verbs with the '-ing' aspect marking) to the extent that the influence of their L1 inherent aspect does not violate the universal entailment of inherent aspect (e.g. the non-occurrence of stative verbs with the imperfective marker '-ing').

Previous studies (e.g. Bickerton 1981) on the L1 and L2 acquisition of tense and aspect have been limited to the study and confirmation of the biased association of verb types with verbal morphemes at the early stages with correct target tense being neglected and the use of correct target tense forms with all verb types at latter stages[29].

[29] Even before the 1980s, researchers speculated upon the possibility of some similarity in the acquisition of grammatical morphemes between first and second language learners. Dulay and Burt (1974) and Bailey, Madden and Krashen (1974) undertook a study to find the acquisition sequences for English grammatical mophemes such as the present tense '-s', past irregular, past regular '-ed', and progressive form '-ing'. They found that the acquisition sequences obtained from the first language learners and younger and older second language learners were very similar.. However, such studies were descriptive rather than both descriptive and explanatory. The present study expalins why the acquisition of English morphemes are similar in both first and second language acquisition.

In addition to the study of the verbal forms and target tense forms across the groups in the present study, the syntactic position of such morphemes was also studied. That is to say that the biased association of verb types with verbal morphemes is checked by aspectual projections below IP, while the non-biased use of target tense forms with all verb types is checked at IP system across the groups. In this regard, all verbal forms that are checked below the IP system such as the biased association of bound morphemes (i.e. '-s', '-ing', and PAST) and also infinitives are called aspectual markers and all verbal forms, which need to be checked by the IP system such as modals, auxiliaries, negation markers with auxiliaries, and correct target tense forms are called inflectional markers. In the present study, all aspectual and inflectional markers were analyzed. The results indicated that the lower-level learners used more aspectual markers than inflectional markers and vice versa for the higher-level learners. This effect indicates as the lower level learners use the biased association of verbal morphemes with verb types, they lack correct target tense forms, modals, auxiliaries, and sentential negation.

So far, we have concluded that UG is accessible in the L2 acquisition of tense and aspect. That L2 learners already have previous instantiations of UG in their L1 raises the issue of L1 influence (i.e. the influence of L1 inherent aspect) in interlanguage grammars. I first review briefly the Contrastive Analysis Hypothesis and the three recent hypotheses on the L2 initial state: (1) The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), The Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996) and The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). Then, I discuss the implications of the three hypotheses from the present study.

6.6 The implications of 'Initial State' Hypotheses in the SLA of tense and aspect

6.6.1 The role of L1 in the acquisition of tense and aspect

The early studies investigating the role of transfer in L2 acquisition were based on the assumption of the Contrastive Analysis Hypothesis (Lado 1957), which compares and contrasts the surface forms of two given languages to see what the similarities and differences are between them. The similarities are predicted to help L2 learners to acquire the L2 and the differences between the languages to hinder L2 acquisition. The question of how and why L2 learners move from one state of knowledge to another was generally not the focus (Schwartz 1996). For instance, a contrastive analysis shows that a group of Persian stative verbs is grammaticalized by the imperfective aspectual marker *mi-*, while stative verbs in English are not grammaticalized by the imperfective marker '-ing'. Thus, the Contrastive Analysis Hypothesis would predict that learners would use the imperfective marker '-ing' with English stative verbs (see Question and Research hypothesis 1). However, the results do not bear this out; learners didn't use the English stative verbs with the '-ing' form. However, if UG is available in L2 acquisition, there is an explanation for why the lower level learners do not use English stative verbs with the imperfective marker '-ing'. The reason is that the English imperfective marker '-ing' has a progressive internal structure, which is incompatible with the universal entailment of stative, i.e. [-dynamic].

6.6.2 The role of the Weak and Strong Continuity Hypotheses in the acquisition of tense and aspect

The Minimal Trees Hypothesis for L2 acquisition of Vainikka & Young-Scholten (V & Y-S) (1994, 1996a, 1996b) follows the Weak Continuity approach. They hypothesize that what transfers in early L2 acquisition are only lexical categories and their projections but not functional categories. Functional projections are then acquired through a VP-IP-CP developmental sequence. In contrast to The Minimal Trees Hypothesis, the Full Transfer/Full Access Hypothesis of Schwartz and Sprouse (1996) follows the Strong Continuity approach. They hypothesize that what transfers are both lexical and functional categories. Eubank (1993/94, 1996) also follows the Strong Continuity approach. He hypothesizes that although both lexical and functional categories transfer, the 'strength' values of morphological features under functional heads do not transfer. Eubank's idea is that since overt inflectional morphology does not transfer, neither do the Parametric values of features that are determined by this morphology. In what follows, I would like to address the implications of the present data with respect to The Minimal Trees Hypothesis, the Full Transfer/Full Access Hypothesis, and The Weak Parametric Transfer (Valueless Features) Hypothesis.

Under the Weak Continuity Hypothesis adopted by V&Y-S, overt use of lexical elements or inflections associated with functional categories is necessary in order to attribute to the learners the existence of that category in their grammar. At first it may appear that since the lower level learners use the present form '-s' and PAST form, this is an indication of the existence of an inflectional projection. However, the analysis of the data from the present study indicated that the lower level

learners used the '-s' and PAST forms[30] selectively in association with the lexical category of verb type with correct target tense form being neglected. At this stage, a significant number of verb types were unmarked (i.e. in the infinitive form) and the use of modals, auxiliaries, and sentential negation with auxiliaries was significantly rare. On the other hand, the higher-level subjects' use of the correct target tense forms, modals, auxiliaries, and sentential negation with auxiliaries was significant, whereas the use of biased association of the verbal morphemes with aspectual category of verb type and infinitive form was dramatically indistinct or significantly rare for the higher-level learners (see Appendices B-1 to B-9). Furthermore, it was noted earlier that the lower level learners' use of bound morphemes (or aspectual markers) was based in part on their L1 aspectual verbs. While native English speakers acquiring their L1 use PAST form with accomplishment aspect at early stages, the lower level learners in this study used '-ing' form without the auxiliary 'be' when they used accomplishment verbs without direct object markers.

Another assumption of the Weak Continuity Hypothesis is that lower level learners do not use the correct tense form. The data here have revealed that the lower level learners used neither their L1 tense forms nor L2 tense forms. Therefore, what is the implication of the present study with respect to the Weak Continuity Hypothesis? The data support the Weak Continuity Hypothesis. The lower-level learners start off with marking the aspectual categories of verb types and this coincides with the significant use of infinitives and very rare use of modals, auxiliaries, and sentential negation with auxiliaries. However, the higher level learners use inflectional markers

[30] The lower level learners usually used the '-ing' form without the auxiliary 'be'. Therefore, the use of the '-ing' is not checked at IP.

such as correct target forms on main verbs, modals, auxiliaries, and sentential negation markers with auxiliaries. At this stage, the higher level learners' use of infinitives and biased association of verbal morphemes with verb types is significantly rare. The learners in this study start off with VP and its projections and end with Inflectional Projection (IP) for the acquisition of English target tense form.

In contrast to The Minimal Trees Hypothesis, the Full Transfer/Full Access Hypothesis of Schwartz and Sprouse (1996) hypothesizes that what transfers are both lexical and functional categories. The implication of this hypothesis would be that the lower level learners' use of verbal morphemes should not be associated with verb type; rather they should use verbal morphemes to mark target tense forms. The most important finding of the present study is as the lower level learners use the '-s' and PAST forms linked with verb type, there are a large number of infinitives with all verb types. However, as the link between the 's' and PAST disappears, the occurrence of infinitives weakens, while the inflectional markers such as correct target tense forms, modals, auxiliaries, and sentential negation with auxiliary increases significantly. In other words, the lack of significant use of modals, auxiliaries, and correct target tense forms in the acquisition of target tense forms for the lower-level learners, rather than for the higher-level and NES groups is good evidence against the Full Transfer/Full Access Hypothesis.

Finally, the findings of the present study also have implications for Eubank's (1993/94, 1996) Weak Parametric Transfer Hypothesis. As was mentioned earlier, this hypothesis is related to the idea that the morphological paradigm of verbs determines the strength of inflection. That is to say that [+/-] strong inflection determines presence or absence of verb raising. For example, Persian has rich verbal inflection, i.e.

[+strong] inflection, thus, it has verb raising, while English has weak inflection, i.e. [-strong], hence, it does not have verb raising. In Eubank's view, the [-strong] value of inflection in English results when the '-s' or tense morphology is acquired.

At first, the present data seem to support this hypothesis. However, the biased use of the '-s' and PAST forms with stative and achievement or accomplishment verbs, respectively, with neglect of target tense does not indicate that the lower level learners project IP. Moreover, as the lower level learners use the '-s' and PAST forms in association with verb types, they lack modals, auxiliaries, sentential negation with auxiliary, and correct target tense form. If the occurrence of the '-s' and PAST forms was an indication of IP from their L1 for the lower level learners, they should also have used modals, auxiliaries, sentential negations with auxiliaries and correct target tense forms.

6.7 Conclusion

In the next section, I will summarize the main points made in this chapter and previous chapters and conclude by suggesting possible future research in the area of POA.

6.7.1 Summary

In Chapter 2, the structure of a Vendler-type inherent aspectual classification was discussed and it was discussed that the achievement/accomplishment distinction is blurred because the duration between the onset time (t1) and final time (t2) of

accomplishment aspect is pragmatically determined (Vendler 1967). However, in Persian the form of the direct object determines whether a predicate is an accomplishment or activity aspect (Ghomeshi & Massam 1994). The predicates with the direct object markers '-ra', '-I', or 'I-ra' indicate that the direct object is definite, indefinite, or indefinite but specific and referential, respectively, whereas a direct object without these markers shows that the NP is non-referential and forms a unit with the verb. In Persian, direct objects with NP markers form accomplishment aspect (161b), while the direct objects of accomplishment verbs without NP markers form activity aspect (161c). English employs definite or indefinite articles with direct objects, but there are few compounds in English for which NP + V forms a unit, e.g. 'food shopping'. In Persian all accomplishments can be shifted into activities (161c). Furthermore, while Persian obligatorily employs the stative imperfective *mi-* to distinguish the contrast of stative (161a) /non-stative (161b) aspect, English only employs perfective aspect to refer to both stative (161a) and non-stative (161b) aspect:

(161) a. English: He knew Arabic. vs. Persian: (u) arabi mi-danes-t.
She/He Arabic Impf-knew-3 SG

b. English: I wrote the book. vs. Persian: (man) ketab-ra neve'sht-am.
I book-def wrote:pf-1 SG

c. English: *I was book writing. vs. Persian: (man) ke'tab nevesht-am
I book wrote-I SG

In Chapter 2, it was also discussed that the interface between the lexicon and syntax is an aspectual projection which is based on event-predicate approach. It was concluded that the lexicon provides two kinds of information: the number of

arguments and aspectual information. This model can account for the distinction between intransitive activity and achievement verbs, e.g. unergative and unaccusative verbs. That is to say that the only argument of unergative verbs (e.g. work or run) is base-generated in Spec of aspectual originator where it is interpreted as agent or originator of an action without an end-point, while the only argument of an unaccusative verb (e.g. die or arrive) is base-generated in Spec of aspectual measurer, where it is interpreted as telic or an action with an end-point. A model with these features has two aspectual projections: (1) aspectual projection of measurer and (2) aspectual projection of originator can also handle a 4-way aspectual category distinction: (1) stative, (2) activity, (3) achievement, and (4) accomplishment. Aspectual projection of measurer accounts for achievement and accomplishment verbs (i.e. telic verbs), aspectual projection of originator for activity verbs, and stative verbs have no aspectual projections.

In Chapter 3, the relevant literature was reviewed in the area of acquisition of verbal morphology, and it was argued that the phenomenon of Primacy of Aspect (POA) is observed both in L1 and L2 acquisition crosslinguistically. POA claims (1) a strong association of past/perfective inflection with achievement and accomplishment verbs in early stages of acquisition, (2) a later development of imperfective past with stative and activity, (3) a strong association of progressive inflection with activity verbs, and (4) a disassociation of progressive inflection from stative verbs.

The universal aspectual values punctuality, telicity, and dynamicity were considered to involve innate knowledge which a L1 or L2 learner uses as a criterion to acquire verb morphology. The Distributional Bias Hypothesis (DBH) was also presented as an explanation for the phenomenon, which state that the skewed

distribution in the input is responsible for the observed acquisition phenomenon. This explanation, which was rejected, constitutes possible alternative to the innateness account.

In Chapter 4, the methodology used in this study (subjects, tasks, and data analysis) was explained. The operational tests for coding inherent aspect were discussed in relation to the relevant theory of aspect.

In Chapter 5, the results of the study were presented and discussed. The results are summarized as follows:

(1) The data from the Native English Speakers (NES) as control group and the higher level groups are not biased in such a way that they support POA

(2) For the lower level groups progressive marking is predominantly used with activity verbs, past marking is predominantly used with achievement verbs, and the present form is predominantly used with stative verbs with tense distinction being neglected.

(3) Progressive inflection is attached to stative verbs very rarely across all groups.

(4) While the lower level learners use the progressive form '-ing', the present form '-s', and the PAST with verb types regardless of the target tense forms, their data include large number of infinitive verb forms, and usually lack correct target tense forms, modals, auxiliaries, and sentential negation with auxiliaries. It was concluded that the lower level learners have acquired aspectual projections (or aspectual categories) but they have not acquired the Inflectional Projection (IP).

(5) As the higher level learners use correct target tense forms, modals, auxiliaries, and sentential negation with auxiliaries, their data usually lack infinitives and the biased association of verbal morphemes with verb type. The results indicated that the higher level learners have acquired IP.

(6) Learnability consists of two principles: language principles and learning principles. Language principles deal with syntactic and semantic principles. The results in (1-5) were in agreement with linguistic principles.

(7) Learning principles deal with the mechanisms or strategies used by a learner to acquire a language. It was stated that the lower level learners would initially form 'conservative' hypotheses based on the assumption of the 'uniqueness' principle to acquire form, function, and the form-function mapping, for example, the biased association of the '-s', '-ing' and PAST forms with stative, activity, and achievement verbs, respectively. On the contrary, by receiving more input (here more correct target tense forms), the higher-level learners form new hypotheses. At this stage, they disassociate form and function (here the biased association of the verbal morphemes and the verb types) and use correct target tense forms with all verb types.

In this chapter (Chapter 6), the implications of the study were discussed. First, the structure of a Vendler-type inherent aspectual classification was discussed and it was suggested that the achievement/accomplishment distinction is blurred in English

because of the futurate meaning of progressive. Second, the implications of the acquisition of tense and aspect found in this study were discussed in relation to The Minimal Trees Hypothesis (Vainikka & Young-Scholten 1994, 1996a, 1996b), The Full Transfer/Full Access Hypothesis (Schwartz & Sprouse 1996) and The Weak Parametric Transfer (Valueless Features) Hypothesis (Eubank 1993/94, 1996). The present data supported the Minimal Trees Hypothesis and rejected The Full Transfer/Full Access Hypothesis and The Weak Parametric Transfer (Valueless Features) Hypothesis. In the next section, I will present some ideas for further research based on the results of the present study.

6.7.2 Further research

(1) Identification of variables that determine distributional bias.

As discussed in Chapter 5, different tasks (here GJT, G-f T, and RT) did not show different levels of congruence with the POA hypothesis. It would be interesting to find out why. It can be hypothesized that in reference to a series of unitary actions or situations as the tasks were constructed on, the lower level learners use verb morphology in association with the type of aspectual verb. Another approach to the study of POA hypothesis is to include both unitary and habitual reference to actions or situations. One way to achieve this is to have native English speakers and L2 learners of English talk about, for example, a unitary past event first (e.g. what was the most interesting experience you've ever had?), and then have him/her talk about past habitual situations (e.g. what did you often do when you were attending school?), and compare the distributional bias. If the section that has reference to habitual situations

has a higher congruence to POA findings, then habitual can be established as a more determining factor of POA hypothesis than unitary situations. We need more research to identify what contributes to the high biased association of verbal morphology and aspectual verb type.

(2) Studies with two groups of age-ranges

The present study examined one age-range, between 9-13 years old. That is to say, the subjects were perhaps still within the critical period. In other words, we may be dealing with a case of child second language acquisition. It would therefore be interesting to include two age-range groups, one within the critical period (a bit younger than the subjects' age range in the present study) and another past the critical period (e.g. between 14-17 years old). One could then compare the results of the subjects' performance and study the effect age on the acquisition of tense and aspect.

(3) Crosslinguistic study of achievement and accomplishment

If, as Smith and Weist (1987) claim, the Vendlerean 4-way classification is a linguistic universal, then it should be marked crosslinguistically. This, indeed, is the case; Smith and Weist list 15 languages. A controversy involving the categories is the validity of the achievement/accomplishment distinction. It was mentioned earlier in this chapter that although the distinction between accomplishment/achievement is blurred in both Persian and English, because the progressive form indicates both "an action in progress" and "futurate", it would be difficult to determine whether it is the structure of the languages which causes this problem or whether accomplishment and achievement are not really two aspectual categories, but form one category.

Fortunately, in Persian the form of the direct object marker enables one to distinguish between accomplishment and achievement. It would be interesting to study a group of L2 learners of English whose L1 is not blurred by the progressive form to distinguish between accomplishment and achievement, as in Japanese.

(4) The use of both cross-sectional and longitudinal data collection

To test The Minimal Trees Hypothesis that the L2 acquisition follows a developmental sequence: VP-IP-CP, the present study did not provide enough data for the acquisition of CP. This was partly because of the tasks. The first two tasks, the GJT and the G-f T, were a type of controlled task. In the GJT, the learners had to judge the acceptability of sentences. In the G-f T, the learners had to provide the best form of the verbs provided in the parentheses. Therefore, the learners did not have an opportunity to produce CP markers such as subject auxiliary inversion, or the use of complementizers. In the last task, the RT, the learners had to describe a segment of the cartoon film. Again, the learners did not need CP markers to describe the cartoon film. It would be a good idea to conduct both cross-sectional and longitudinal studies to collect data on the acquisition of tense and aspect involving tasks that would enable one to have enough data on CP to test the sequence of VP-IP-CP.

In conclusion, given the fact that there is strong evidence for the support of POA and for the influence of L1 aspectual verb categories for the acquisition of English verbal morphology by Persian learners of English as a L2, future L2 research is necessary to determine with certainty whether and to what extent the findings of L1 influence in this study will be supported. One might wonder about the extent of L1 influence in a reverse situation, namely the acquisition of Persian by English-speaking

children.

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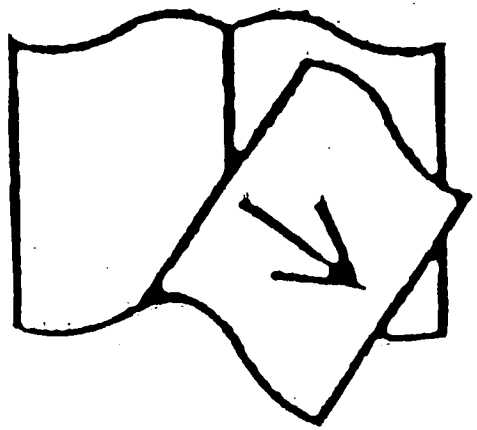

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APPENDIX A: TABLES AND TEST VERSIONS FOR CHAPTER 4

Appendix A-1: Grammaticality Judgement Test Items

Appendix A-2: VERB TYPES FOR ALL TARGET TENSES IN THE GJT & G-F T

Appendix A-3: Grammaticality Judgement Test Versions

Appendix A-4: Gap-filling Test Items

Appendix A-5: Gap-filling Test Versions

Appendix A-1: Grammaticality Judgement Test Items

GRAMMATICALITY JUDGEMENT TEST ITEMS[31]

TARGET TENSES

TEST ITEM NUMBERS

ASPECT	Present	present perfect	Past	Past perfect	Future	Future perfect
Stative	64, 4, 70	5, 20[32], 80, 30	7, 9, 109	17, 65 91, 14	28, 81, 104, 39	36, 41, 100 53, 112
Activity	23, 61 88	99, 27 69, 29	55, 44 46	106, 38 101, 45	72, 13 76, 19	95, 31, 86, 10, 57
Achieve-ment	24, 62 89	48, 98 40, 42	1, 93 54	103, 97 11, 6	83, 105 60, 15	71, 78, 32 49, 3
Accom-plishment	25, 63 90	56, 108 94, 50	67, 82 37	85, 74 52, 34	68, 77 110, 47	75, 92, 9 18, 22

[31] The test items refer to the real GJ test items that consist of 92 items. The remaining 20 items that are distractors are not mentioned in Appendix A-1. There were three versions of GJ tests that are presented in Appendix A-3.

[32] The test item number is hirarchially presented form possible English morphemes. i.e., '-ing', '-s', and 'PAST', and the correct target tense form.

Appendix A-2: VERB TYPES FOR ALL TARGET TENSES IN THE GJT & G-F T

STATIVE	ACTIVITY	ACHIEVEMNET	ACCOMPLISHMENT
believe	chase	arrest	bring
enjoy	chat	arrive	carry
have	cry	die	check
hear	dance	enter	clean
interest	look at	finish	climb, look up
know	play	graduate	decorate, fix
like	push	kick	paint, pass exam
own	run	leave	polish, post
prefer	smile, smoke	reach, start	shoot, pull out
see	study, walk	win	rise, type

Appendix A-3: Grammaticality Judgement Test Versions

Version I

Circle which of the following items are very bad (1), bad (2), not bad (or I don't know) (3), good (4), or pretty good (5).

1. Mary arrives in her hotel at 11 o'clock tonight. It was very late.

1 2 3 4 5

2. I and Nader doesn't like to play football.

1 2 3 4 5

3. Jalal: Is Hossein going to reach the top of Mt. Shirkoh at 11 o'clock this morning?
   Kamal: No, he has reached there by 11 o'clock.

1 2 3 4 5

4. Last year my brother was practicing skating but he preferring swimming now.

1 2 3 4 5

5. In the last three years Reza prefers to stay in a small flat rather than a big house and he still stays there.

1 2 3 4 5

6. I didn't know that Ali had already started building his house.

1 2 3 4 5

7. Last year Hossein could find a good job. He likes it very much but he lost it last month.

1 2 3 4 5

8. I was looking a job for when I was studying at the university.

1 2 3 4 5

9. Mary is going to type her letter at 10 o'clock tonight but Mahammad is going to type his letter at 11 o'clock tonight. It means when Mohammad types his letter Mary already typed her letter.

1 2 3 4 5

10. Reza has been walking in the park for one hour today. By 5 o'clock he will have walked there for three hours.

1 2 3 4 5

11. There was a shooting at the hotel last night. A thief just killed two people when the police got there. They could not arrest the thief.

1 2 3 4 5

12. He didn't like to not stay at home.

1 2 3 4

13. Morad: What would Afsar like to do?

Ashraf: Oh, I think she chatting with us.

1 2 3 4 5

14. It was not the first time that Amir heard such a funny noise. He had heard it several times before.

1 2 3 4 5

15. I'm sure the snow will melt in a few hours because it's getting very warm.

1 2 3 4 5

16. I prefer red apples to green ones.

1 2 3 4 5

17. Yesterday Reza met one of his old friends whom he not sees for several years.

1 2 3 4 5

18. Reza is going to polish his desk at 6 o'clock this evening but Mary will have polished her desk by 6 o'clock.

1 2 3 4 5

19. I think Reza will smile a lot when he watches this comedy-film next week.

1 2 3 4 5

20. Reza liking to play golf in the last two years.

1 2 3 4 5

21. I studied two hours I slept.

1 2 3 4 5

22. Ahmad will start up the mountain at 6 o'clock today but Amir has climbed it by 6 o'clock.

1 2 3 4 5

25. In a theater somebody might describe the action of the play as:

"The curtain rises."

1 2 3 4 5

23[33] . "And Jamshid walks in the corner of the room."

1 2 3 4 5

[33] Since in the other two versions of GJTs, i.e., versions II and III, the test item 23 refers to activity, 24 to achievement verb, and 25 to accmplishment verbs, I deliberately rearranged their orders to match the other test versions

24. "Meanwhile a tall man enters."

1 2 3 4 5

26. The Iran is a big country. It's bigger than the France and Italy.

1 2 3 4 5

27. Reza smoking a lot today and he is still smoking. It's strange!

1 2 3 4 5

28. Amir hears some good news about his family in the next three days.

1 2 3 4 5

29. Omid has studied in England, America, and Iran in the last ten years.

1 2 3 4 5

30. Amir believed in God for a long time since he was only a child. He still believes in God.

1 2 3 4 5

31. Marjan is going to play her violin at her home at 7 o'clock but Reza is going to be there to see how she plays her violin at 7.30. Then, Marjan playing it by 7.30.

1 2 3 4 5

32. Reza is going to start his studies next week but Mary is going to start her studies next month. It means when Mary starts her studies Reza already started his studies.

1 2 3 4 5

33. That new balls is cheaper than those old ones.

1 2 3 4 5

34. When I came to Karim's flat he had just washed his dishes. So he was free to talk with me.

1 2 3 4 5

35. This is a book grammar not a book history.

1 2 3 4 5

36. Reza has loved Iranian movies for 9 years and he loves them for 10 years by next year.

1 2 3 4 5

37. Amir: What did Ahmad do last week?

Reza: He posted his friend a letter.

1 2 3 4 5

38. Reza was not in the football field when you arrived. He just playing there.

1 2 3 4 5

39. Ali has stayed in flat 30 for three years and I'm sure he will like staying there for the next few years.

1 2 3 4 5

40. My brother started to build his house since last month and he hopes to finish it next year.

1 2 3 4 5

41. Next year is Reza and Mahin's 10th wedding anniversary. It means that he knowing his wife for ten years. Now they have known each other for nine years.

1 2 3 4 5

42. Mahram has won the tennis matches in five tournaments in the last four years.

1 2 3 4 5

43. Milk are cheaper than biscuits.

1 2 3 4 5

44. Hossein went to the park and walking there for an hour.

1 2 3 4 5

45. When I saw my son at 9 o'clock yesterday, he was not crying. But he had cried before 9.

1 2 3 4 5

46. Reza: How long did Karim study in the library yesterday?

Amir: He studied there for thirty minutes.

1 2 3 4 5

47. Jalal will decorate his classroom himself; it might be in the near future.

1 2 3 4 5

48. Javad reaches the top of Mt. Alborz three times and he's sure to reach there again this year.

1 2 3 4 5

49. Ali: Is Karim going to leave his room at 10 o'clock tonight?

Nader: No, he will have left it by 10 o'clock tonight.

1 2 3 4 5

50. In the last two weeks the secretary has typed three letters and she hopes to type a few more today.

1 2 3 4 5

51. I read the book which I had written it.

1 2 3 4 5

52. Amir: Did Mary carry her books upstairs when Reza got to home?

Mahin: No, she already carried them.

1 2 3 4 5

53. Karim has loved his family for 4 years and he will have loved them for 5 years by next month.

1 2 3 4 5

54. Reza finished writing his letter last night because he had to post it today.

1 2 3 4 5

55. The weather was very nice yesterday and Reza plays football for an hour.

1 2 3 4 5

56. In the last two hours Ali paints his sitting room white and he's still painting the other rooms.

1 2 3 4 5

57. A cat has been chasing a rat for twenty minutes. By 11 o'clock the cat has chased the rat for thirty minutes.

1 2 3 4 5

58. The secretary whom she typed a letter she left her office.

1 2 3 4 5

59. Mahin could go to the party last night. She enjoying it very much.

1 2 3 4 5

60. It's 10 o'clock and the train has not arrived yet. I don't know when it arrived in Newcastle.

1 2 3 4 5

61. Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "Parvin looking at the goalkeeper."

1 2 3 4 5

62. "Now he kicking the ball."

1 2 3 4 5

63. "And Garoosi shooting it into the goal! It's a goal for Esteqlal."

1 2 3 4 5

64. Reza: How many languages does Ali know?

Javad: He knows three languages now.

1 2 3 4 5

65. It was not the first time that John needed some money. He needing it several times before.

1 2 3 4 5

66. Whether Ali goes to school?

1 2 3 4 5

67. It was about 11 o'clock when Mary cleans her room. It was very late.

1 2 3 4 5

68. The dentist pulls out my bad tooth; it might be in the near future.

1 2 3 4 5

69. This is the first time Mary danced in a party.

1 2 3 4 5

70. Reza enjoyed fishing now but he was interested in basketball last week.

1 2 3 4 5

71. Reza: Is Mary going to finish her homework tomorrow morning?

Ali: No, She finishes it by tomorrow morning.

1 2 3 4 5

72. Amin pushes his car when Mary gets off.

1 2 3 4 5

73. Whom did you talk to?

1 2 3 4 5

74. Reza, who already passing all his exams, was very happy today.

1 2 3 4 5

75. Morad is going to fix his car at 9 o'clock today but Ali fixes his car by 9 o'clock.

1 2 3 4 5

76. I'm sure Akbar studied English in the next few days.

1 2 3 4 5

77. I think Jamshid posting a letter to me in the near future.

1 2 3 4 5

78. Mahnaz is going to graduate next month but Ali graduating by the next month.

1 2 3 4 5

79. I don't like those apples green.

1 2 3 4 5

80. In the last ten years Karim has known a lot of people.

1 2 3 4 5

81. Jamshid has saved a lot of money. I think he owning a large house very soon.

1 2 3 4 5

82. Amin typing a letter and posted it yesterday.

1 2 3 4 5

83. I'm sure that Parvin reaches the top of Zagros in near future.

1 2 3 4 5

84. You and me are going to play Ping-Pong.

1 2 3 4 5

85. Reza posted the same letter that Javad just posts. Reza wished he had not posted it.

1 2 3 4 5

86. Nader has been studying for one hour today. He studied for two hours by 3 o'clock.

1 2 3 4 5

87. Mary bought the same book that forgotten.

1 2 3 4 5

88. Sports announcer: "Karami ran very fast on the right side."

1 2 3 4 5

89. "And he kicked the ball now."

1 2 3 4 5

90. "But now Estili brought it for his team."

1 2 3 4 5

91. It was not the first time that Jalal could answer his teacher's questions. He knew the answers before.

1 2 3 4 5

92. Reza: Is Ali going to climb Mt. Alvand at 7 o'clock today?

Jamshid: No, he climbing there by 7 o'clock.

1 2 3 4 5

93. It was 1992 when my sister graduating from high-school. I'll never forget it.

1 2 3 4 5

94. The dentist checked five teeth since 5 o'clock today.

1 2 3 4 5

95. Rahim will be pushing his car for ten minutes until 5 o'clock but Reza pushes it for fifteen minutes by then.

1 2 3 4 5

96. Ahmad: To where did you go?

Reza: I went to school.

1 2 3 4 5

97. Reza didn't know when I arrived in Newcastle Mary already arriving there, too.

1 2 3 4 5

98. The policeman arresting two people in the last three hours and he's going to arrest a few more tonight.

1 2 3 4 5

99. In the last five years Roya plays tennis in five tournaments and she's going to play this year.

1 2 3 4 5

100. My teacher has liked her students for six years. She liked them for seven years by next month.

1 2 3 4 5

101. Ali: Was Reza dancing at the party when you arrived?

Rahim: No, he already danced there.

1 2 3 4 5

102. Reza said that comes home late tonight.

1 2 3 4 5

103. When Mary was born her father just dies. She never saw her father.

1 2 3 4 5

104. Roya is not interested in tennis now but it seems that she liked it in the near future.

1 2 3 4 5

105. Jamshid was seriously injured in an accident yesterday. He dying in a week.

1 2 3 4 5

106. When I saw Majid yesterday he was not playing football. He plays football the day before yesterday.

1 2 3 4 5

107. This red apples are cheaper than those golden one.

1 2 3 4 5

108. This is the first time Mahin looking up ten new words in her dictionary in three minutes.

1 2 3 4 5

109. Rahman: Did Reza have enough money to buy a train ticket to Newcastle?

Reza: Yes, he had enough money to buy it.

1 2 3 4 5

110. Ali's watch is slow. I don't know when he fixed it.

1 2 3 4 5

111. I don't know where should I go?

1 2 3 4 5

112. Jalal has loved his job for six years. By next month he has loved it for seven years.

1 2 3 4 5

Version II

Circle which of the following items are very bad (1), bad (2), not bad (or I don't know) (3), good (4), or pretty good (5).

1. It was 1992 when my sister graduates from high-school. I'll never forget it.

1 2 3 4 5

2. I and Nader doesn't like to play football.

1 2 3 4 5

3. Ali: Is Karim going to leave his room at 10 o'clock tonight?

   Nader: No, he has left it by 10 o'clock tonight.

1 2 3 4 5

4. Reza enjoying fishing now but he was interested in basketball last week.

1 2 3 4 5

5. Reza likes to play golf in the last two years.

1 2 3 4 5

6. When Mary was born her father had just died. She never saw her father.

1 2 3 4 5

7. Mahin could go to the party last night. He enjoys it very much.

1 2 3 4 5

8. I was looking a job for when I was studying at the university.

1 2 3 4 5

9. Ahmad will start up the mountain at 6 o'clock today but Amir climbed it by 6 o'clock.

1 2 3 4 5

10. Rahim will be pushing his car for ten minutes until 5 o'clock but Reza will have pushed it for fifteen minutes by then.

1 2 3 4 5

11. I didn't know that Ali already started building his house.

1 2 3 4 5

12. He didn't like to not stay at home.

1 2 3 4 5

13. I'm sure Akbar studying English in the next few days.

1 2 3 4 5

14. Yesterday Reza met one of his old friends whom he had not seen for several years.

1 2 3 4 5

15. I'm sure that Parvin will reach the top of Zagros in near future.

1 2 3 4 5

16. I prefer red apples to green ones.

1 2 3 4 5

17. It was not the first time that Reza needed some money. He needs it several times before.

1 2 3 4 5

18. Morad is going to fix his car at 9 o'clock today but Ali will have fixed his car by 9 o'clock.

1 2 3 4 5

19. Amin will push his car when Mary gets off.

1 2 3 4 5

20. Amir believing in God for a long time since he was only a child. He still believes in God.

1 2 3 4 5

21. I studied two hours I slept.

1 2 3 4 5

22. Reza is going to polish his desk at 6 o'clock this evening but Mary has polished her desk by 6 o'clock.

1 2 3 4 5

23. Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "Parvin looks at the goalkeeper."

1 2 3 4 5

24. "Now he kicks the ball."

1 2 3 4 5

25. "And Garoosi shoots it into the goal! It's a goal for Esteqlal!"

1 2 3 4 5

26. The Iran is a big country. It's bigger than the France and Italy.

1 2 3 4 5

27. This is the first time Mary dancing in a party.

1 2 3 4 5

28. Jamshid has saved a lot of money. I think he owns a large house very soon.

1 2 3 4 5

29. In the last five years Roya has played tennis in five tournaments and she's going to play this year.

1 2 3 4 5

30. In the last ten years Karim knew a lot of people.

1 2 3 4 5

31. Nader has been studying for one hour today. He studying for two hours by 3 o'clock.

1 2 3 4 5

32. Jalal: Is Hossein going to reach the top of Mt. Shirkoh at 11 o'clock this morning?
Kamal: No, he reached there by 11 o'clock.

1 2 3 4 5

33. That new balls is cheaper than those old ones.

1 2 3 4 5

34. Reza posted the same letter that Javad had just posted. Reza wished he had not posted it.

1 2 3 4 5

35. This is a book grammar not a book history.

1 2 3 4 5

36. Next year is Reza and Mahin's 10th wedding anniversary. It means that he knows his wife for ten years. Now they have known each other for nine years.

1 2 3 4 5

37. It was about 11 o'clock when Mary cleaned her room. It was very late.

1 2 3 4 5

38. Ali: Was Reza dancing at the party when you arrived?

Rahim: No, he already dancing there.

1 2 3 4 5

39. Amir will hear some good news about his family in the next three days.

1 2 3 4 5

40. Mahram won the tennis matches in five tournaments in the last four years.

1 2 3 4 5

41. My teacher has liked her students for six years. She liking them for seven years by next month.

1 2 3 4 5

42. Javad has reached the top of Mt. Alborz three times and he's sure to reach there again this year.

1 2 3 4 5

43. Milk are cheaper than biscuits.

1 2 3 4 5

44. Reza: How long did Karim study in the library yesterday?

Amir: He studying there for thirty minutes.

1 2 3 4 5

45. When I saw Majid yesterday he was not playing football. He had played football the day before yesterday.

1 2 3 4 5

46. The weather was very nice yesterday and Reza played football for an hour.

1 2 3 4 5

47. The dentist will pull out my bad tooth; it might be in the near future.

1 2 3 4 5

48. The policeman arrests two people in the last three hours and he's going to arrest a few more tonight.

1 2 3 4 5

49. Reza: Is Mary going to finish her homework tomorrow morning?

Ali: No, She will have finished it by tomorrow morning.

1 2 3 4 5

50. In the last two hours Ali has painted his sitting room white and he's still painting the other rooms.

1 2 3 4 5

51. I read the book which I had written it.

1 2 3 4 5

52. When I came to Karim's flat he just washed his dishes. So he was free to talk with me.

1 2 3 4 5

53. Reza has loved Iranian movies for 9 years and he will have loved them for 10 years by next year.

1 2 3 4 5

54. Mary arrived in her hotel at 11 o'clock tonight. It was very late.

1 2 3 4 5

55. Hossein went to the park and walks there for an hour.

1 2 3 4 5

56. This is the first time Mahin looks up ten new words in her dictionary in three minutes.

1 2 3 4 5

57. Reza has been walking in the park for one hour today. By 5 o'clock he has walked there for three hours.

1 2 3 4 5

58. The secretary whom she typed a letter she left her office.

1 2 3 4 5

59. Rahman: Did Reza have enough money to buy a train ticket to Newcastle?

Reza: Yes, he having enough money to buy it.

1 2 3 4 5

60. I'm sure the snow melted in a few days because it's getting very warm.

1 2 3 4 5

61. Sports announcer: "Karami running very fast on the right side."

1 2 3 4 5

62. "And he kicking the ball now."

1 2 3 4 5

63. "But now Estili bringing it for his team."

1 2 3 4 5

64. Last year my brother was practicing skating but he prefers swimming now.

1 2 3 4 5

65. It was not the first time that Jalal could answer his teacher's questions. He knowing the answers before.

1 2 3 4 5

66. Whether Ali goes to school?

1 2 3 4 5

67. Amin types a letter and then he posted it yesterday.

1 2 3 4 5

68. I think Jamshid posts a letter to me in the near future.

1 2 3 4 5

69. Omid studied in England, America, and Iran in the last ten years.

1 2 3 4 5

70. Reza: How many languages does Ali know?

Javad: He knew three languages.

1 2 3 4 5

71. Mahnaz is going to graduate next month but Ali graduates by the next month.

1 2 3 4 5

72. Morad: What would Afsar like to do?

Ashraf: Oh, I think she chats with us.

1 2 3 4 5

73. Whom did you talk to?

1 2 3 4 5

74. Amir Did Mary carry her books upstairs when Reza got to home.

Mahin: No, she already carrying them.

1 2 3 4 5

75. Reza: Is Ali going to climb Mt. Alvand at 7 o'clock today?

Jamshid: No, he climbs there by 7 o'clock.

1 2 3 4 5

76. I think Reza smiled a lot when he watches this comedy-film next week.

1 2 3 4 5

77. Ali's watch is slow. I don't know when he fixing it.

1 2 3 4 5

78. Reza is going to start his studies next week but Mary is going to start her studies next month. It means when Mary starts her studies Reza already starting his studies.

1 2 3 4 5

79. I don't like those apples green.

1 2 3 4 5

80. In the last three years Reza has preferred to stay in a small flat rather than a big house and he still stays there.

1 2 3 4 5

81. Roya is not interested in tennis now but it seems that she liking it in the near future.

1 2 3 4 5

82. Amir: What did Ahmad do last week?

Reza: He posting his friend a letter.

1 2 3 4 5

83. Jamshid was seriously injured in an accident yesterday. He dies in a week.

1 2 3 4 5

84. You and me are going to play Ping-Pong.

1 2 3 4 5

85. Reza, who already passes all his exams, was very happy today.

1 2 3 4 5

86. A cat has been chasing a rat for twenty minutes. By 11 o'clock the cat chased the rat for thirty minutes.

1 2 3 4 5

87. Mary bought the same book that forgotten.

1 2 3 4 5

89. In a theater somebody might describe the action of the play as:

"The curtain rose."

1 2 3 4 5

88. "And Jamshid walked in the corner of the room."

1 2 3 4 5

90. "Meanwhile a tall man entered."

1 2 3 4 5

91. It was not the first time that Amir heard such a funny noise. He heard it several times before.

1 2 3 4 5

92. Mary is going to type her letter at 10 o'clock tonight but Mahammad is going to type his letter at 11 o'clock tonight. It means when Mohammad types his letter Mary already typing her letter.

1 2 3 4 5

93. Reza finishing writing his letter last night because he had to post it today.

1 2 3 4 5

94. In the last two weeks the secretary typed three letters and she hopes to type a few more today.

1 2 3 4 5

95. Marjan is going to play her violin at her home at 7 o'clock but Reza is going to be there to see how she plays her violin at 7.30. Then, Marjan plays it by 7.30.

1 2 3 4 5

96. Ahmad: To where did you go?

Reza: I went to school.

1 2 3 4 5

97. There was a shooting at the hotel last night. A thief just killing two people when the police got there. They could not arrest the thief.

1 2 3 4 5

98. My brother starting to build his house since last month and he hopes to finish it next year.

1 2 3 4 5

99. Reza smokes a lot today and he is still smoking. It's strange!

1 2 3 4 5

100. Jalal has loved his job for six years. By next month he loved it for seven years.

1 2 3 4 5

101. When I saw my son at 9 O'clock yesterday, he was not crying. But he cried before 9.

1 2 3 4 5

102. Reza said that comes home late tonight.

1 2 3 4 5

103. Reza didn't know when I arrived in Newcastle Mary already arrives there, too.

1 2 3 4 5

104. Ali has stayed in flat 30 for three years and I'm sure he liked staying there for the next few years.

1 2 3 4 5

105. It's 10 o'clock and the train has not arrived yet. I don't know when it arriving in Newcastle.

1 2 3 4 5

106. Reza was not in the football field when you arrived. He just plays there.

1 2 3 4 5

107. This red apples are cheaper than those golden one.

1 2 3 4 5

108. The dentist checking five teeth since 5 o'clock today.

1 2 3 4 5

109. Last year Hosseing could find a good job. He liked it very much but he lost it last month.

1 2 3 4 5

110. Jalal decorated his classroom himself; it might be in the near future.

1 2 3 4 5

111. I don't know where should I go?

1 2 3 4 5

112. Karim has loved his family for 4 years and he will have loved them for 5 years by next month.

1 2 3 4 5

Version III

Circle which of the following items are very bad (1), bad (2), not bad (or I don't know) (3), good (4), or pretty good (5).

1. Reza finishes writing his letter last night because he had to post it today.

1 2 3 4 5

2. I and Nader doesn't like to play football.

1 2 3 4 5

3. Reza: Is Mary going to finish her homework tomorrow morning?

Ali: No, She has finished it by tomorrow morning.

1 2 3 4 5

4. Reza: How many languages does Ali know?

Javad: He knowing three languages.

1 2 3 4 5

5. In the last ten years Karim knows a lot of people.

1 2 3 4 5

6. There was a shooting at the hotel last night. A thief had just killed two people when the police got there. They could not arrest the thief.

1 2 3 4 5

7. Rahman: Did Reza have enough money to buy a train ticket to Newcastle?

Reza: Yes, he has enough money to buy it.

1 2 3 4 5

8. I was looking a job for when I was studying at the university.

1 2 3 4 5

9. Reza: Is Ali going to climb Mt. Alvand at 7 o'clock today?

Jamshid: No, he will have climbed there by 7 o'clock.

1 2 3 4 5

10. A cat has been chasing a rat for twenty minutes. By 11 o'clock the cat will have chased the rat for thirty minutes.

1 2 3 4 5

11. Reza didn't know when I arrived in Newcastle Mary already arrived there, too.

1 2 3 4 5

12. He didn't like to not stay at home.

1 2 3 4 5

13. Amin pushing his car when Mary gets off.

1 2 3 4 5

14. It was not the first time that Jalal could answer his teacher's questions. He had known the answers before.

1 2 3 4 5

15. It's 10 o'clock and the train has not arrived yet. I don't know when it will arrive in Newcastle.

1 2 3 4 5

16. I prefer red apples to green ones.

1 2 3 4 5

17. It was not the first time that Amir heard such a funny noise. He hears it seva al imap bebore.

1 2 3 4 5

18. Ahmad will start up the mountain at 6 o'clock todac bud Amcp w_il have climbed it by 6 o'clock.

1 2 3 4 5

19. I'm sure Akbar will study English in the next few days.

1 2 3 4 5

20. In the last three years Reza preferring to stay in a small flat rather than a big house and he still stays there.

1 2 3 4 5

21. I studied two hours I slept.

1 2 3 4 5

22. Morad is going to fix his car at 9 o'clock today but Ali has fixed his car by 9 o'clock.

1 2 3 4 5

23. Sports announcer: "Karami runs very fast on the right side."

1 2 3 4 5

24. "And he kicks the ball now."

1 2 3 4 5

25. "But now Estili brings it for his team."

1 2 3 4 5

26. The Iran is a big country. It's bigger than the France and Italy.

1 2 3 4 5

27. In the last five years Roya playing tennis in five tournaments and she's going to play this year.

1 2 3 4 5

28. Ali has stayed in flat 30 for three years and I'm sure he likes staying there for the next few years.

1 2 3 4 5

29. This is the first time Mary has danced in a party.

1 2 3 4 5

30. Reza liked to play golf in the last two years.

1 2 3 4 5

31. Reza has been walking in the park for one hour today. By 5 o'clock he walking there for three hours.

1 2 3 4 5

32. Mahnaz is going to graduate next month but Ali graduated by the next month.

1 2 3 4 5

33. That new balls is cheaper than those old ones.

1 2 3 4 5

34. Amir: Did Mary carry her books upstairs when Reza got to home.

Mahin: No, she had already carried them.

1 2 3 4 5

35. This is a book grammar not a book history.

1 2 3 4 5

36. My teacher has liked her students for six years. She likes them for seven years by next month.

1 2 3 4 5

37. Amin typed a letter and posted it yesterday.

1 2 3 4 5

38. When I saw Majid yesterday he was not playing football. He playing football the day before yesterday.

1 2 3 4 5

39. Roya is not interested in tennis now but it seems that she will like it in the near future.

1 2 3 4 5

40. The policeman arrested two people in the last three hours and he's going to arrest a few more tonight.

1 2 3 4 5

41. Reza has loved Iranian movies for 9 years and he loving them for 10 years by next month.

1 2 3 4 5

42. My brother has started to build his house since last month and he hopes to finish it next year.

1 2 3 4 5

43. Milk are cheaper than biscuits.

1 2 3 4 5

44. The weather was very nice yesterday and Reza playing football for an hour.

1 2 3 4 5

45. Ali: Was Reza dancing at the party when you arrived?

Rahim: No, he had already danced there.

1 2 3 4 5

46. Hossein went to the park and walked there for an hour.

1 2 3 4 5

47. Ali's watch is slow. I don't know when he will fix it.

1 2 3 4 5

48. Mahram wins the tennis matches in five tournaments in the last four years.

1 2 3 4 5

49. Jalal:Is Hossein going to reach the top of Mt. Shirkoh at 11 o'clock this morning?

Kamal: No, he will have reached there by 11 o'clock.

1 2 3 4 5

50. The dentist has checked five teeth since 5 o'clock today.

1 2 3 4 5

51. I read the book which I had written it.

1 2 3 4 5

52. Reza, who already passed all his exams, was very happy today.

1 2 3 4 5

53. Jalal has loved his job for six years. By next month he will have loved it for seven years.

1 2 3 4 5

54. It was 1992 when my sister graduated from high-school. I'll never forget it.

1 2 3 4 5

55. Reza: How long did Karim swim in the pool yesterday?

Amir: He swims there for thirty minutes.

1 2 3 4 5

56. In the last two weeks the secretary types three letters and she hopes to type a few more today.

1 2 3 4 5

57. Rahim will be pushing his car for ten minutes until 5 o'clock but Reza has pushed it for fifteen minutes by then.

1 2 3 4 5

58. The secretary whom she typed a letter she left her office.

1 2 3 4 5

59. Last year Hossein could find a good job. He liking it very much but he lost it last month.

1 2 3 4 5

60. Jamshid was seriously injured in an accident yesterday. He died in a week.

1 2 3 4 5

63. In a theater somebody might describe the action of the play as:
"The curtain rising."

1 2 3 4 5

61. "And Jamshid walking in the corner of the room."

1 2 3 4 5

62. "Meanwhile a tall man entering."

1 2 3 4 5

64. Reza enjoys fishing now but he was interested in basketball last week.

1 2 3 4 5

65. Yesterday Reza met one his old friends whom he not seeing for several years.

1 2 3 4 5

66. Whether Ali goes to school?

1 2 3 4 5

67. Amir: What did Ahmad do last week?

Reza: He posts his friend a letter.

1 2 3 4 5

68. Jalal decorates his classroom himself; it might be in the near future.

1 2 3 4 5

69. Reza smoked a lot today and he is still smoking. It's strange!

1 2 3 4 5

70. Last year my brother was practicing skating but he preferred swimming now.

1 2 3 4 5

71. Reza is going to start his studies next week but Mary is going to start her studies next month. It means when Mary starts her studies Reza already starts his studies.

1 2 3 4 5

72. I think Reza smiles a lot when he watches this comedy-film next week.

1 2 3 4 5

73. Whom did you talk to?

1 2 3 4 5

74. Reza posted the same letter that Javad just posting. Reza wished he had not posted it.

1 2 3 4 5

75. Mary is going to type her letter at 10 o'clock tonight but Mahammad is going to type his letter at 11 o'clock tonight. It means when Mohammad types his letter Mary already types her letter.

1 2 3 4 5

76. Morad: What would Afsar like to do?

Ashraf: Oh, I think she chatted with us.

1 2 3 4 5

77. The dentist pulling out my bad tooth; it might be in the near future.

1 2 3 4 5

78. Ali: Is Karim going to leave his room at 10 o'clock tonight?

Nader: No, he leaving it by 10 o'clock tonight.

1 2 3 4 5

79. I don't like those apples green.

1 2 3 4 5

80. Amir has believed in God for a long time since he was only a child. He still believes in God.

1 2 3 4 5

81. Amir hearing some good news about his family in the next three days.

1 2 3 4 5

82. It was about 11 o'clock when Mary cleaning her room. It was very late.

1 2 3 4 5

83. I'm sure the snow melts in a few days because it's getting very warm.

1 2 3 4 5

84. You and me are going to play Ping-Pong.

1 2 3 4 5

85. When I came to Karim's flat he just washes his dishes. So he was free to talk with me.

1 2 3 4 5

86. Marjan is going to play her violin at her home at 7 o'clock but Reza is going to be there to see how she plays her violin at 7.30. Then, Marjan played it by 7.30.

1 2 3 4 5

87. Mary bought the same book that forgotten.

1 2 3 4 5

88. Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "Parvin looked at the goalkeeper."

1 2 3 4 5

89. "Now he kicked the ball."

1 2 3 4 5

90. "And Garoosi shot it into the goal! It's a goal for Esteqlal!"

1 2 3 4 5

91. It wan not the first time that John needed some money. He needed it several times before.

1 2 3 4 5

92. Reza is going to polish his desk at 6 o'clock this evening but Mary polishing her desk by 6 o'clock.

1 2 3 4 5

93. Mary arriving in her hotel at 11 o'clock tonight. It was very late.

1 2 3 4 5

94. This is the first time Mahin looked up ten new words in her dictionary in three minutes.

1 2 3 4 5

95. Nader has been studying for one hour today. He studies for two hours by 3 o'clock.

1 2 3 4 5

96. Ahmad: To where did you go?

Reza: I went to school.

1 2 3 4 5

97. When Mary was born her father just dying. She never saw her father.

1 2 3 4 5

98. Javad reaching the top of Mt. Alborz three times and he's sure to reach there again this year.

1 2 3 4 5

99. Omid studies in England, America, and Iran in the last ten years.

1 2 3 4 5

7

100. Next year is Reza and Mahin's 10th wedding anniversary. It means that he knew his wife for ten years. Now they have known each other for nine years.

1 2 3 4 5

101. Reza was not in the football field when you arrived. He just played there.

1 2 3 4 5

102. Reza said that comes home late tonight.

1 2 3 4 5

103. I didn't know that Ali already starts building his house.

1 2 3 4 5

104. Jamshid has saved a lot of money. I think he owned a large house very soon.

1 2 3 4 5

105. I'm sure that Parvin reaching the top of Zagros in near future.

1 2 3 4 5

106. When I saw my son at 9 O'clock yesterday, he was not crying. But he cries before 9.

1 2 3 4 5

107. This red apples are cheaper than those golden one.

1 2 3 4 5

108. In the last two hours Ali painting his sitting room white and he's still painting the other rooms.

1 2 3 4 5

109. Mahin could go to the party last night. He enjoyed it very much.

1 2 3 4 5

110. I think Jamshid posted a letter to me in the near future.

1 2 3 4 5

111. I don't know where should I go?

1 2 3 4 5

112. Reza has loved his family for 4 years and he has loved them for 5 years by next month.

1 2 3 4 5

Appendix A-4: Gap-filling Test Items

Gap-filling Test Items

Target Tenses

ASPECT	Present	Present perfect	Past	Past perfect	Future	Future perfect
Stative	2, 23, 49	3, 27, 53	35, 44, 60	10, 17, 50	20, 41, 67	11, 19, 51
Activity	12, 45, 57	15, 24, 52	26, 34, 63	29, 38, 55	8, 39, 56	16, 32, 72
Achieve-ment	13, 47, 59	22, 25, 66	21, 37, 65	6, 7, 62	9, 42, 69	18, 36, 68
Accom-plishment	14, 46, 58	30, 31, 54	4, 40, 64	33, 43, 71	1, 48, 61	5, 28, 70

Appendix A-5: Gap-filling Test Versions

Version I

Provide the best form of the verbs in the parentheses to fill the blanks.

1. The dentist (pull) ..... out my bad tooth; it might be in the near future.

2. Last month Reza was practicing skating but he (prefer) .....
..... swimming now.

3. Reza (like) .....
to play golf in the last two years.

4. It was about 11 o'clock when Mary (clean) .....
her room. It was very late.

5. Morad is going to fix his car at 9 o'clock today but Ali (fix) .....
..... his car by 9 o'clock.

6. When Mary was born her father (just/die) ..... .
She never saw her father.

7. British team didn't know that Iranian team (already/reach) .....

..... the top of Mt. Alborz.

8. Amin (push) ..... his car when Mary gets off.

9. I'm sure that Parvin (reach) ..... the top of Zagros in near future.

10. Yesterday Reza met one of his old friends whom he (not see) .....

..... for several years.

11. Karim has lived in Newcastle for nine years. By next month he (like) .....

..... to live there for ten years.

12. Sports announcer: "karami (run) .....

very fast."

13. "And now he (shoot) ..... the ball!"

14. "But the goalkeeper (take) ..... it now."

15. In the last five years Roya (play) ..... tennis in five tournaments and she's going to play this year.

16. Rahim will be pushing his car for ten minutes until 5 o'clock, but Reza (push) ..... his car for fifteen minutes by then.

17. Reza could remember some of the cartoon-films that he (watch)..... .

18. Reza: Is Mary going to finish her homework tomorrow morning?

Ali: No, She (finish) ..... it by tomorrow morning.

19. Next year is ten years that Reza and Roya are close friends. It means that Reza (love) ..... her for ten years. Now they have been friends for nine years.

20. Amir (hear) ..... some good news about his family in the next three days.

21. Mary (arrive) ..... in her hotel at 11 o'clock tonight. It was very late.

22. Javad (reach) ..... the top of Mt. Alborz three times and he's sure to reach there again this year.

23. Karim: What does Hassan promise to do?

Javad: He (promise) ..... to pay me ten pounds.

24. Roya (study) ..... very hard today. It's 5 o'clock and she is still studying.

25. Ladan (jump) ..... into the river three times in the last fifteen minutes and he's still jumping.

26. The weather was very nice yesterday and Reza (play) .....

..... for an hour.

27. Mary (love) ..... her primary-school teachers and she still loves them.

28. Javad: Is Morad going to build his house next month?

Jalal: He (build) ..... his house by next month.

29. When I saw Majid he was playing football again. He (not play) .....

..... football for several years.

30. In the last two hours Ali (paint) ..... his sitting room white and he's still painting the other rooms.

31. This is the first time the secretary (type) ..... three letters in such a short time.

32. Mohammad is going to walk in the park at 5 o'clock but Reza is going to play at 6 by o'clock. Then, Mohammad (walk) ..... there 6 o'clock.

33. Reza posted the same letter that Javad (just/post) ..... . Reza wished he had not posted it.

34. Reza put on his shoes and (play) ..... tennis for an hour.

35. Last year Hossein could find a good job. He (like) ..... it very much but he lost it last month.

36. Reza is going to reach the top of Mt. Shirkoh at 5 o'clock but Amir (reach) .... by 5 o'clock.

37. It was about 10 o'clock last night when Hamid (arrive) ..... in Newcastle.

38. Roya was not smiling in the classroom when our teacher arrived. She (just/smile) .. .. there.

39. Narges: What would Shirin like to do?

Roya: Oh, I think she (run) ..... in the park for a hour.

40. Roya (sign) ..... two letters and left her office.

41. Jalal has stayed in flat 20 for three years. I think he (like) ..... to stay there for the next year.

42. Mary has left the door open. Reza (shut) ..... it.

43. Ali, who (already/arrange) ..... all the books on the shelves, was tired today.

44. Abas had a party last night. He (like) .... it very much.

46. In a theater somebody might describe the action of the play as:

"The curtain (rise) ..... ."

45. "And Jamshid (walk) ..... in the corner."

47. "Meanwhile a tall man (enter) ..... the room."

48. I think the secretary (type) ..... the letters in the near future.

49. Marjan (hate) ..... watching football matches now but she was interested to watch them last week.

50. It was not the first time that Jalal knew the answer. He (know) .... it before.

51. Reza has hated watching football matches on TV. for three years since 1989 but Ali (hate) ..... watching them for four years by then.

52. This is the first time Jalal (walk) ..... in Theran park.

53. Roya (know) ..... a lot of people since she came to live in Newcastle.

54. Akbar (post) ..... three letters since this morning.

55. Amin: Was Nader eating at the restaurant when you arrived?

Reza: No, he (already/eat) ..... .

56. I'm sure Hamid (exercise) ..... gymnastics this evening.

57. Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "The goalkeeper (look) ..... at the ball."

59. "Now he (get) ..... the ball."

58. " And he (bring) ..... the ball for his team."

60. Reza: My son loved large toys when he was about ten years old. Did your son do too?

Rahim: No, he really (hate) ..... them.

61. The tables are not polished. I think that Hamid (polish) .....

..... them up soon.

62. A thief entered a bank yesterday. When the police got there the thief (just/escape)

..... .

63. Hossein: How long did our teacher talk to you yesterday?

Mary: He (talk) ..... to me for an hour.

64. Amin: What did Mohsen do last night?

Ardeshir: He (send) ..... his friend

a present.

65. Javad (meet) ..... Reza at

very early this morning because he had to get on his train at 7.30.

66. Karim (finish) ..... his studies since

September.

67. Mahnaz is interested in TV. programs but it seems that she (dislike) .....

..... them very soon.

68. Akbar is going to jump into the river at 5 o'clock today but Mahin is going to jump

into the river at 6 o'clock today. It means when Mahin jumps Akbar (already/jump) ..... there.

69. It's 16th of May and Reza has not got any job jet. I think that he (get) ..... a job quite soon.

70. Marjan is going to do her homework at 9 o'clock tonight but Amir is going to do his homework at 10 o'clock tonight. It means when Amir does his homework Marjan (already/do) ..... her homework.

71. Jaber: Did your daughter comb her hair when you enter her room?

Reza: No, she (already/comb) ..... her hair.

72. Nader has been studying for one hour today. He (study) .... for two hours by 3 o'clock.

Version II

Provide the best form of the verbs in the parentheses to fill the blanks.

Ahmad (fix) ..... his car himself; it might be next Sunday.

2. Last year Hamid was practicing fishing but he (like) .... playing tennis now.

3. Hossein (enjoy) ..... staying in a small flat rather than a big house in the last three years.

4. It was very early in the morning when Rahim (brush) ..... his teeth.

5. Ahmad is going to start up the mountain at 6 o'clock but Amir (climb) .... it by 6 o'clock.

6. When Jamshid entered his office Mary (just/leave) .... there. He didn't meet her.

7. I didn't know that Ali (already/start) ..... building his house.

8. Mahdi (study) ..... when Mary leaves his room.

9. I'm sure that the snow (melt) ..... in a few hours because it is getting warm.

10. Jamshid heard a funny noise in his room yesterday. He (not hear) .... it before.

11. My brother has loved his old friends for nine years. By next month he (love) ... . them for ten years.

12. Sports announcer: "Abedie (run) ..... on the left side."

13. "Then, he (shoot) ..... the ball."

14. "And now he (kick) ..... the ball into the goal! It's a goal for Esteqlal!"

15. In the last two hours Karim (sing) ..... a lot and he's still singing.

16. Javad will be exercising football for 40 minute until 3 o'clock but Reza ..... (exercise) ..... it for one hour by then.

17. Reza could see a kind of car that he (not see) .... for several years.

18. Karim: Is the train going to arrive in Newcastle at 10 o'clock tonight?
Mary: No, it (arrive) ..... there by 10 o'clock.

19. Next year is ten years that Marjan sees her old friends. It means that she (see) .... them for ten years. Now she has seen them for nine years.

20. Javad (like) ..... to live in a new apartment in the near future but I don't know the exact date.

21. Babak (finish) ..... his homework and went to bed.

22. Jalal (win) ..... the tennis match for four years and he hopes to win again this year.

23. Mary: What is your little son interested to do?

Reza: He (like) ..... playing with his toys.

24. My son is very ill today. He (cry) ..... a lot today and he is still crying.

25. Ramin (start) ..... writing his letter in the last 5 minutes and he's still writing it.

26. The weather was very nice yesterday and Majid (walk) .... in the park for an hour.

27. A bad news (worry) ..... Ali's mother and she is still worried.

28. Hamed: Is Roya going to polish up her desk tomorrow?

Hashem: No, she (polish) .....it up by tomorrow.

29. When I saw my baby yesterday he was crying again. He (not cry) .... for several days.

30. In the last two hours the dentist (fix) ..... three teeth and he's still fixing a few more.

31. This is the first time Roya (clean) ..... her dinning room.

32. Ali is going to run in the park at 4 o'clock but Reza is going to run there at 5 o'clock. Then, Ali (run) ..... there by 5 o'clock.

33. Roya cooked the same dish that Morad (just/cook) .....
..... . Roya wished she had not cooked it.

34. Reza went to the library and (study) .....
there for two hours.

35. Last week Hamid could meet his old friend. He (see) .....
..... him in a shopping center.

36. Ardeshir is going to come to dinner on Tuesday but Mary (leave) .....
..... by Tuesday.

37. It was 1993 when Sasan (start) ..... building his house.

38. The children were not shouting at the nursery school when you arrived. They (just/shout) ..... there.

39. Mohsen: What would Reza like to do?
Saleh: Oh, I think he (walk) ..... in the park.

40. Mahnaz (comb) ..... her hair and went shopping.

41. Karim has not seen his family for one year. I think he (see) .....
..... them very soon.

42. Ali has left home. He has not taken his umbrella and it's raining. He (get) .....
..... wet.

43. The man who (already/write) .....
a novel was at the party yesterday.

44. Babak had a nice car. He (love) .....
..... it very much but he sold it yesterday. I don't know why?

45. In a theater somebody might describe the action of the play as:
"Juliet (walk) ..... to the left side."

46. "And, she (sit) ..... at her desk now."

47. "Meanwhile a man (appear) ....."

48. I think Reza (report) .....
the accident to us next week.

49. Reza (enjoy) ..... fishing now but he
was interested to play basketball last week.

50. It was not the first time that Jalal could answer his teacher's questions. He
(know) ..... the answers before.

51. Karim has lived in Manchester for four years since 1990 but Mary (like) .....
.....to live there for five years by then.

52. This is the first time Mary (dance) ..... in a
party.

53. Amir (believe) ..... in
God since he was only a child. He still believes in God.

54. The dentist (check) ..... five teeth since 5 o'clock today.

55. Ali: Was Reza dancing at the party when you arrived?
Rahim: No, he (already/dance) ..... there.

56. I'm sure Akbar (study) ..... English in the next few days.

57. In a theater somebody might describe the action of the play as:
"Sorush (look) ..... at Mary."

58. "And, he (walk) ..... towards the door."

59. "Now, he (knock) ..... at the door."

60. Rahman: Did Reza have enough money to buy a train ticket to Newcastle?
Reza: Yes, he (have) .....
enough money to buy it.

61. Ali's watch is slow. I think that he (fix) .....
it soon.

62. There was a shooting at the hotel last night. A thief (just/kill) .....
..... two people when the police got there. They could not arrest the thief.

63. Reza: How long did Kaim study in the library yesterday?
Amir: He (study) .....
there for thirty minutes.

64. Amir: What did Ahmad do last week?

Reza: He (read) ..... a novel.

65. Reza (finish) ..... writing his letter last night because he had to post it today.

66. My brother (start) ..... to build his house since last month and he hopes to finish it next year.

67. Roya is not interested in tennis now but it seems that she (like) .....
..... it in the near future.

68. Reza is going to start his studies next week but Mary is going to start her studies next month. It means when Mary starts her studies Reza (already/start) .....
..... his studies.

69. It's 10 o'clock and the train has not arrived yet. I think that it (arrive) .....
..... in Newcastle soon.

70. Mary is going to type her letter at 10 o'clock tonight but Mohammad is going to type his letter at 11 o'clock tonight. It means when Mohammad does his work Mary (already/do) ..... her work.

71. Amir Did Mary carry her books upstairs when Reza got to home.

Mahin: No, she (already/carry) ..... them.

72. Javad has been running for an hour today. He (run) .....
..... for two hours by 5 o'clock.

Version III

Provide the best form of the verbs in the parentheses to fill the blanks.

1. Mohammad (build) ..... his house himself; it might be in the near future.

2. Last week Roya was practicing Ping-Pong but she (enjoy) .... playing basketball now.

3. Karim (hate) ..... watching cartoon-films in the last two weeks.

4. It was 1992 when Morad (build) ..... his house.

5. Jalal is going to type two letters at 10 o'clock today but Mary (type) .... three letters by 10 o'clock.

6. When Ali got to the rail station the train (just/get) .... there. He didn't miss it.

7. Reza didn't know when I arrived in Newcastle Mary (already/arrive) .... there, too.

8. Reza (play) ..... football with us when he gets better.

9. I'm sure that Germany (win) .....Euro 96 football cup.

10. Dariush could watch one of his favorite films yesterday. He (not watch) .... it for several years.

11. Reza has stayed in flat 20 for three years. By next month he (like) .... to stay there for four years.

12. Amin: What are doing?
Ali: I'm listening to a football match on the radio. Listen! "Doaie (look) .... at Estili."

14. "Now he (send) ..... the ball to Parvin."

13. "And he (kick) ..... the ball now! It's a goal for Keshavarz!"

15. In the last fifteen minutes Mary (amuse) .... my children and she's still amusing them.

16. Mahin has been studying in the library for 50 minutes until 4 o'clock but Mary (study) ..... there for 70 minutes by then.

17. Last year Rahim left Tehran where he (live) .... for several years.

18. Reza: Is Mary going to leave her room at 10 o'clock tonight?
Ali: No, she (leave) ..... there by 10 o'clock.

19. Next year is Reza and Mahin's 10th wedding anniversary. It means that he (know) ..... his wife for ten years. Now they have known each other for nine years.

20. Ardashir (know) ..... the truth in the near future.

21. Reza (leave) ..... his house and went to his office.

22. Mahin (meet) ..... her old friends three times this week and she hopes to meet them again today.

23. Reza: How many languages does Ali know?
Javad: He (know) .....
three languages now.

24. Reza (smoke) .....
a lot today and he is still smoking. It's strange!

25. The policeman (arrest) ..... two people in the last three hours and he's going to arrest a few more tonight.

26. The weather was very nice yesterday Reza (talk) .....
..... with me for an hour in the park.

27. Reza (prefer) ..... to stay in a small flat rather than a big house and he still stays there.

28. Reza: Is Ali going to climb Mt. Alvand at 7 o'clock today?
Jamshid: No, he (climb) .....
there by 7 o'clock.

29. When Jamshid saw Mary this morning she was skating. She (not skate) .....
..... for several months.

30. In the last two weeks Karim (make) .....
three chairs and he's still making a few more.

31. This is the first time Mahin (look) ..... up
ten new words in her dictionary in three minutes.

32. Marjan is going to play her violin at her home at 7 o'clock but Reza is going to be to see how she plays her violin at 7.30. Then, Marjan (play) .....
..... it by 7.30.

33. Monir typed the same letter that Ali (just/type) .....
Monir wished she had not typed it.

34. Hossein went to the park and (walk) .....
there for an hour.

35. Last year Mahmood (think) .....
that he could not learn to speak English but he can speak it very well now.

36. Mahnaz is going to graduate next month but Ali (graduate) .....
..... by the next month.

37. It was 1992 when my sister (graduate) .....
from high-school. I'll never forget it.

38. Reza was not in the football field when you arrived. He (just/play) .....
..... there.

39. Morad: What would Afsar like to do?

Ashraf: Oh, I think she (chat) ..... with us.

40. Amin (type) ..... a letter and posted it yesterday.

41. Ardashir (know) ..... the truth in the near future.

42. Jamshid has been seriously injured in an accident. He (die) .... in a week.

43. Reza, who (already/pass) ..... all his exams, was very happy today.

44. Mahin could go to the party last night. He (enjoy) .... it very much.

45. Amir: What are you doing?

Ali: I'm listening to the football match on the radio. Listen! "Parvin (look) ..... at the goalkeeper."

47. "Now he (kick) ..... the ball."

46. "And Garoosi (shoot) ..... it into the goal! It's a goal for Esteqlal."

48. I think Jamshid (post) ..... a letter to me in the near future.

49. Hamid (want) ..... to live in a small city now but he was interested to live in a large city last year.

50. It was not the first time that Amir heard such a funny noise. He (hear) .... it several times before.

51. Ahmad has loved his wife for nine years since 1984 but Reza (love) .... his wife for ten years by then.

52. This is the first time Amin (play)..... tennis in a tournament.

53. Mary (worry) ..... me a lot since she told me about my friend's death.

54. My father (arrange) ..... all the books on the shelves since we moved into this flat last week.

55. Parvaneh: Was Monir amusing the children at the nursery school when you arrived?

Freshteh: No, she (already/amuse) ..... them.

56. I'm sure the moon (shine) ..... tonight because it's not cloudy now.

57. In a theater somebody might describe the action of the play as:

"Juliet (walk) ..... to the left side."

58. "And, she (sit) ..... at her desk now."

59. "Meanwhile a man (appear) ....."

60. Majan: Reza took a trip to Spain last summer. Did he like it?

Karim: Yes, he (like) .....it very much.

61. Reza's car is damaged. I think that he (repair) .....

it quite soon.

62. There was a fire in flat 30 last night. When the rescue team got there ten people (just/die) ..... .

63. Karim: How long did Abass swim in the pool yesterday?

Hassan: He (swim) ..... there for an hour.

64. Roya: What did Your brother do yesterday?

Javad: He (write) ..... a letter and posted it today.

65. My brother (leave) ..... his home very early this morning because he had to be in his office at 9 o'clock.

66. Marjan (meet) ..... one of her old friends since last month and she hopes a few more today.

67. Reza is not interested in watching cartoon-films but it seems that he (enjoy) .... watching them in the near future.

68. Ali is going to finish his studies next week but Marjan is going to finish her studies next month. It means when Marjan finishes her studies Ali (already/finish) .... his studies.

69. It's 24th of April and Mahin has not received any letter from her parents yet. I think that she (receive) ..... a letter soon.

70. Ali's dentist is going to pull out his bad tooth at 9 o'clock today but Mary's dentist is going to pull out her bad tooth at 10 o'clock today. It means when Mary's dentist pulls out her bad tooth Ali's dentist (already/pull) ..... out his bad tooth.

71. Majid: Did Laleh make tea when Ali got to home?

Nader: No, She (already/make) ..... it.

72. Javad has been driving for two hours today. He (drive) .....

..... for three hours by 4 o'clock.

APPENDIX B: TABLES FOR CHAPTER 5

Appendix B-1: Target tense, 'Present' in the G-f T

Appendix B-2: Target time, 'Present' in the RT

Appendix B-3: Target tense, 'Present Perfect' in the G-f T

Appendix B-4: Target tense, 'Past' in the G-f T

Appendix B-5: Target time, 'Past' in the RT

Appendix B-6: Target tense, 'Past Perfect' in the G-f T

Appendix B-7: Target tense, 'Future' in the G-f T

Appendix B-8: Target time, 'Future' in the RT

Appendix B-9: Target tense, 'Future Perfect' in the G-f T

APPENDIX B-1: Target tense, 'Present' in the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Level Low[a]												
'-s'	18	6	6	8	40.9	13.3	13.3	18.2	9.4	9.6	9.6	9.4
'-ing'	2	17	1	7	4.5	37.8	2.2	15.9	6.7	6.8	6.8	6.7
'Pr.-ing'	0	2	0	4	.0	4.4	.0	9.1	1.5	1.5	1.5	1.5
PAST	2	0	20	7	4.5	.0	44.4	15.9	7.2	7.3	7.3	7.2
INF.	18	16	16	18	40.9	35.6	35.6	40.9	16.8	17.2	17.2	16.8
Others	4	4	2	0	9.1	8.9	4.4	.0	2.5	2.5	2.5	2.6
Level Mid[b]												
'-s'	39	31	28	30	86.7	68.9	63.6	66.7	32.2	32.2	32.2	32.2
'-ing'	0	2	1	1	.0	4.4	2.3	2.2	1.0	1.0	1.0	1.0
'Pr.-ing'	0	4	3	12	.0	8.9	6.8	8.9	2.8	2.8	2.8	2.8
'P.-ing'	0	1	0	0	.0	2.2	.0	.0	.3	.3	.3	.3
'Past'	1	1	7	3	2.2	2.2	15.9	6.7	3.0	3.0	3.0	3.0
Others	5	6	5	7	11.1	13.3	11.4	15.6	5.8	5.8	5.8	5.8
Level High[c]												
'-s'	44	43	40	41	97.8	95.6	88.6	93.2	42.2	42.2	42.2	42.2
'-ing'	0	0	1	0	.0	.0	2.2	.0	.3	.3	.3	.3
'Pr.-ing'	0	1	0	1	.0	2.2	.0	2.3	.5	.5	.5	.5
'Past'	0	0	1	1	.0	.0	2.2	2.3	.5	.5	.5	.5
Others	1	1	3	1	2.2	2.2	6.7	2.3	1.5	1.5	1.5	1.5
NES[d]												
'-s'	26	20	20	19	72.2	51.3	48.8	44.2	19.2	20.8	21.9	23.0
'-ing'	0	3	2	3	.0	7.7	4.9	7.0	1.8	2.0	2.1	2.2
'Pr.-ing'	2	3	4	4	5.6	7.7	9.8	9.3	2.9	3.2	3.4	3.5
'Past'	4	11	7	9	11.1	28.2	17.1	20.9	7.0	7.6	8.0	8.4
'HAVE'	1	1	3	2	2.8	2.6	7.3	4.7	1.6	1.7	1.8	1.9
'WILL'	1	0	3	5	2.8	.0	7.3	11.6	2.0	2.2	2.3	2.4
Others	2	1	2	1	5.6	7.7	9.8	9.3	1.4	1.5	1.5	1.6

[a] X^2 (18, N = 178) = 79.32, P < .00001

[b] X^2 (15, N = 179) = 19.58, P > .05

[c] X^2 (12, N = 179) = 9.20, P > .05

[d] X^2 (18, N = 155) = 14.62, P > .05

Appendix B-2: Target time, 'Present' in the RT

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
PAST	3	2	23	5	9.7	8.3	39.7	11.6	6.6	5.1	12.3	9.1
-ING	1	11	2	12	3.2	45.8	3.4	27.9	5.2	4.0	9.7	7.2
PRING	0	3	1	3	.0	12.5	1.7	7.0	1.4	1.1	2.6	1.9
PING	1	3	5	2	3.2	12.5	8.6	4.7	2.2	1.7	4.1	3.0
-S	14	0	3	4	45.2	.0	5.2	9.3	4.2	3.2	7.8	5.8
INF.	12	5	24	17	38.7	20.8	41.4	39.5	11.5	8.9	21.6	16.0
Mid-level[b]												
PAST	12	2	38	7	24.5	4.2	37.3	10.0	10.7	10.5	22.4	15.4
-ING	0	6	4	9	.0	12.5	3.9	12.9	3.5	3.4	7.2	4.9
PR.ING	0	22	10	20	.0	45.8	9.8	28.6	9.5	9.3	19.7	13.5
P.ING	0	4	1	2	.0	8.3	1.0	2.9	1.3	1.2	2.7	1.8
-S	29	2	13	8	59.2	4.2	12.7	11.4	9.5	9.3	19.7	13.5
INF.	7	11	28	22	14.3	22.9	27.5	31.4	12.4	12.1	25.8	17.7
PRPF	0	0	2	1	.0	.0	2.0	1.4	.5	.5	1.1	.8
PPR	0	0	5	1	.0	.0	4.9	1.4	1.1	1.1	2.3	1.6
PP	0	0	1	0	.0	.0	1.0	.0	.2	.2	.4	.3
WILL	1	1	0	0	2.0	2.1	.0	.0	.4	.4	.8	.5
High-level[c]												
PAST	12	10	25	13	28.6	13.9	20.3	17.1	8.1	13.8	23.6	14.6
-ING	1	4	4	2	2.4	5.6	3.3	2.6	1.5	2.5	4.3	2.7
PR.ING	8	24	28	28	19.0	33.3	22.8	36.8	11.8	20.2	34.6	21.4
P.ING	0	2	1	0	.0	2.8	.8	.0	.4	.7	1.2	.7
-S	18	18	40	22	42.9	25.0	32.5	28.9	13.2	22.5	38.5	23.8
INF.	3	14	18	11	7.1	19.4	14.6	14.5	6.2	10.6	18.1	11.2
PRPF	0	0	4	0	.0	.0	3.3	.0	.5	.9	1.6	1.0
PPR	0	0	3	0	.0	.0	2.4	.0	.4	.7	1.2	.7
NES[d]												
PAST	5	7	20	8	13.2	9.0	15.3	11.9	4.8	9.9	16.7	8.5
-ING	0	3	1	4	.0	3.8	.8	6.0	1.0	2.0	3.3	1.7
PR.ING	2	36	28	25	5.3	46.2	21.4	37.3	11.0	22.6	38.0	19.4
P.ING	0	3	1	1	.0	3.8	.8	1.5	.6	1.2	2.1	1.1
-S	14	17	31	14	36.8	21.8	23.7	20.9	9.2	18.9	31.7	16.2
INF.	4	2	10	5	10.5	2.6	7.6	7.5	2.5	5.2	8.8	4.5
PRPF	6	6	27	10	15.8	7.7	20.6	14.9	5.9	12.2	20.4	10.5
PPR	2	1	4	0	5.3	1.3	3.1	.0	.8	1.7	2.9	1.5
PP	2	1	0	0	5.3	1.3	.0	.0	.4	.7	1.3	.6
WILL	0	0	1	0	.0	.0	.8	.0	.1	.2	.4	.2
PPRPF	0	0	4	0	.0	.0	3.1	.0	.5	1.0	1.7	.9
PRPFING	0	0	1	0	.0	.0	.8	.0	.1	.2	.4	.2

WOULD 1	1	0	0	2.6	1.3	.0	.0	.2	.5	.8	.4
BE.TO 2	1	3	0	5.3	1.3	2.3	.0	.7	1.5	2.5	1.3

[a] X^2 (15, N = 156) = 80.55, P < .0001

[b] X^2 (27, N = 269) = 142.72, P < .0001

[c] X^2 (21, N = 313) = 29.76, P > .05

[d] X^2 (27, N = 314) = 71.72, P < .0001

Appendix B-3: Target tense, 'Present perfect' in the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level [a]												
'-S'	20	0	5	2	44.4	.0	11.1	4.3	6.7	6.7	6.7	6.9
'-ING'	0	16	1	14	.0	35.6	2.2	30.4	7.7	7.7	7.7	7.9
PR.-ING	0	2	0	4	.0	4.4	.0	8.7	1.5	1.5	1.5	1.5
P.-ING	0	0	0	2	.0	.0	.0	4.3	.5	.5	.5	.5
PAST	4	5	18	7	8.5	11.1	40.0	15.2	8.5	8.5	8.5	8.6
HAVE	4	3	4	1	8.9	6.7	8.9	4.3	3.2	3.2	3.2	3.3
INF.	16	16	14	14	35.6	35.6	31.1	30.4	14.9	14.9	14.9	15.2
OTHERS	1	3	3	1	2.2	6.7	6.7	2.2	2.0	2.0	2.0	2.0
Mid-level [b]												
'-S'	7	1	3	5	15.6	2.3	6.7	11.1	4.0	3.9	4.0	4.0
'-ING'	0	5	0	1	.0	11.4	.0	2.2	1.5	1.5	1.5	1.5
PR-ING	0	4	0	0	.0	9.1	.0	.0	1.0	1.0	1.0	1.0
P-ING	0	3	0	0	.0	6.8	.0	.0	.8	.7	.8	.8
PAST	5	4	5	5	11.1	9.1	11.1	11.1	4.8	4.7	4.8	4.8
HAVE	33	25	29	26	73.3	56.8	64.4	57.8	28.4	27.4	28.4	28.4
OTHERS	0	2	8	8	.0	4.5	17.8	17.8	4.5	4.4	4.5	4.5
High-level [c]												
'-S'	2	0	2	2	4.4	.0	4.4	4.4	1.5	1.4	1.5	1.5
'-ING'	0	2	0	0	.0	4.7	.0	.0	.5	.5	.5	.5
PR.-ING	0	1	0	1	.0	2.3	.0	2.2	.5	.5	.5	.5
P.-ING	0	1	0	0	.0	2.3	.0	.0	.3	.2	.3	.3
PAST	1	4	2	3	2.5	9.3	4.4	6.7	2.5	2.4	2.5	2.5
HAVE	42	35	39	37	93.3	81.4	86.7	82.2	38.7	37.0	38.7	38.7
OTHERS	0	0	2	2	.0	.0	4.4	4.4	1.0	1.0	1.0	1.0

NES[d]												
'-S'	5	0	2	0	12.2	.0	4.4	.0	1.6	1.8	1.8	1.8
'-ING'	1	1	0	0	2.4	2.3	.0	.0	.5	.5	.5	.5
P.-ING	0	1	0	0	.0	2.3	.0	.0	.2	.3	.3	.3
PAST	6	9	13	12	14.6	20.5	28.9	27.3	9.6	10.1	10.3	10.1
HAVE	25	28	25	26	61.5	63.6	55.6	59.1	24.5	26.3	26.9	26.3
HAD	0	0	1	0	.0	.0	2.2	.0	.2	.3	.3	.3
WILL	1	2	2	1	2.4	4.5	4.4	2.3	1.4	1.5	1.6	1.5
WILL-HAVE	2	1	1	2	4.9	2.3	2.2	4.5	1.4	1.5	1.6	1.5
OTHERS	1	2	1	3	2.4	4.5	2.2	6.8	.2	.3	.3	.3

[a] X^2 (21, N = 180) = 119.28, P < .00001

[b] X^2 (18, N = 179) = 50.53, P < .00006

[c] X^2 (18, N = 178) = 19.91, P > .05

[d] X^2 (24, N = 174) = 23.79, P> .05

Appendix B-4: Target tense, PAST in the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
'-S'	12	0	1	0	26.7	.0	2.2	.0	3.3	3.3	3.3	3.3
'-ING'	0	14	5	6	.0	31.1	11.1	13.3	6.3	6.3	6.3	6.3
PR.-ING	0	3	0	0	.0	6.7	.0	.0	.8	.8	.8	.8
P.ING	0	3	0	0	.0	6.7	4.4	4.4	1.8	1.8	1.8	1.8
PAST	6	6	19	20	13.3	13.3	42.2	44.4	12.8	12.8	12.8	12.8
INF.	24	17	15	16	53.3	37.8	33.3	35.6	18.0	18.0	18.0	18.0
OTHERS	3	2	3	1	6.7	4.4	6.7	2.2	2.3	2.3	2.3	2.3
Mid-level[b]												
'-S'	7	1	0	1	15.6	2.2	.0	2.2	2.3	2.3	2.3	2.3
'-ING'	0	5	0	1	.0	11.1	.0	2.2	1.5	1.5	1.5	1.5
P.ING	0	4	0	3	.0	8.9	.0	6.7	1.8	1.8	1.8	1.8
PAST	33	30	42	37	73.3	66.7	93.3	82.2	35.5	35.5	35.5	35.5
OTHERS	5	5	3	3	11.1	11.1	6.7	6.7	4.0	4.0	4.0	4.0
High-level[c]												
'-S'	1	0	0	0	2.8	.0	.0	.0	.3	.3	.3	.2
'-ING'	1	1	0	0	2.8	2.8	.0	.0	.5	.5	.5	.5
P.-ING	0	3	0	1	.0	8.3	.0	3.0	1.0	1.0	1.0	.9
PAST	31	28	36	29	86.1	77.8	100.0	87.9	31.7	31.7	31.7	29.0

OTHERS	3	4	0	3	8.3	11.1	.0	9.1	2.6	2.6	2.6	2.3
NES[d]												
'-S'	2	0	0	0	4.7	.0	.0	.0	.5	.5	.5	.5
'-ING'	2	2	0	0	4.7	4.9	.0	.0	1.1	1.0	.9	1.0
P.-ING	0	2	0	0	.0	4.9	.0	.0	.5	.5	.5	.5
PAST	34	27	30	32	79.1	65.9	83.3	80.0	33.1	31.5	27.7	30.8
HAVE	0	0	1	0	.0	.0	2.8	.0	.3	.3	.2	.3
HAD	0	2	2	1	.0	4.9	5.6	2.5	1.3	1.3	1.1	1.3
WILL	1	1	2	0	2.3	2.4	5.6	2.5	1.1	1.0	.9	1.0
WILL-HAVE	1	0	1	0	2.3	.0	2.8	.0	.5	.5	.5	.5
INF.	0	1	0	0	.0	2.4	.0	.0	.3	.3	.2	.3
OTHERS	3	6	0	0	7.0	14.6	.0	17.5	4.3	4.1	3.6	4.0
[a]X^2 (18, N = 180) = 92.09, P < .00001												
[b]X^2 (12, N = 180) = 35.56, P < .0004												
[c]X^2 (12, N = 141) = 15.38, P > .05												
[d]X^2 (27, N = 160) = 36.17, P > .05												

Appendix B-5: Target time, PAST in the RT

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
PAST	9	2	17	9	23.7	9.1	44.7	29.0	10.9	6.3	10.9	8.9
-ING	0	7	1	8	.0	31.8	2.6	25.8	4.7	2.7	4.7	3.8
PR.ING	0	3	0	0	.0	13.6	.0	.0	.9	.5	.9	.7
P.ING	1	5	2	0	2.6	22.7	5.3	.0	2.4	1.4	2.4	1.9
-S	19	0	5	0	50.0	.0	13.2	.0	7.1	4.1	7.1	5.8
INF.	9	5	13	13	23.7	22.7	34.2	41.9	11.8	6.8	11.8	9.6
WILL	0	0	0	1	.0	.0	.0	3.2	.3	.2	.3	.2
Mid-level[b]												
PAST	18	5	27	21	39.1	26.3	49.1	42.9	19.3	8.0	23.1	20.6
-ING	1	3	0	2	2.2	15.8	.0	4.1	1.6	.7	2.0	1.7
PR.ING	0	2	0	0	.0	10.5	.0	.0	.5	.2	.7	.6
P.ING	0	3	3	6	.0	15.8	5.5	12.2	3.3	1.3	3.9	3.5
-S	14	4	5	4	30.4	21.1	9.1	8.2	7.3	3.0	8.8	7.8
INF.	12	2	20	16	26.1	10.5	36.4	32.7	13.6	5.6	16.3	14.5
PRPF	1	0	0	0	2.2	.0	.0	.0	.3	.1	.3	.3

High-level [c]												
PAST	26	16	37	33	72.2	44.4	69.8	58.9	22.3	22.3	32.8	34.7
PR.ING	1	3	2	3	2.8	8.3	3.8	5.4	1.8	1.8	2.6	2.8
P.ING	1	6	5	6	2.8	16.7	9.4	10.7	5.6	3.6	3.6	5.3
-S	4	6	4	6	11.1	16.7	7.5	10.7	4.0	4.0	5.9	6.2
INF.	1	5	4	7	2.8	13.9	7.5	12.5	3.4	3.4	5.0	5.3
P.PR	3	0	0	1	8.3	.0	.0	1.8	.8	.8	1.2	1.2
P.P	0	0	1	0	.0	.0	1.9	.0	.2	.2	.3	.3
NES[d]												
PAST	11	10	21	24	44.0	40.0	47.7	61.5	12.4	12.4	21.8	19.4
PR.ING	2	6	6	2	8.0	24.0	13.6	5.1	3.0	3.0	5.3	4.7
P.ING	1	1	2	2	4.0	4.0	4.5	5.1	1.1	1.1	2.0	1.8
-S	8	4	8	5	32.0	16.0	18.2	12.8	4.7	4.7	8.3	7.3
INF.	0	0	2	2	.0	.0	4.5	5.1	.8	.8	1.3	1.2
PRPF	2	1	2	2	8.0	4.0	4.5	5.1	1.3	1.3	2.3	2.1
PPF	0	0	0	1	.0	.0	.0	2.6	.2	.2	.3	.3
WILL	0	0	1	0	.0	.0	2.3	.0	.2	.2	.3	.3
WOULD	1	2	0	1	4.0	8.0	.0	2.6	.8	.8	1.3	1.2
PRPFP	0	1	2	0	.0	4.0	4.5	.0	.6	.6	1.0	.9

[a] X^2 (18, N = 129) = 88.76, P < .00001

[b] X^2 (18, N = 129) = 51.27, P < .00001

[c] X^2 (18, N = 181) = 23.26, P > .05

[d] X^2 (27, N = 133) = 23.60, P > .05

Appendix B-6: Target tense, 'Past perfect' in the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
'-S'	14	0	0	1	32.6	.0	.0	2.2	3.6	3.8	3.8	3.8
'-ING'	0	15	2	7	.0	33.3	4.4	15.6	5.8	6.1	6.1	6.1
P.-ING	0	3	0	1	.0	6.7	.0	2.2	1.0	1.0	1.0	1.0
PAST	2	3	18	17	4.7	6.7	40.0	37.8	9.7	10.1	10.1	10.1
HAD	2	0	3	1	4.7	.0	6.7	2.2	1.4	1.5	1.5	1.5
INF.	22	17	17	15	51.2	37.8	37.8	33.3	17.2	17.9	17.9	17.9
OTHERS	3	7	5	3	7.0	15.6	11.1	6.7	4.3	4.6	4.6	4.6

Mid-level[b]												
'-S'	1	0	0	0	2.3	.0	.0	.0	.2	.3	.3	.2
'-ING'	0	3	1	1	.0	6.7	2.2	2.3	1.2	1.3	1.3	1.2
P.-ING	0	5	0	2	.0	11.1	.0	4.5	1.7	1.8	1.8	1.7
PAST	6	5	12	8	13.6	11.1	26.7	18.2	7.7	7.8	7.8	7.7
HAD	32	29	27	27	72.7	64.4	60.0	61.4	28.4	29.1	29.1	28.4
OTHERS	5	3	5	6	11.4	6.7	11.1	13.6	4.7	4.8	4.8	4.7
High-level[c]												
'-S'	0	1	0	0	.0	2.2	.0	.0	.3	.3	.3	.3
'-ING'	2	5	4	2	4.4	11.1	8.9	4.4	3.3	3.3	3.3	3.3
P.-ING	0	1	0	1	.0	2.2	.0	2.2	.5	.5	.5	.5
HAD	42	36	38	40	93.3	80.0	84.4	88.9	39.0	39.0	39.0	39.0
OTHERS	1	2	3	2	2.2	4.4	6.7	4.4	2.0	2.0	2.0	2.0
NES[d]												
'-S'	1	0	0	0	2.4	.0	.0	.0	.3	.3	.2	.2
'-ING'	1	1	1	2	2.4	2.6	2.8	5.3	1.3	1.3	1.2	1.2
P.-ING	0	2	1	0	.0	5.1	2.8	.0	.8	.8	.7	.7
PAST	9	5	10	9	22.0	12.8	27.8	23.7	8.8	8.4	7.7	8.1
HAVE	1	2	1	0	2.4	5.1	2.8	.0	1.1	1.0	.9	1.0
HAD	24	22	22	23	58.5	56.4	61.1	60.5	24.2	23.0	21.3	22.5
WILL	0	1	0	1	.0	2.6	.0	2.6	.5	.5	.5	.5
WILL-HAVE	1	1	1	3	2.4	2.6	2.8	7.9	1.6	1.5	1.4	1.5
OTHERS	4	5	0	0	9.8	12.8	.0	.0	2.4	2.3	2.1	2.2

[a] X^2 (18, N = 178 = 96.60, P < .00001

[b] X^2 (15, N = 178) = 21.55, P > .05

[c] X^2 (15, N = 178) = 21.55, P > .05

[d] X^2 (24, N = 154) = 23.97, P > .05

Appendix B-7: Target tense, 'Future' for the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
'-S'	15	3	3	4	34.1	6.7	6.7	9.3	6.2	6.4	6.4	6.1
'-ING'	.0	17	0	14	.0	37.8	.0	32.6	7.7	7.9	7.9	7.5
PR.-ING	.0	1	0	0	.0	2.2	.0	.0	.2	.3	.3	.2
PAST	.0	0	14	4	.0	.0	31.1	9.3	4.5	4.6	4.6	4.4
WILL	4	4	2	2	9.1	8.9	4.4	4.7	3.0	3.1	3.1	2.9
INF.	17	15	19	14	38.6	33.3	42.2	32.6	16.2	16.5	16.5	15.8

OTHERS	8	5	7	5	18.2	11.1	15.6	11.6	6.2	6.4	6.4	6.1
Mid-level[b]												
'-S'	5	6	5	6	11.1	13.3	11.4	13.6	5.6	5.6	5.4	5.4
'-ING'	0	3	0	0	.0	6.7	.0	.0	.8	.8	.7	.7
PR.-ING	0	5	2	1	.0	11.1	4.5	2.3	2.0	2.0	2.0	2.0
PAST	0	2	2	1	.0	4.4	4.5	2.3	1.3	1.3	1.2	1.2
WILL	34	23	28	29	75.6	51.1	63.6	65.9	28.8	28.8	28.2	28.2
OTHERS	6	6	7	7	13.3	13.3	15.9	15.9	6.6	6.6	6.4	6.4
High-level[c]												
'-S'	3	5	3	2	6.7	11.1	6.7	4.4	3.3	3.3	3.3	3.3
PR. -ING	0	1	1	0	.0	2.2	2.2	.0	.5	.5	.5	.5
PAST	0	0	1	0	.0	.0	2.2	.0	.3	.3	.3	.3
WILL	37	36	39	41	82.2	80.0	86.7	91.1	38.3	38.3	38.3	38.3
OTHERS	5	3	1	2	11.1	6.7	2.2	4.4	2.8	2.8	2.8	2.8
NES[d]												
'-S'	5	4	1	0	14.7	9.8	2.6	.0	2.2	2.7	2.5	2.5
'-ING'	1	1	1	1	2.9	2.4	2.6	2.6	.9	1.1	1.0	1.0
PR. -ING	1	1	1	1	2.9	2.4	2.6	2.6	.9	1.1	1.0	1.0
P. -ING	0	1	0	0	.0	2.4	.0	.0	.2	.3	.3	.3
PAST	4	5	6	6	11.8	12.2	15.4	15.4	4.7	5.6	5.4	5.4
HAVE	0	0	1	1	.0	.0	2.6	2.6	.4	.5	.5	.5
WILL	19	23	27	29	55.9	56.1	69.2	74.4	21.8	26.3	25.0	25.0
WILL-HAVE	1	1	1	0	2.9	2.4	2.6	.0	.7	.8	.8	.8
OTHERS	3	5	1	1	8.8	12.2	2.6	2.6	2.2	2.7	2.5	2.5
[a]X^2 (18, N = 179) = 101.58, P < .00001												
[b]X^2 (15, N = 178) = 20.48, P > .05												
[c]X^2 (12, N = 180) = 10.02, P > .05												
[d]X^2 (24, N = 153) = 19.41, P > .05												

Appendix B-8: Target time, 'Future' in the RT

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
PAST	3	1	14	5	13.0	10.0	36.8	22.7	5.7	2.5	9.4	5.4
-ING	0	0	0	3	.0	.0	.0	13.6	.7	.3	1.2	.7
PR.ING	0	0	1	0	.0	.0	2.6	.0	.2	.1	.4	.2
P.ING	0	5	5	1	.0	50.0	13.2	4.5	2.7	1.2	4.5	2.6

-S	14	0	4	3	60.9	.0	10.5	13.6	5.2	2.3	8.6	5.0
INF.	6	4	12	8	26.1	40.0	31.6	36.4	7.4	3.2	12.3	7.1
PP	0	0	1	0	.0	.0	2.6	.0	.2	.1	.4	.2
WILL	0	0	1	2	.0	.0	2.6	9.1	.7	.3	1.2	.7
Mid-level[b]												
PAST	8	2	17	4	50.0	16.7	38.6	11.1	4.6	3.4	12.6	10.3
-ING	0	0	1	6	.0	.0	2.3	16.7	1.0	.8	2.9	2.3
PR.ING	0	0	0	1	.0	.0	.0	2.8	.1	.1	.4	.3
P.ING	0	3	1	2	.0	25.0	2.3	5.6	.9	.7	2.4	2.0
-S	4	2	6	8	25.0	16.7	13.6	22.2	3.0	2.2	8.1	6.7
INF.	1	4	13	8	6.3	33.3	29.5	22.2	3.9	2.9	10.6	8.7
WILL	3	1	6	7	18.8	8.3	13.6	19.4	2.5	1.9	6.9	5.7
High-level[c]												
PAST	2	1	9	3	11.1	7.7	23.7	10.3	2.8	2.0	5.8	4.4
-ING	0	1	0	0	.0	7.7	.0	.0	.2	.1	.4	.3
PR.ING	0	1	0	0	.0	7.7	.0	.0	.2	.1	.4	.3
P.ING	0	1	0	1	.0	7.7	.0	3.4	.4	.3	.8	.6
-S	10	3	9	7	55.6	23.1	23.7	24.1	5.3	3.8	11.2	8.6
INF.	1	2	4	3	5.6	15.4	10.5	10.3	1.8	1.3	3.9	3.0
PP	0	0	0	1	.0	.0	.0	3.4	.2	.1	.4	.3
WILL	5	4	16	14	27.8	30.8	42.1	48.3	7.2	5.2	15.1	11.5
ENS[d]												
PAST	0	0	1	0	.0	.0	2.8	.0	.1	.1	.5	.2
PR.ING	0	3	1	1	.0	33.3	2.8	5.9	.7	.6	2.5	1.2
-S	3	2	7	2	30.0	22.2	19.4	11.8	1.9	1.8	7.0	3.3
INF.	0	0	1	1	.0	.0	2.8	5.9	.3	.3	1.0	.5
PRPF	0	0	2	1	.0	.0	5.6	5.9	.4	.4	1.5	.7
PPF	1	0	1	0	10.0	.0	2.8	.0	.3	.3	1.0	.5
WILL	5	3	13	6	50.0	33.3	36.1	35.3	3.8	3.4	13.5	6.4
P.WILL	0	0	1	2	.0	.0	2.8	11.8	.4	.4	1.5	.7
WOULD	0	0	1	0	.0	.0	2.8	.0	.1	.1	.5	.2
BE.TO	1	1	8	4	10.0	11.1	22.2	23.5	1.9	1.8	7.0	3.3

[a] X^2 (21, N = 93) = 57.54, P < .0001

[b] X^2 (18, N = 108) = 34.51, P > .05

[c] X^2 (21, N = 98) = 29.07, P > .05

[d] X^2 (27, N = 72) = 23.44, P > .05

Appendix B-9: Target tense, 'Future perfect' in the G-f T

Distribution of aspect markings across lexical aspect categories: verb token counts, percentage of verb tokens, and expected values for verb tokens

	Token counts				Percentage				Expected Values			
	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.	St.	Act.	Ach.	Accom.
Low-level[a]												
'-S'	18	6	4	6	40.0	14.0	10.3	13.6	8.9	8.5	7.8	8.7
'-ING'	2	14	3	8	4.4	32.6	7.7	7.7	7.1	6.8	6.2	6.9
PR. -ING	0	0	0	7	.0	.0	.0	15.9	1.8	1.8	1.6	1.8
PAST	0	0	14	3	.0	.0	35.9	6.8	4.5	4.3	3.9	4.4
HAVE	2	3	3	2	4.4	7.0	7.7	4.5	2.6	2.5	2.3	2.6
INF.	19	17	15	15	42.2	39.5	38.5	34.1	17.4	16.6	15.1	17.0
OTHERS	4	3	0	3	8.9	7.0	.0	6.8	2.6	2.5	2.3	2.6
Mid-level[b]												
'-S'	6	3	2	6	13.3	6.7	5.0	13.3	4.4	4.4	3.9	4.4
'-ING'	1	1	0	0	2.2	2.2	.0	.0	.5	.5	.5	.5
PR. -ING	0	6	0	0	.0	13.3	.0	.0	1.5	1.5	1.4	1.5
PAST	0	4	3	0	.0	8.9	7.5	.0	1.8	1.8	1.6	1.8
HAVE	15	9	17	18	33.3	20.0	42.5	40.0	15.2	15.2	13.5	15.2
WILL	5	7	6	2	11.1	15.6	15.0	4.4	5.1	5.1	4.6	5.1
WILL-HAVE	11	7	12	12	24.4	15.6	30.0	26.7	10.8	10.8	9.6	10.8
OTHERS.	7	8	0	7	15.6	17.8	.0	15.6	5.7	5.7	5.0	5.7
High-level[c]												
'-S'	1	0	0	3	2.2	.0	.0	6.7	1.0	1.0	1.0	1.0
'-ING'	0	1	0	0	.0	2.3	.0	.0	.3	.2	.2	.3
PR. -ING	0	2	0	0	.0	4.7	.0	.0	.5	.5	.5	.5
PAST	0	1	2	0	.0	2.3	4.5	.0	.8	.7	.7	.8
HAVE	5	4	5	8	11.1	9.3	11.4	17.8	5.6	5.3	5.5	5.6
WILL	2	0	2	2	4.4	.0	4.5	4.4	1.5	1.5	1.5	1.5
WILL-HAVE	33	33	35	31	73.3	76.7	79.5	68.9	33.6	32.1	32.8	33.6
OTHERS	4	2	0	1	8.9	4.7	.0	2.2	1.8	1.7	1.7	1.8
NES[d]												
'-S'	1	0	1	0	2.6	.0	2.6	.0	.5	.5	.5	.5
'-ING'	0	1	2	1	.0	2.5	5.1	2.5	1.0	1.0	1.0	1.0
PR. -ING	1	3	3	1	2.6	7.5	7.7	2.5	2.0	2.0	2.0	2.0
PAST	4	8	4	9	10.3	20.0	10.3	22.5	6.2	6.3	6.2	6.3
HAVE	8	2	5	3	20.5	5.0	12.8	7.5	4.4	4.6	4.4	4.6
HAD	0	2	1	2	.0	5.0	2.6	5.0	1.2	1.3	1.2	1.3
WILL	1	2	3	5	2.6	5.0	7.7	12.5	2.7	2.8	2.7	2.8
WILL-HAVE	17	17	18	16	43.6	42.5	46.2	40.0	16.8	17.2	16.8	17.2
INF.	1	2	0	0	2.6	5.0	.0	.0	.7	.8	.7	.8
OTHERS	6	3	2	3	15.4	7.5	5.1	7.5	3.5	3.5	3.5	3.5

[a]X^2 (18, N = 174) = 79.58, P < .00001
[b]X^2 (21, N = 175) = 45.00, P < .002
[c]X^2 (21, N = 177) = 27.60, P > .05
[d]X^2 (27, N = 158) = 25.73, P > .05