

Aspects of Aspect:
The acquisition of viewpoint and situation
aspect
in Modern Greek

By

Georgia Panitsa

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I, Georgia Panitsa, confirm that the work presented in this thesis is my own.

Where information has been derived from other sources, I confirm that this has been
indicated in the thesis.

Abstract

This thesis describes the acquisition of aspect in Modern Greek. The morphology, syntax and semantics of aspect are presented and discussed. We look especially at C. Smith's theory of viewpoint and situation aspect. Smith's situation aspect theory is based on the Vendlerian classification of verb phrases into Activity, Achievement, Accomplishment and State; plus a category of Semelfactives. As aspect is a property of the whole verb phrase, and in the light of its 'interaction' with aspectual adverbials, aspectual coercion is discussed. Further, we look at the role of adverbial expressions in the determination of aspect and at the positioning of aspectual adverbials in children's grammars. The continuity and the maturation hypotheses are discussed in developing a theory of the acquisition of aspect and children's awareness and mastery of the system is examined.

We carried out two experiments at a nursery school in Greece to look at viewpoint and situation aspect and their interaction in children's grammars. The first was a sentence-picture matching task and the second an elicited imitation task. We investigated patterns in the acquisition of viewpoint aspect by the children and how these were affected by situation aspect across the ages. It is shown that the way children combine aspectual adverbials with verbs marked for viewpoint aspect provides insights into their acquisition of the semantics of aspect. This is further looked at in terms of the means children employ towards an adult target response:

omission of the aspectual adverbial; changing of the aspectual marking on the verb, substitution of one aspectual adverbial for another one. Regarding the positioning of aspectual adverbials in children's grammars, it is found that they place them in immediately post-verbal position. Finally we examined children's comprehension of the semantics of perfective vs imperfective viewpoint aspect and their ability to successfully combine aspectual adverbials with verbs set for the perfective or imperfective value.

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Chapter 1

INTRODUCTION

1.1. The hypothesis

This thesis investigates the acquisition of aspect in Modern Greek. Our motivation has been the following fact: in Modern Greek (MG) the verb comes necessarily marked for aspect, so aspect appears quite early in children's utterances. The question then is: does the morphological marking of aspect on the verb entail that children have mastery of the semantics incurred by the morphological realisation of aspect?

Our hypothesis is that the semantics incurred by the morphological marking of aspect on the verb is acquired gradually by the children and that it takes time for the morphology-to-semantics mapping to be established.

1.2. Innate and learned factors in Language Acquisition

The question then is: how do children establish the form - meaning mapping of aspect? Do they associate forms with the right meanings from the moment they start using them, and, if not, what makes them change the form/meaning associations at

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some point in development? Triggering contexts for learning are few, especially for aspect, in the sense that aspects often present different points of view on a situation rather than establishing different truth values. Furthermore, it is definitely an easier task to associate the form ‘ball’ with the object ball in the real world, rather than to perform a form-meaning mapping for aspect. With respect to the triggers the children receive, the following needs to be pointed out: when children are exposed to input – the Primary Linguistic Data - they are also observing objects, scenes, events, etc. Clearly this raises the perplexing problem that there are certainly many cases where a child is attending to one thing and the adult speaks of something else. And still, despite the impoverished nature of the linguistic input and the factors just presented, all children eventually come to master aspect in its distinct manifestations in a similar time framework.

With all the above in mind, Universal Grammar in Chomsky’s sense must clearly have a role. Universal Grammar (UG) consists of innately specified knowledge about the possible structures in human language, and its purpose is to delimit the range of hypotheses children may form upon receipt of language input. Furthermore, when children are found to have a grammar different to the adult one, it is of interest to investigate the process or processes by which children gradually gain the ability to develop the adult grammar. The study of language acquisition within the generative framework has actually demonstrated that children have very sophisticated knowledge of the language they are acquiring. In the acquisition of aspect, UG may “indicate” which are possible form/meaning mappings, and which are not.

1.3. Setting the scene

1.3.1. Analysing the aspectual system

The aim of this thesis being to present a theory of the acquisition of aspect in Modern Greek under current theoretical assumptions, we are in need of an analysis that is the explicit target of the children's acquisition process. We must first introduce the relevant notions. So, in defining aspect, one needs to begin by differentiating aspect from tense even though their domains are interrelated: temporal location takes an external viewpoint of a situation, tense and time adverbials, that is, locate a situation in time; aspect and aspectual adverbials present the internal structure of a situation. While there is considerable interaction between the two systems, tense and aspect are distinct. This is discussed in chapter 2, where we define aspect and distinguish it from tense.

We then discuss viewpoint aspect and situation aspect. We look especially at C. Smith's theory of viewpoint and situation aspect.

There are traditionally held to be two *viewpoint* types: the perfective, and the imperfective. In Modern Greek (MG), viewpoint aspect is expressed in terms of the inflectional morphology; the *imperfective* stems from the present theme of the verb and the *perfective* stems from the past theme of the verb.

Smith's *situation* aspect theory is based on the Vendlerian classification of verb phrases into Activity, Achievement, Accomplishment and State; plus a category of

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Semelfactives. Furthermore, some linguists have extended the Vendlerian classification by classifying verbs into pairs of contrasts, such as telic versus atelic verbs, punctuals versus durative verbs, and stative versus dynamic verbs (Comrie 1976). Smith (1991) analysed these contrasts in terms of syntactic features: [+/- telic], [+/- punctual], [+/-dynamic]. We shall employ these features in our analysis of aspect acquisition in MG and we will in fact show that children acquire aspect on the basis of mastering aspectual features.

Furthermore, we introduce event structure as another tool to analyse children's acquisition of aspect. We need to analyse their performance on events and seek the nature of their internal structure. Pulman introduces the notion of event structure: "what semantically relevant internal structure the event or state might have" (1997: 279). In our analysis we have followed Cormack and Smith's (1999) three-part event structure; it is based on Moens and Steedman's theory, which too stems from the Vendlerian classification of verbs, which we use in the thesis.

Finally in the last section of chapter 2, we outline the syntactic status of aspect in the framework of the syntactic theory of minimalism. We treat aspect as a functional category, represented as a projection immediately above VP to further reflect its close connection to the verbal stem.

1.3.2. Introducing aspectual adverbials

Having discussed aspect in its morphological, semantic and syntactic manifestation, we discuss aspectual adverbials in chapter 3.

Aspect is a property of the whole clause rather than only of the verb in that clause. Several factors, including the inherent meaning of the verb, the adverbial expressions that occur with the verb, the complements of the verb and their status (plural or singular, mass or count, the case they are marked for), are set to account for aspectual differentiation and determine the aspectual value of the clause.

Aspectual adverbials are a subclass of temporal adverbials, as both classes are time-related and they both lexicalise time reference from a different perspective. They point to the internal temporal properties of a situation, in particular, duration and frequency. In MG, *yia mia ora* 'for an hour', *kathe toso* 'every so often' are aspectual adverbials.

Aspectual adverbials are sensitive to the perfective-imperfective distinction. Durative and indefinite frequency adverbials require the verb to be marked for the imperfective, whereas cardinal count, completive, definite frequency and point adverbials require the verb to be marked for the perfective.

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In the light of the ‘interaction’ of aspect with aspectual adverbials, we discuss aspectual coercion. The following question occurred: how can we calculate the aspectual value of a clause when more than one adverbial co-occurs? The best explanations can be given along the lines of Moens and Steedman’s (1988) aspectual coercion theory.

Finally we investigate the syntactic status of aspectual adverbials. In our analysis we follow Cinque (1999), whose theory of adverbs is one that accounts for both the semantic features and the syntactic characteristics of this quite heterogeneous category. He suggests that adverbs head their own maximal projections (AdvPs) and that they occupy the (unique) Spec positions of distinct maximal projections. Aspectual adverbials then will occupy the Spec position of the maximal projection of aspect.

The reason for undertaking a thorough analysis of aspectual adverbials is that we have employed them as tools in finding out how aspect is acquired in MG. Indeed, our ‘aliens’ experiment focuses on the role of adverbial expressions in the determination of aspect in children’s utterances in the acquisition process.

1.3.3. Theoretical background to the acquisition of aspect

Chapter 4 presents the theoretical background to the acquisition of aspect. The main focus of current issues in language acquisition is whether children are equipped with innate principles or mechanisms in their acquisition of language.

There exist two approaches:

- a) nativist approaches, which argue strongly for the existence of *a priori* domain specific principles or mechanisms for language. These account for the various patterns of the acquisition of aspect with recourse to pre-specified, innate knowledge of specific semantic categories.

- b) functionalist approaches, which account for the mechanism of the acquisition of aspect by reference to statistical, connectionist mechanisms that explore the learner's ability to detect and form patterns in the linguistic input.

We are advocates of the nativist approach and we explain why. Within that framework, there exist two hypotheses: the continuity and the maturation hypothesis. These are discussed in the light of the acquisition of functional categories, aspect being one of them and we provide a rationale for why aspect is acquired along lines suggested by the continuity hypothesis.

1.4. The experiments

In the light of all the theoretical considerations we presented above, we carried out two experiments at a nursery school in Greece to look at the acquisition of viewpoint and situation aspect and their interaction in children's grammars.

1.4.1. The “red and green story” experiment

The first experiment, the “red and green story” experiment is presented in chapter 5. It is a sentence-picture matching task. The aspectual distinctions are represented in pairs of contrasting picture stories. Each pair consists of a red story and of a green story and each story is made up of two pictures, the first picture being the same in either story. Both stories of a pair can be described by employing the same verb; the difference between them corresponded to the contrast between the perfective and the imperfective aspectual marking on the verb. The children’s task then is to match a stimulus sentence with the correct picture story.

We analysed our data and carried out a deep statistical analysis, to put our claims on firm ground. Our findings are very interesting. We investigated patterns in the acquisition of viewpoint aspect by the children and how these were affected by situation aspect across the ages. We found that children first acquire the imperfective best, at two years of age. During the acquisition process, the perfective and the imperfective are better employed as time goes by, until children develop adult-like competence. Turning to situation aspect, semelfactives and states are better employed from as early as the age of two. Accomplishments are well-attested at the age of three and finally children acquire achievements and activities. The statistical analysis we performed has actually shown that viewpoint and situation aspect are related, as the child is acquiring its grammar.

These findings are discussed in the light of C. Smith's aspectual features theory, and in the light of Cormack & Smith's (1999) event structure theory. We found that little children acquire event structure very early, at the age of three.

1.4.2. The "aliens" experiment

The second experiment, the 'aliens' experiment is presented in chapter 6. It is an elicited imitation task. Given that aspect interacts with aspectual adverbials, aspectual adverbials being sensitive to the perfective - imperfective distinction, the following idea triggered our experiment: if children can associate the properties of viewpoint aspect with those of aspectual adverbials, then this is an indication of them mastering the semantics of aspect. In the experiment the children had to teach the three little aliens the Greek language by means of repeating the stimulus sentences presented to them. This elicited imitation task was designed to reveal the child's representation of an adult sentence, including possible differences from the adult representation.

Our results have shown that the way children combine aspectual adverbials with verbs marked for viewpoint aspect provides insights into their acquisition of the semantics of aspect. This is looked at in terms of the means children employ towards production of the adult target: omission of the aspectual adverbial; changing of the aspectual marking on the verb, substitution of one aspectual adverbial for another one.

Furthermore, we examine children's comprehension of the semantics of perfective versus imperfective viewpoint aspect and their ability to successfully combine

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aspectual adverbials with verbs set for the perfective or imperfective value. With respect to the children's grammatical responses overall, children perform slightly better with the perfective aspectual marking rather than with the imperfective. This finding is surprising in terms of our findings in the previous chapter, where we found that imperfective is acquired better than perfective across the ages; in the present experiment, however, the difference in performance between the two is only marginal. This is linked to the key-role the aspectual adverbials play in these circumstances and is explained in terms of the mastery of the aspectual features by the children.

Finally, regarding the positioning of aspectual adverbials in children's grammars, it is found that they place them in immediately post-verbal position.

In conclusion, we have confirmed our initial hypothesis, which has been that the appearance of the morphological marking for aspect does not automatically entail the mastery of the semantic counterpart, rather, the semantics of aspect are acquired gradually. We have shown how the aspectual system is mastered in Modern Greek.

Let us now present the reader of this thesis with all the above in an in-depth presentation and analysis.

Chapter 2

ASPECT: THE THEORETICAL BACKGROUND

2.1. Introduction

The aim of this thesis is to present a theory of the acquisition of aspect under current theoretical assumptions. In order to achieve this, we are in need of an analysis that is the explicit target of the children's acquisition process. It is for this reason that the notion of aspect will be introduced and thoroughly analysed in this chapter, together with the basic features of the Modern Greek aspectual system.

Firstly, I will define aspect and distinguish it from tense, then I will analyse viewpoint and situation aspect. Aspect has a tripartite dimension, it has a morphological, a semantic and a syntactic manifestation; my aim is to present and analyse these in detail and provide the relevant characteristics of the MG aspectual system.

2.2. What is aspect?

Distinguishing between aspect and tense

Quite broadly, aspect is a descriptive cover term for a number of language particular categories that are characterised by partial semantic overlap and defined in terms of the grammaticalisation and lexicalisation of certain features.

In defining aspect¹ and formulating its characteristics, it is important to differentiate the meaning of the familiar term ‘tense’ from the meaning of the less familiar term ‘aspect’, particularly in view of the terminological and conceptual confusion of the two terms.

Tense, to begin with, is a grammatical category, indicated in the verb, that presents ‘a grammaticalized expression of location in time’ (Comrie 1985: 9). It is ‘a grammatical category, a set of verbal inflections or other verbal forms, that express a temporal location to an orientation point’ (Smith 1991: 136). The most common tenses² we find in languages are present, past, and future- though not all languages distinguish these three tenses, or indeed distinguish any tenses at all.

¹ It is significant that ‘there is no satisfactory term for ‘aspect’ in MG: neither *tropos* ‘way’ (Triandaphyllidis 1941: 312) nor *pion energias* (Babiniotis - Kondos 1967: 146-8) is helpful and neither is in wide use’ (Mackridge 1985: 102). Peter Mackridge further suggests the term *opsi* as a direct translation of the Russian *vid* (from which the term ‘aspect’ has itself been translated).

² Tenses are referred to either as absolute tenses, if they relate the time of the situation described to the present moment, or as relative tenses, where the time of the situation is being located relative to the time of some other situation.

Aspect (or verbal aspect) is quite different. Following Comrie (1976: 3), aspects are defined as being ‘different ways of viewing the internal temporal constituency of a situation’. The following minimal pair illustrates a typical aspectual distinction:

[(1.a.) *Otan*³ *elava tin karta sou, sou eyrafa* (impf) *gramma*.

When (I)-received the card your, (to)-you (I)-was writing (a)-letter.

When I got your card, I was writing a letter to you.

[1.b.] *Otan elava tin karta sou, sou eyrapsa* (pf) *gramma*.

When (I)-received the card your, (to)-you (I)-wrote (a)-letter.

When I got your card, I wrote a letter to you.

The difference in MG between *eyrafa* (impf) ‘I was writing’ and *eyrapsa* (pf) ‘I wrote’ is not one of tense, since the past tense is used in both cases. It is in this sense that aspect is distinct from tense, and, therefore, the oppositions between perfective and imperfective are treated as aspectual⁴. The imperfective aspect *eyrafa* ‘I was writing’ indicates that the process of writing a letter was in progress at the time of the arrival, without any indication of its completion, whereas the perfective aspect *eyrapsa* ‘I wrote’ depicts the writing as a completed event.

³ Throughout the thesis, I have given a phonemic transliteration of the Greek examples I am using, in such a way that I am consistent and that my examples can be easily read. However, there are some differences between my transcription and the Greek orthography. For example, in Greek there are six different writings for ‘i’: ει, υι, οι, ι, η, υ; I am using ‘i’ for all these. There exist two writings for ‘o’: ο, ω; I am using ‘o’ for both. Furthermore, in my transcriptions I favour ‘ou’ instead of ‘u’ for the Greek ‘ου’. Finally, the following are the orthographic equivalents of some of the Greek phones: ‘h’, stands for ‘χ’, ‘ps’ for ‘ψ’, ‘ks’ for ‘ξ’, ‘th’ for ‘θ’, ‘d’ for ‘δ’, and ‘y’ for ‘γ’.

⁴ These oppositions are aspectual even where the grammatical terminology of individual languages has a tradition of referring to them as tenses; i.e. *eyrafa* as past continuous tense and *eyrapsa* as past simple tense; indeed in this situation, the tense is one, it is the Past and the differences between the two forms are attributed to aspect.

This characterisation of aspect cannot be taken in isolation from time: both examples concern two events or processes, the arrival of the card and the writing of the letter, but the temporal relations between them are quite different⁵. Aspect, therefore, is related to time, but how is it different from tense? According to Dahl (1985), tenses are deictic categories, in the sense that they relate points to the moment of speech. Aspects, though, are non-deictic categories.

Comrie suggests the following way of making the distinction:

‘Aspect is not concerned with relating the time of the situation to any other time-point, but rather with the internal temporal constituency of the one situation. One could state the difference as one between situation-internal time (aspect) and situation-external time (tense).’ (1976: 5)

The distinction⁶ between Tense and Aspect also runs through temporal and aspectual adverbials, as will be elaborated in the next chapter.

⁵ In [1.a.] the time of the first event is included in the time of the second, whereas in [1.b.] the most natural interpretation is that the first precedes the second.

⁶ Departing from Klein’s (1995) proposal that Tense and Aspect relate two times, Demirdache & Uribe Etxebarria (2000, 2005) have developed a model of temporal representation that reduces Tense and Aspect to the same set of semantic and syntactic primitives. Their proposal is novel as it suggests that temporal interpretation does not take place at the end of the syntactic derivation; rather it takes place at different steps in the derivation, this suggesting that the interface between syntax and meaning is multiple (similar suggestions have been made for the syntax-PF interface (Nunes and Uriagereka 2000)).

2.3. The distinction between Situation and Viewpoint aspect

The aspectual meaning of a sentence conveys information of two kinds: a situation is presented from a particular perspective, or viewpoint; and the situation is indirectly classified as a state or an event of a certain type. Following Smith, these are two separate components of aspect, the viewpoint aspect and the situation aspect:

‘The viewpoint is generally indicated morphologically, with affixes or special forms; the situation type is indicated by a composite of verb, arguments, and adverbials. Thus the forms that specify each aspectual component coexist in a sentence.’ (Smith 1991: Introduction)

2.3.1. Viewpoint aspect: Aspectual distinctions: Perfective and Imperfective

Viewpoint aspect corresponds to what has often been called grammatical aspect; this concerns ‘the grammaticalisation of the distinction between perfective and imperfective aspect’ (Xydopoulos 1995: 118). It shows the way in which an event is presented, the particular viewpoint toward the described situation.

There are traditionally held to be two viewpoint types: the perfective, and the imperfective. Smith (1997: 3) summarizes their properties⁷ as follows:

‘Perfective viewpoints focus a situation in its entirety, including both initial and final endpoints.

Imperfective viewpoints focus part of a situation, including neither initial nor final endpoints.’

For example, note the difference between:

[2.a.] I Nina diavaze ena vivlio.

The - Nina was reading(IMPF) a book.

Nina was reading a book. and

[2.b.] I Nina diavase ena vivlio.

The- Nina read(PF) a book.

Nina read a book.

In [2.a.], the verb is imperfective. It presents the situation from an internal point of view, as ongoing (progressive) and enduring (continuous).

In [2.b.], the verb is perfective. It presents the situation from an external perspective, as completed.

⁷ ‘Mozer (1994) points out that the main semantic feature of the perfective is to look at the event structure as a whole, whereas imperfective aspect assigns a habitual or continuous interpretation to the predicate.’ (Tsimpli & Papadopoulou, 2006: 1597)

To recapitulate, with regards to the perfective-imperfective distinction, the perfective involves absence of duration or delimited duration, whereas the imperfective is to be characterised as unspecified with respect to the defining feature of the perfective. Rather, the imperfective explicitly refers to the internal temporal structure of a situation from within.

2.3.2. Situation aspect

Situation aspect corresponds to what is traditionally called lexical aspect; it is also known as inner aspect (Verkuyl 1972, 1993) or Aktionsart⁸. It denotes the internal temporal structure of an event, or event type: that is, the relationship between the verb, its arguments and the type of event that the two, taken together, denote. It refers to the characteristics of what is inherent in the lexical items that describe a situation and it distinguishes between different event types.

For example, note the difference between:

[3.a.] Mary ate a banana. and

[3.b.] Mary ate bananas.

⁸ 'Aktionsart' is a German word that means 'kind of action'. A distinction is drawn between aspect and aktionsart in the following two ways: 'The first distinction is between aspect as grammaticalisation of the relevant semantic distinctions, while aktionsart represents lexicalisation of the distinctions, irrespective of how these distinctions are lexicalised;' (Comrie 1976:7). This use of aktionsart is similar to the notion of lexical aspect. 'The second distinction (...) is between aspect as grammaticalisation of the semantic distinction, and aktionsart as lexicalisation of the distinction provided that the lexicalisation is by means of derivational morphology' (Comrie 1976:7).

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This illustrates the contrast between a durative and a terminative sentence where, the verb “eat” being constant, the aspectual differences in these sentences must be attributed to the difference between the complements (a banana, bananas).

To recapitulate, whether a verb characterizes a situation as having a temporal boundary or an end result is a matter of situation aspect, whereas whether the sentence presents a situation as ongoing (progressive/imperfective) or completed (perfective) is a matter of viewpoint aspect.

2.4. The tripartite manifestation of aspect

Aspect has morphological, semantic and syntactic realisation. Its morphological, semantic and syntactic properties will be presented below. It must be stressed that quite often the morphological and the semantic component are confused and referred to as one; however, they need to be clearly distinguished as, in acquiring aspect, children must master both components, and we need to be able to tell whether they have acquired the semantic component that is associated with the morphological one. Since the verb in MG is always marked morphologically for aspect, it is an open and interesting question whether in the beginning of the acquisition process children have acquired the semantics associated with it as well.

2.4.1. The morphological realization of aspect in Modern Greek

The following section is a description of the aspectual system in MG, as regards the perfective – imperfective distinction. Such viewpoints are similar across languages, but not identical.

Viewpoint aspect, just like any other grammatical category, may be expressed in terms of the inflectional morphology of the language in question. This is the case with Modern Greek (MG). Two kinds of viewpoint aspect exist in MG, the *imperfective*, which stems⁹ from the present theme of the verb and the *perfective*, which stems from the past theme of the verb. Aspect is then ‘marked by a change in the vowel and/or the final consonant of the verbal stem’ (Philippaki-Warburton 1970, cited in Tsimpli 1992:52).

Consider the verb *yrafo* (*write*) in MG. This has imperfective forms like *yrafo* (I write), *eyrafaa* (I was writing) and perfective forms like *yrapso* (I will write), *eyrapsa* (I wrote). The imperfective forms (*yrafo/eyrafaa*) stem from the present theme *yraf-*, whereas the perfective forms (*yrapso/eyrapsa*) from the past theme *yrapso-*. The past theme itself stems from the present theme *yraf-* plus a morpheme *-s-*; the result in this

⁹ Morphologically, the stem of the perfective is diachronically and synchronically more stable than the stem of the imperfective (i.e. the perfective stem of a large number of verbs has not changed since classical times, while their imperfective has; and with some verbs speakers who use the same perfective stem may differ in their usage of the imperfective: Mirambel 1959: 141 and Ebbesen 1979: 65-6); this coupled with the fact that in expressions of past or future action the perfective is the most frequently used aspect (it is the unmarked aspect in the sense that it may simply state that something happened or will happen - e.g. *na mou yrapsis* (pf) (write to me (once or more than once)), but *na mou yrafis* (impf) (write to me (regularly or often))- has led some grammarians to see the perfective as the basic stem of MG, regardless of the fact that it is always the imperfective (present) stem that appears in dictionaries.

case is *yrafs-*, but after the morphophonemic change *fs => ps*, the past theme finally is *yraps-*.

However, this pattern is not systematic. The aspectual opposition is often captured by idiosyncratic morphophonemic changes with or without the *-s-* morpheme. What is then the status of aspect in the verbal morphology?

Following Xydopoulos' analysis (1995: 128-130), MG verbs are classified into six groups¹⁰, according to the way they show the perfective-imperfective opposition. Groups A to D have a sigmatic perfective (with the morpheme *-s-*) and groups E and F have an asigmatic perfective.

To begin with, group A consists of verbs like *lino* (untie) or *zoyrafizo* (draw) (of the 1st *sizijia*); these form the perfective stem by changing the stem-final consonant to *-s-*

[4.a.]	li-n-o	→	li-s-o
	imperfective		perfective

[4.b.]	zoyrafi-z-o	→	zoyrafi-s-o
	imperfective		perfective

¹⁰ Modern Greek verbs are traditionally divided into two conjugation groups (*sizijies*) (according to Triantafyllidis 1941). The first *sizijia* includes all the verbs that stress the penultimate syllable (active voice) or the antepenultimate syllable (passive voice). The second *sizijia* includes the verbs that stress the ultimate syllable (active voice) or the penultimate syllable (passive voice). This division, however, is not sufficient to show the diversity of the aspectual morphology.

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[6.c.] hamoyel-o → hamoyel-a-s-o
imperfective perfective

[6.d.] hamoyel-u-s-a → hamoyel-a-s-a
imperfective perfective

Group D consists of verbs like *keo* (burn) of the 1st *sizijia*, which form the perfective stem by changing the vowel in the stem, by adding a stem-final consonant, and by then adding the morpheme –s-:

[7.] ke-o → k-a-p-s-o
imperfective perfective

Group E consists of verbs like *meno* (stay) of the 1st *sizijia*, which form the perfective stem by means of a change in the vowel of the stem:

[8.] men-o → min-o
imperfective perfective

Group F accounts for all the ‘irregular’ verbs, like *tro(y)-o* (eat) and *le(y)-o* (say), that display distinct stems for the imperfective and the perfective respectively (lexical suppletion) :

[9.a.] tro(y)-o → fa(y)-o
imperfective perfective

[9.b.] le(y)-o → p-o
imperfective perfective

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In recapitulation, the morphophonemic changes that are involved in forming the perfective stem of a verb include a change in the vowel and/or the final consonant of the verbal stem (with the imperfective as the default stem), and/or the addition of the –s- morpheme. The case of lexical suppletion (group F), where the perfective and the imperfective forms do not share a common stem, is a distinct one. Thus, all the above morphological distinctions are indicative of the fact that aspect is included in the verbal stem, as it is not possible to define a verbal stem without specifying aspect.

2.4.1.1. The Intersection of Tense and Aspect¹¹ in Modern Greek

Modern Greek has a perfective/imperfective opposition running through all tenses, moods and non-finite forms. This means that all tenses are aspectually determined for the perfective versus imperfective opposition.

Tense is not morphologically marked in all possible tense interpretations in MG. Present tense is not morphologically marked by an independent marker in MG. Rather, ‘the verbal form marked for imperfective aspect is interpreted, probably as a result of underspecification of tense features, as Present tense. Present tense could, thus, be considered as the ‘default’ interpretation in the absence of any morphological tense specification.’ (Tsimpli 1992: 53)

Further, in MG the presence or the absence of a prefix e- on the verbal stem specifies the past/present distinction. The past tense prefix combined with the aspectual

¹¹ This section is based on Tsimpli 1992: 53.

marking results in the two verbal forms known in the traditional literature as the Imperfect and the Aorist:

[10.a.] e-lin-a

past – untie (impf) – 1s

Imperfect tense

‘I was untying’

[10.b.] e-li-s-a

past - untie (pf) – 1s

Aorist tense

‘I untied’

In fact, [10.a.] and [10.b.] are of the same tense (Past) but of different aspect.

Finally, future tense¹² in MG involves the use of the modal particle *tha* with the verbal form marked with the relevant aspectual value. This results in the two verbal forms known traditionally as Future Instant and Future Continuous:

[11.a.] tha lin-o

future – untie (impf) – 1s

Future Continuous

‘I will be untying’

¹² The reader is referred to Tsangalidis 1999 for a comparative study of the category future.

[11.b.] *tha - li-s-o*

future - untie – pf – 1s

Future Instant

‘I will untie’

In fact, [11.a.] and [11.b.] are of the same tense (Future) but of different aspect.

2.4.1.2. ‘Distinct’ situations within the Perfective/Imperfective opposition¹³

One of the most interesting relationships between tense and aspect occurs when an aspectual distinction is restricted to one or more tenses, rather than operating across the board, independently of tense. Comrie suggests that ‘it appears that the tense that most often evinces aspectual distinctions is the past tense’ (1976: 71). This is indeed true of MG: there exist situations where either there is no aspectual opposition with a perfective form (that is there is no perfective) or the aspectual opposition is weakened.

There is no opposition with a perfective form:

- a] in the Present tense (*yrafo* ‘I write’ ‘I am writing’),
- b] in the conditional mood (*tha eyrafa* ‘I would write’),
- c] for the imperfective participle (*yrafodas* ‘while writing’),
- d] for some verbs which do not have perfective forms¹⁴ (*aniko* ‘belong’, *perieho* ‘contain’). In some cases, a verb of related meaning may supply the lacking perfective (*ime* ‘I am’: *iparho* ‘exist’, *ksero* ‘I know’: *ynoriso*, *matho* ‘learn’).

¹³ This section is largely based on Hesse 1980: 25-53.

2.4.1.3. *The 'Perfect Aspect'*

So far, two distinct aspectual values have been distinguished with respect to MG. However, it has been standardly assumed by Triantafyllidis (1941) and Tzartanos (1946) that in MG viewpoint aspect involves a tripartite distinction of the perfective, the imperfective and *the perfect*¹⁵. The perfect has been termed an aspect rather than a tense, since it consists of two tense-forms (traditionally called the 'perfect' and the 'pluperfect'), and it can be used, like each of the two aspects, in the various moods. However, the perfect is different from the perfective and the imperfective, which are concerned with different ways of representing the internal temporal constitution of a situation, because it does not reveal anything about the situation itself; rather, it relates a situation to a preceding one, it indicates the continuing present relevance of a past situation, because 'it always refers to a time anterior to another time (whether the latter be the time of the utterance or the time of another verb in the same linguistic context)' (Mackridge 1985: 116).

For Smith (1991), the perfect is a marked perfective with 'a span beyond the final point of the situation talked about'. In MG, we can distinguish morphologically only between the perfective and the imperfective. 'The so-called perfect aspect is a

¹⁴ On the contrary, very few verbs lack the imperfective alone; these are confined to certain fixed expressions. For example: the verb *hri matizo* occurs only in clauses like *ehri matise dimarhos* '(s)he served as mayor'

¹⁵A point of terminology: there is a clear difference between the 'perfect' and the 'perfective'. However, the source of both terms is the Latin *perfectus*, the past participle of *perficere* (to carry, end, finish, accomplish).

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periphrastic complex formed by the auxiliary (mostly *exo* (have)) and a non-finite (and indeclinable) form of the perfective stem of the verb and the ending *-i*.' (Xydopoulos 1995: 130). Given that the morphological specification of the perfect is that of the perfective, I will also assume that the perfect aspect is a distinct form within the perfective viewpoint aspect but that it is not itself an aspect.

2.4.2. Aspect in Modern Greek - The semantics

Aspect marks the linguistic expression of semantic distinctions in that by definition it depicts the viewpoint from which an event is presented. Further, 'knowing a language includes knowing the semantic values of its viewpoints, and their distribution according to situation types (Smith 1997: 3). In this section I will consider the semantic status of aspect, with special consideration of the following:

A] The semantics associated with the perfective – imperfective distinction

B] The semantics of situation aspect. I will present the major theories that have looked at the aspectual properties of different event types denoted by verbs falling under Vendlerian type verb classifications, and I will look at the ontology of events and at approaches that favour event semantics.

2.4.2.1. The semantics of viewpoint aspect

Before analysing the aspectual meanings denoted by the perfective and imperfective viewpoints, it should be noted that ‘aspect in MG concerns not the *location* of the action or state in time, but the speaker's attitude to its ‘temporal distribution or contour’’ (due to Hockett, cited by Lyons 1968: 315). The domain of aspect has an interesting subjective¹⁶ factor, because a choice between aspectual meanings is often available to the speaker.

The following basic concepts underlie the notion of MG aspect: in using the verb in the perfective, the speaker is viewing the action (or series of actions) as a single completed¹⁷ whole (neither progressive nor habitual); with the imperfective, (s)he sees the verb as referring to a series of repeated actions not viewed as a whole (iterative) or to a continuous action in progress (progressive or durative). Consider the following examples:

[12.] *Htes piya (pf) sto panepistimio.*

Yesterday (I) -went to the university.

'I went to the university yesterday.'

¹⁶ According to Mackridge (1985: 105), it is this subjective nature of aspectual distinctions that makes them so difficult for a non-native speaker to master. On the other hand, it would be quite wrong to say that the distinction in each case is purely dependent on the whim of the speaker: once the speaker has decided what (s)he means the hearer to understand, there is hardly ever choice in the matter.

¹⁷ Comrie (1976) points out that in defining perfectivity as indicative of a completed action, the word at issue in this definition is 'completed', not 'complete': the two words are very similar, but there exists an important semantic distinction which is crucial in the discussion of aspect. 'The perfective does not indeed denote a complete action, with beginning, middle, and end. The use of 'completed', however, puts too much emphasis on the termination of the situation, whereas the use of the perfective puts no more emphasis, necessarily, on the end of the situation than on any other part of the situation, rather all parts are presented as a single whole.' (Comrie 1976: 18)

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[13.] *Fitisa* (pf) *sto panepistimio Athinon.*

(I)-studied at the university of Athens.

'I studied (= carried out my studies) at the university of Athens.'

These examples refer to either a single action ([12.]) or to a series of actions ([13.] involving repeated visits plus various related activities) all viewed as a completed whole, and they both use the verb in the perfective.

On the other hand, the examples [14.] and [15.] below make use of the verb 'go' in the imperfective to refer to iterative and progressive actions respectively:

[14.] *Otan imoun mikri, piyena* (impf) *sto yimnastirio.*

When (I)-was young, (I)-went to the gym.

'When I was young, I used to go to the gym.'

[15.] *Htes, tin ora pou piyena* (impf) *sto yimnastirio, sinadisa ti Maria.*

Yesterday, the moment that (I)-was going to the gym, (I)-met the Maria.

'As I was going to the gym yesterday, I met Maria.'

'It is not the *actual* nature of the action that is crucial, but the way in which it is viewed by the speaker at the time of the utterance' (Mackridge 1985: 105); the journey to the university in [12.] may have lasted exactly the same length of time as the journey to the gym in [15.]; what conditions the use of the imperfective aspect in [15.] is the fact that something is expressed as having occurred during the journey.

'When a speaker uses the perfective, (s)he tends to stand at a distance from the action,

seeing it as a completed whole, irrespective of whether it occurs in the past or the future; when using the imperfective, the speaker's mental standpoint is not the time of speaking but the time of the action expressed by the verb.' (Mackridge 1985: 105) In [15.], the journey to the gym has begun but has not been completed by the time the speaker meets Maria: the journey here constitutes the circumstances of the single event (the meeting), which is expressed by a verb in the perfective.

2.4.2.2. The semantics of situation aspect

In this section I present the major theories that have looked at the aspectual properties of different event types denoted by verbs falling under Vendlerian type verb classifications; I also look at the ontology of events and at approaches that favour event semantics. I introduce the notion of aspectual coercion, the notion of compositionality and event structure. After careful consideration of these terms, it seems to me that an analysis of situation aspect would need to employ these elements, that is an event structure with aspectual coercion (in the sense that Moens and Steedman refer to coercion), where compositionality is of importance when considering the role of adverbial expressions and the way they will affect an approach to event structure. However, in this chapter I will concentrate on the introduction of these elements, and a discussion will be presented in the next chapter where the role of aspectual adverbial expressions to the determination of the aspectual status of a clause is decided.

A] Theories of situation aspect

a) Vendler

Situation aspect ‘concerns the classification of verbs and verb phrases according to their inherent aspectual properties’ (Xydopoulos 1995: 118). Vendler (1957, 1967) has provided the most influential classification. His aspectual classification of verbs is based on the event type they denote. He examines the internal structure of the verbs, the subevents, successive phases, and the initial points and endpoints that constitute it. These are interrelated with change over time, such that a succession of phases is used to describe change, and a certain period of time is needed for a situation involving change to evolve.

The Vendlerian classification of verbs into *activities*, *accomplishments*, *achievements* and *states* is defined as follows:

- (a) activity verbs, like “yelo” (laugh) and “treho” (run), encode situations as consisting of successive phases over time with no inherent endpoint.
- (b) accomplishment verbs (rather, verb phrases), like “htizo ena spiti” (build a house), also characterize situations as having successive phases, but they differ from activities in that they encode an inherent endpoint (e.g. house-building has a terminal point and a result); accomplishments have an outcome, a result which is achieved through change over a period of time.

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- (c) achievement verbs (rather, verb phrases), like “anaynorizo mia fili” (recognize a friend), “ftano stin korifi” (reach the top) encode situations as punctual and instantaneous. They take place over such a short time that they are perceived as momentary.
- (d) state verbs, like “ksero” (know), “thelo” (want), “kimame” (be asleep), encode situations as involving homogeneous states with no inherent endpoint. States depict situations which do not change in time and do not indicate, explicitly or implicitly, the beginning or the end of a situation. The fact that they do not involve change is their main difference from the other types of situation aspect; as we have seen those all make reference to change but differ in terms of endpoints and duration.

With reference to situation aspect and the “inherent endpoint” notion, activity and state verbs are “*atelic*”, not telic, in that they encode no endpoint, and accomplishment and achievement verbs are “*telic*”, in that they do encode an endpoint.

b) Smith

Smith (1991) maintains the four Vendlerian classes of verbs and introduces the new situation type of *semelfactives*, like “viho” (cough), “htipo” (knock). She argues that semelfactives resemble achievements in that they too encode situations as punctual, but differ from achievements in that semelfactives encode no endpoint. In attempting

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	States	activities	accomplishments	semelfactives	Achievements
Dynamic	-	+	+	+	+
Punctual	-	-	-	+	+
Telic	-	-	+	-	+

Table: Semantic features for the five categories of situation aspect (adapted from Smith 1991:30)

On aspectual features

Aspectual features, as these have been outlined by Carlota Smith, whose theory we have adopted, are fundamental for the understanding of aspect. They are related to the perfective imperfective distinction in that the morphological realization of aspect on the verb, that is, the aspectual marking for the perfective or the imperfective carries a meaning that is assigned by aspectual features. Furthermore, viewpoint aspect and situation aspect interact and one particular focus has been on whether the employment of the perfective or imperfective aspect is affected by the combination of aspectual features depicted in the different situation aspect types and vice versa. These are in fact the same features that characterize aspectual adverbials, as will be demonstrated in the relevant chapter¹⁸.

In Greek, as in other languages, ‘it is the combination of viewpoint aspect and situation type of the verb, together with the presence and the type of complements and adjuncts, which define the aspectual interpretation of the predicate’ (Horrocks and

¹⁸ The reader is referred to section 3.7.2.1. where Alexiadou’s theory on aspectual adverbials is discussed.

Stavrou, 2003, 2007, Sioupi, 2002, as cited in Tsimpli and Papadopoulou 2006: 1598). With respect to the situation type of a verb, this is affected by viewpoint aspect marking on the verb as well as by the presence and the type of complements of the verb. For example, activities are atelic in nature; if marked for perfective viewpoint aspect, they will have a telic reading assigned to them, thus making them accomplishments, unless they are combined with a bare noun which reassigns the desired atelic reading (Mozer 2001, Tsimpli & Papadopoulou, 2006). Note the following:

[17.a.] I Maria zoyrafize.

The- Mary was painting (IMPF).

Mary was painting.

[17.b.] I Maria zoyrafise.

The- Mary painted (PF).

Mary painted.

[17.c.] I Maria zoyrafise zoyrafies.

The – Mary painted (PF) pictures.

Mary painted pictures.

[17.a.] is an activity. In [17.b.] the verb is perfective, changing the reading to a telic one and changing the situation type to accomplishment. In [17.c.], on the other hand, the verb is perfective but is followed by a bare noun, thus assigning the atelic reading again.

In the same fashion, let us discuss [18] below:

[18.a.] O babas aneveni ta skalopatia.

The dad goes up (IMPF) the stairs.

Dad goes up the stairs.

[18.b.] O babas anevike ta skalopatia.

The dad went up (PF) the stairs.

Dad went up the stairs.

[18.c.] O babas anevike ena ena ta skalopatia.

The dad went up (PF) the stairs one by one.

Dad went up the stairs one by one.

[18.a.] has a semelfactive reading; it denotes an atelic and punctual event. In [18.b.], however, the verb is perfective and the event is assigned a telic reading, thus becoming an achievement. The complement of the verb is different in [18.c.] and is designed to imply iteration of the punctual event, thus reassigning the semelfactive reading to the clause. The same reading would be established if the complement were the bare noun ‘skalopatia’ (stairs). This is in line with Borer’s theory (1994, 1998, 2004), where the semantic component of situation aspect is argued to be syntactically determined and is held responsible for argument realisation. Aspect, then, characterizes not only the verb but the predicate and other components of the clause

as well, these constituting different levels of semantic analyses of aspectual properties.

In the next section we will focus on accounts involving event structure. Eventually, we can examine how they can be combined with the event type classification of Smith, that is, the Vendlerian classification that Smith (1991) revised which I adopt in my thesis.

B) Event structure

1- Event entity - The notion of event

Event structure is used to characterise events. The question is: what is an event? Is an event to be considered as an entity by itself? If this is true, how is it to be justified? Davidson (1980) presented arguments to justify event individualhood. The starting point for Davidson was that of *pronominalisation*. In an utterance like:

[18.] “Mary played the piano. She did IT at midnight under the moonlight.”

The “IT” of “She did it at ...” “seems to refer to some entity, presumably an action, that is then characterised in a number of ways” (Davidson 1980:105).

2- Event structure

So, how are we to analyse events? What is the nature of their internal structure? Are events best analysed as “properties of points of time, properties of intervals of time, or primarily as entities in their own right”? (Evans 1998: 17) By deciding among these, Pulman (1997) suggests that we can calculate the aspectual status of a sentence:

“Determination of aspectual status of a sentence or phrase means working out whether it describes an event or a state, and what semantically relevant internal structure the event or state might have... The aspectual status of a sentence presents a particular way of looking at an episode or situation, or a component of an episode or situation, such that contextual assumptions about its temporal, causal, or relevance relations to other events are required for felicitous interpretation” (Pulman 1997: 279-280)

It is in this fashion that Pulman introduces the notion of event structure: “what semantically relevant internal structure the event or state might have” (279)

Event structure has been looked at by Moens (1987), Moens and Steedman (1988), Pustejovsky (1991), Higginbotham (1995), Evans (1998) and Cormack & Smith (1999). Their accounts as to what event structure is necessary to characterise events differ from a two-part event structure (Pustejovsky, Higginbotham), to a two-part structure with coercion (Pulman), to a three-part event structure (Moens and Steedman) that invokes coercion, to a non-inherently coercive three-part event

structure (Cormack & Smith), to a non-coercing event structure (Evans) where event structure is represented in conceptual structure.

What follows is an overview of these proposals. Given that we follow the Vendlerian classification in our analysis of situation aspect, we will use the Cormack & Smith event structure proposal, because (like Moens and Steedman) their account incorporates the Vendlerian classification and further they suggest a non-inherent aspectual coercion network, which can account for the Greek language, as it will be shown in the aspectual adverbials chapter (section 3.6.1.). They believe that coercion may be avoided sometimes, so they accept that coercion is *sometimes* required¹⁹.

a)- Higginbotham

Higginbotham proposed a two-part event structure. He adopted the Davidsonian notion of event as an entity and suggested that an event variable should in fact be regarded as a tuple $\langle e_1, e_2 \rangle$, in which both the process or activity (“motion in space”) and the telos (“state of being”) of an event are represented.

Higginbotham (1995) claims that the thematic structure of verbs includes an open position that is referred to as the event thematic position in the theta-grid, the E-position. So, it follows that the lexical entry for the verb "catch" can be exemplified as:

¹⁹ It is not obvious if that is relevant to acquisition; the child might have two entries for the verb *hiccup*, one of which involved a single hiccup, and one for sequences. Then coercion for *Julia is hiccupping* would be avoided. With only one entry coercion would be necessary.

(catch, +V -N [1,2,E])

The information in the theta grid includes the number of arguments associated with the verb "catch", and the E-position, which appears in the thematic structure of any verb.

Higginbotham employs his two-part event structure to disambiguate the sentence:

[19.] The boat floated under the bridge.

This sentence may have two readings: in the first reading the boat is described as being in the state of floating under the bridge at some point in time in the past; in the second reading the boat is not in that state any more, but after floating under the bridge it is now moving away from it.

b)- Evans

Evans (1996, 1998) proposed a tripartite event structure, which consisted of a preparatory event facet, an actual event facet, an ensuing event facet, and an event time, ε , which is understood "as the time at which the event is considered to have irrevocably happened" (Evans 1996:107). His account is a non-coercive one.

Aspect: the theoretical background

c) Moens 1987 and Moens and Steedman 1988

They proposed a three-part event structure, which consists of *a preparatory process, a culmination and a consequent state*. Further, Moens (1987) proposed an event categorisation, in which he incorporated the Vendlerian classification:

Vendler	Moens
state	State
Activity	Process
accomplishment	culminated process
“semelfactive” (Smith 1991)	Point
achievement	culminated point

Moens’ aspectual classification is not verbal but propositional. Coercion is an important feature in this theoretical approach:

“The phenomenon of change in the aspectual type of a proposition under the influence of modifiers like tenses, temporal adverbials, and aspectual auxiliaries is of most central importance to the present account. We shall talk of such modifiers as functions which ‘coerce’ their inputs to the appropriate type, by a loose analogy with type-coercion in programming languages” (Moens and Steedman 1988:17)

Aspect: the theoretical background

Moens' "aspectual network" confines itself to "possible transitions from one aspectual category to another under the influence of sentential and extra-sentential context together with the associated changes in meaning and assumptions which the context must support" (1987:45). In his aspectual coercion network, there exist "addition" coercions by means of which "an extra 'layer' of meaning is added to the 'basic' meaning of the category" (1987:45). There also exist "stripping" coercions: "This should not be taken too literally: whatever layer of meaning is stripped off is not lost. In the example *he read a novel for a few minutes*, the process of reading is still described as extending towards the point where he *finished the novel*. Saying that this culmination point is 'stripped off' just means that that particular part of the meaning is not talked about for the time being; the focus has shifted to other layers of meaning" (Moens 1987: 45). In the next chapter we will see how adverbials are meant to carry the function of coercion in Moens system and how they perform the transition of one aspectual category to another.

d - Cormack & Smith 1999: A different perspective on event structure

Cormack and Smith (1999) claim that 'an event itself must be decomposed in order to account for the properties of 'event composition'(p.275). They based their event decomposition on the event structure proposed by Moens and Steedman (1988), in order to account for aspectual properties of English and the extraction of features from a Vendlerian classification of events. They only differed from Moens and Steedman in one way: they eliminated the culmination time. Otherwise, it was a

Aspect: the theoretical background

matter of claiming that the sub-eventualities in the event structure which are *grammatically* encoded are tied to theta structure.

In the table below is Cormack and Smith's (1999) analysis of event types. They have PROCESSES and CULMINATED PROCESSES and they note that these extend over time. Their instantaneous events include POINTS and CULMINATIONS. Finally there are STATES. So, their events are categorized using two binary features: [atomic/extended] and [+/- consequent state].

	EVENTS		STATES
	Atomic	Extended	
+ consequent state	CULMINATION	CULMINATED PROCESS	
- consequent state	POINT	PROCESS	

Furthermore, regarding event structure, following Cormack and Smith's analysis, only Culminations and Culminated Processes have internal structure assigned to them, whereas Points and Processes are not intrinsically structured as they are not extended in time. States 'cannot be temporally structured, since they hold by definition over all sub-intervals of the interval for which they hold' (p. 275). In this way there are now

Aspect: the theoretical background

three categories of eventuality (tri-partite event structure): Process/Point, State, and Culmination/Culminated Process.

As we have already stated and explained, we adopt Cormack and Smith's theory as the most appropriate approach to analyse our events and examine children's acquisition of event structure.

2.4.3. The syntactic status of aspect in MG

In this section, I will outline the syntactic status of aspect in the framework of the syntactic theory of minimalism.

In the literature aspect has mostly been treated as a functional category.

Before we look into the syntactic status of aspect as a functional head, the following questions need to be answered first: What is a functional category? What are the properties of functional categories?

2.4.3.1. Defining the nature of functional categories²⁰

Froud 2001 quite correctly observes that the terms “functional classes”, “function words”, “functional heads”, “functional categories” as opposed to their “lexical” counterparts have been used in a vague and unclear way. What are the properties of

²⁰ Functional categories in different theories of language acquisition will be discussed in chapter 4.

each one of these sets of categories? On what basis are we to draw the distinctions among them?

Following Froud (2001), “*function words*” are taken to be “those functional categories with a free morphological, phonological and/or orthographic representation; function words can be heard, and are not bound to a substantive.”

“*Functional categories*” is a “much broader term, and includes all those categories (pronounced or not, free or bound) which are directly relevant to the syntax.”

“*Functional heads*” are a subset of functional categories, and this term includes all those items (overt or covert) that head a functional phrase in the functional domain.

Functional categories generally have certain features in common with each other: they are the locus of parametric variation (Ouhalla 1991; Wexler & Manzini 1987), and they often have zero alterations. (Froud 2001:37-38)

2.4.3.2. Aspect as a functional category

We treat aspect as a functional category and more specifically as a functional head. Given our outlook on syntax, aspect cannot solely involve a morphological operation. Our theory adopts Cinque, which requires aspect to be a functional head if Kayne’s Linear Correspondence Axiom (LCA) is to hold.

This approach has also been followed by Alexiadou (1994). In her theoretical account, aspect in Modern Greek is taken to head its own functional projection in the Syntax. Aspect must in fact be a functional head if in Cinque’s (1999) (and her)

theory of adverbs the adverbial licensing criterion is to hold: “adverbs are licensed as specifiers of functional projections by the relevant feature associated with the head”(1994: 46). Additionally, each adverb class is licensed by one and only head. This claim presupposes the existence of features in the adverbs, which must be in an agreement relation with the licensing head, and entails that the distribution of base generated adjuncts cannot be arbitrary. So, if we look at aspectual adverbials, these are generated in the specifier position of the AspP in MG and are licensed under feature matching.

This is the theoretical framework this thesis is built on to further take into account the close relation between aspectual adverbials and verbal aspect in the aspectual interpretation of a clause. If aspect did not head its own functional projection, then we would not be able to account for the licensing of the aspectual adverbials and for their interaction with verbal aspect.

However, even if aspectual adverbials were treated as adjuncts, even if we were not to follow the line of Cinque and Alexiadou, and follow an adjunct approach instead, aspect would still need to head its own maximal projection. Chomsky in his *Barriers* monograph concludes that the only type of adjunction operations which can result from movement are adjunction of one head to another or of one maximal projection to another. Radford says (1997: 423) that the same would be true of the merger operations which attach adverbial adjuncts to the expressions they modify: and this in turn would rule out the possibility of merging an adverb with an intermediate projection, but would allow for structures where an adverbial (which is itself a maximal projection) is an adjunct to the maximal projection itself. So, in this sense,

aspect needs to be a maximal projection itself, in order to merge with aspectual adverbials.

Furthermore there have been other proposals in the literature that pursue and present evidence in our direction.

Xydopoulos (1996) presents an argument for aspect as a functional category. Although verb forms in early child language come marked for aspect, this does not mean that aspect cannot be a functional head. He agrees that “it (the fact that verb forms come marked for aspect in early child language) does suggest that the morphological formation of these forms involves a lexical operation and cannot be assigned solely to syntax. The minimalist programme assumes indeed that the lexicon is responsible for morphological operations and that morphology is distinct from syntax. However, the role of syntax is to construct interpretable strings of lexical items. So, syntax needs to evaluate the grammatical specification of each lexical item inserted in a derivation, this being the purpose of feature checking. In the same spirit, I feel that we need to postulate an aspect phrase in order to be able to evaluate the aspectual specification of verbs...” (1996: 145)

I agree with the distinction that Xydopoulos draws between the morphological component of aspect and the syntactic-semantic one. It is indeed upon this dichotomy that part of my research is based and that its results will point to: in my opinion, the fact that quite early in child language the verbal forms that children come up with are necessarily marked for aspect does not entail that children have mastered aspect and that it is already an acquired part of their grammar. It is for this reason that my

research distinguishes between the morphological and the semantic and syntactic component of aspect and investigates when children come to master which component.

Xydopoulos further states that “aspect (i.e. viewpoint aspect in terms of Smith 1991) is a functional category in view of the fact that it contains interpretable features linked to the morphology of the verb and so it can be thought of as providing instructions at the LF interface, at least.”

Ouhalla (1991) also agrees that aspect is a functional head projecting in the structure. For him, one piece of evidence comes from the fact that in some languages tense and aspect morphemes are attached to distinct verbal items (e.g. main and auxiliary verb) often separated by other elements. As Tenny (1987) and Rivero (1990, 1992) have suggested among others, he proposes that aspect should be represented as a projection immediately above VP (this reflects the close connection of aspect to the verbal stem).

However, there have been different approaches to the syntactic status of aspect in the literature. Below is the counterpart of our position on the status of aspect.

2.4.3.3. A different claim on aspect

Tsimpli (1992) claims that aspect is not part of the functional projections. In her approach to event structure she follows the line of Higginbotham (rather than

Cormack and Smith that we follow), and believes that aspect is better analysed as an argument on the verb due to its role with respect to the E-position in the theta grid. Tsimpli attributes this to the distinct status of aspect from the other functional categories. She argues that it does not project as an independent category in the clause structure and no parameterisation is linked with it, as it has a close (morphological) relation to the verb stem and that it involves a lexical process of affixation.

However, the evidence regarding the syntactic status of aspect as a functional head that we have already presented is so overwhelming and further, given our outlook in syntax, we will treat aspect as a functional category that heads its own maximal projection.

2.5. Conclusion

In conclusion, in this chapter I have presented and discussed aspect in its three dimensions: the morphological, the semantic and the syntactic. I have also provided a description of the aspectual system in Modern Greek. In the next chapter, I will analyse the nature of aspectual adverbials and I will examine how aspect interacts with them.

Chapter 3

ON ASPECTUAL ADVERBIALS

3.1. Introduction

Aspect is a property of the whole clause rather than only of the verb in that clause. Several factors, including the inherent meaning of the verb, the adverbial expressions that occur with the verb, the complements of the verb and their status -plural or singular, mass or count, the case they are marked for-, the verb being in a main or in a subordinate clause, the verb being preceded by subjunctive markers or not, one verb governing the aspect of another verb (subordination with the introductive 'na' in Greek) account for aspectual differentiation and determine the aspectual value of the clause.

This chapter presents a detailed account of the relation of verbal aspect with aspectual adverbials in MG. The focus is on the role of adverbial expressions in the determination of aspect in MG. The following will be discussed:

- a] adverbs and the theoretical accounts that exist in the literature about them,
- b] aspectual adverbials in MG, how they fit in a theory of adverbs and how they are to be differentiated from temporal as well as 'aktionsart' adverbials
- c] aspectual coercion

d] the syntactic status of adverbs

3.2. Definitions

A distinction needs to be drawn between *adverbial* and *adverb*. In my approach, “*adverbials*” is a term broader than that of “*adverbs*”. Adverbs are a subcategory of adverbials, whereas “adverbials” is “an-all-inclusive” syntactic category (AdvP), which refers to all the grammatical categories that may *function* as an adverbial phrase. An adverbial is any word, phrase or clause that can adjoin to the verb phrase and adds 'extra' information to the clause.

What can an adverbial be?

[a] An adverb (*tora* 'now', *htes* 'yesterday', *pote* 'when'),

[b] a clause (*otan irthe i Maria* 'when Maria came'),

[c] a prepositional phrase (*se mia ora* 'in an hour', *gia dio ores* 'for two hours'),

[d] certain noun phrases (*to mesimeri* 'at noon', *ton perasmemo hrono* 'last year'),

can all be adverbials in MG (as well as in other languages).

In my approach to aspectual adverbials later on, I will include adverbs, prepositional phrases and certain adverbial noun phrases, and I will regard them as one category, that of “aspectual adverbials”, which in Cinque’s approach corresponds to “aspectual adverbs”. I regard the abovementioned ([a], [c] and [d]) as one category; that is more than one syntactic category/structure falls under one semantic category, the semantics

that aspect is responsible for; the structures may vary, but they may carry/convey the same meaning. The parallels between adverbs and prepositional phrases are well-recognised in the literature. Further, it has been proposed that adverbial noun phrases constitute a special case; they are "concealed" prepositional phrases²¹; they have been analysed as prepositional phrases headed by a zero preposition (Bresnan and Grimshaw 1978, Emonds 1987, McCawley 1988).

3.3. Adverbial classifications

3.3.1. Temporal adverbials vs aspectual adverbials

When examining aspectual adverbials, they need to be distinguished from temporal adverbials; indeed aspectual adverbials are seen as a subclass of the temporal ones in the literature (Lonzi 1991).

Tense and aspect are both related to time; tense is 'a grammatical category, a set of verbal inflections or other verbal forms, that express a temporal location to an orientation point' (Smith 1991: 136), whereas aspect regards the 'different ways of viewing the internal temporal constituency of a situation' Comrie (1976:3). Deixis is a notion related to time and provides the grounds to distinguish tense from aspect. A system which relates entities to an external reference point is termed a deictic system; therefore, tense is deictic. Aspect, by contrast, is non-deictic, since discussion of the

²¹ However, Larson (1985) proposes a feature-based licensing for adverbial NPs, treating them as real NPs. Xydopoulos (1994) also suggests that they are ordinary NPs, as they may also be used as arguments of the verb, in which case they have all the syntactic properties of arguments.

internal temporal constituency of a situation is quite independent of its relation to any other time point.

Tense and aspect are complementary temporal systems; the former locates a situation in time, while the latter specifies the internal temporal structure of the situation. Accordingly, aspectual adverbials are a subclass of temporal adverbials, as both classes are time-related and they both lexicalise time reference from a different perspective. Temporal adverbials locate situations in time; in Modern Greek, temporal adverbials such as *simera* (*today*), *perisi* (*last year*), *stis pede* (*at five o'clock*) lexicalise time reference. Aspectual adverbials, on the other hand, point to the internal temporal properties of a situation, in particular, duration, frequency. In MG, *via mia ora* 'for an hour', *kathe toso* 'every so often' are aspectual adverbials.

3.3.2. Aspectual adverbials vs aktionsart adverbials

A distinction needs further to be drawn between aktionsart and aspectual adverbials. (see also: Rivero (1992) (followed by Alexiadou (1994;1997) and Xydopoulos (1996))

Aktionsart adverbials refer to the inherent properties and characteristics of the verb. According to Rivero, they modify aktionsart characteristics, aktionsart being defined as "the lexicalisation of semantic aspectual distinctions by means of derivational morphology" (Xydopoulos 1996) and applying to "the denotata of verbs, rather than to some semantic property of the verbs themselves" (Lyons 1977:706). Examples are

provided by adverbials like *pali* ‘again’, *ksana* ‘again’, *sihna* ‘often’ and *dipla* ‘twice’ which modify aktionsart characteristics, like the durativity and the iterativity of an action.

Aspectual adverbials are to be differentiated from aktionsart ones by the following fact: the former are sensitive to the aspectual marking of the verb in the clause they occur in, the perfective - imperfective distinction, whereas the latter are not. Consider the following:

[1.a.] Horeve ksana (aktionsart adverbial).

Was dancing (IMPF) again.

He was dancing again.

[1.b.] Horepse ksana (aktionsart adverbial).

Danced (PF) again.

He danced again.

[1.c.] Horeve akomi (aspectual adverbial).

Was dancing (IMPF) still.

He was still dancing.

[1.d.] *Horepse akomi²² (aspectual adverbial).

Danced (PF) still.

He still danced.

²² *Akomi* may also mean “additionally, in addition” and may be used as a sentential adverbial. In this case it is not an aspectual adverbial and it can appear in a clause as follows: *Akomi, horepse*. (In addition, he danced.) Not being an aspectual adverbial in such a case, it is not sensitive to the perfective-imperfective distinction.

On aspectual adverbials

The semantic differences between aspectual and aktionsart adverbials are syntactically substantiated as well. In MG, as shown by Rivero (1992), aktionsart adverbials are able to incorporate into the verb, whereas aspectual (and temporal ones) cannot. Note the following examples:

[2.a.] Mou eyrapse ksana yramma.

Me wrote again letter.

He wrote again a letter to me.

[2.b.] Mou ksanaeyrapse yramma.

Me again- wrote letter.

He wrote a letter to me again.

Ksana (again) is an aktionsart adverbial, and it incorporates with the verb above.

But:

[3.a.] Eyrafe sinithos yrammata.

Wrote usually letters.

He was usually writing letters.

[3.b.] * Sinithos-eyrafe yrammata.

Usually was writing letters.

He usually-was writing letters.

On aspectual adverbials

[4.a.] Mou eyrapse htes.

Me wrote yesterday.

She wrote to me yesterday.

[4.b.] *Mou htes-eyrapse.

Me yesterday-wrote.

She yesterday-wrote to me.

Sinithos (usually) and *htes* (yesterday), being aspectual and temporal adverbials respectively fail to incorporate.

3.4. Aspectual adverbials classification

Aspectual adverbials can be classified as follows:

a] Durative adverbials:

i) *mera me ti mera* ‘as the days go/went by’, *yia mia ora* ‘for an hour’, *apo tis duo os tis eksi* ‘from two to six o'clock’.

ii) (durative) completive adverbials: *se mia ora* ‘in an hour’, *se deka lepta* ‘in ten minutes’.

b] Frequency adverbials:

i) indefinite frequency adverbials: *kathe toso* ‘every so often’, *kathimerina* ‘daily’, *kamia fora* ‘occasionally’, *pote* ‘never’.

ii) definite frequency adverbials: adverbials denoting number of times (cardinal count adverbials): *dio fores* ‘twice’, *ametrites fores* ‘innumerable times’.

and also: *tris fores tin ebdomada* ‘three times a week’, *dio fores to hrono* ‘twice a year’.

c] Point adverbials: adverbials denoting a point in time *amesos* ‘immediately’, *ton Iounio* ‘in June’.

This classification regarding MG aspectual adverbials follows the classification systems that Smith (1997: 112) and Mackridge (1985: 106) have proposed for languages in general and for MG in particular, respectively. The basic difference is that they refer to them as temporal adverbials, as they do not consider aspectual adverbials as a separate class. According to Smith, the main types of temporal adverbials are: locating adverbials, durative adverbials, completive adverbials and frequency adverbials. I have considered completive adverbials as a subclass of the durative ones. Following Mackridge, the main categories of MG temporal adverbials are: adverbials denoting a point in time, adverbials denoting frequency or duration, adverbials denoting number of times. My classification keeps frequency and duration adverbials distinct, whilst it includes adverbials denoting number of times (cardinal count adverbials) as a subclass of frequency adverbials. Finally, Smith and Mackridge’s classification concerns temporal adverbials only, as they do not refer to aspectual adverbials. We, however, have classified frequency, durative and point adverbials as a distinct category, that of aspectual adverbials, given the distinct features they have as opposed to the temporal ones.

In the light of the above classification, and as will be further illustrated, durative and indefinite frequency adverbials require the imperfective marking on the verb, whereas cardinal count, completive, definite frequency, and point adverbials normally require

the perfective. This is exemplified in the following sets of examples, which highlight aspectual adverbials' sensitivity to the Perfective - Imperfective distinction, that is, their "preference" of the one or the other aspectual marking on the verb.

[5.a.] I Maria etroye ena payoto kathe mera.

The Mary was eating (IMPF) an ice-cream every day. (indefinite frequency adverbial)

Mary was eating an ice-cream every day.

[5.b.]*I Maria efaye ena payoto kathe mera.

The Mary ate (PF) an ice-cream every day. (indefinite frequency adverbial)

Mary ate an ice-cream every day.

[6.a.] I yatoula niaourize yia mia ora.

The cat was mewling (IMPF) for an hour. (durative adverbial)

[6.b.] *I yatoula niaourise yia mia ora.

The cat mewed (PF) for an hour. (durative adverbial)

The cat mewed for an hour.

[7.a.] Piyame sto tsirko mia fora.

Went (PF) to the circus once. (cardinal count adverbial)

We went to the circus once.

[7.b.] *Piyename sto tsirko mia fora.

Were going (IMPF) to the circus once. (cardinal count adverbial)

We were going to the circus once.

It should be noted here, that one of our experiments on the acquisition of aspect (and the semantics of aspect) was based on this fact; that is, if aspectual adverbials are sensitive to the perfective – imperfective distinction, it is because they carry aspectual features, they encode information regarding the aspectual viewpoint from which an event is presented in a clause. This “sensitivity” in carefully formed stimulus sentences is expected to provide indications about the children’s acquisition of the semantics of aspect. In this sense, we may say that the perfective and the imperfective encode certain aspectual properties, and so do the different types of aspectual adverbials; therefore, we aim to look at how the children associate the properties of aspect on the verb with the properties of the aspectual adverbials, which would give us insights into the issue of the acquisition of the semantics of aspect. As will be shown in chapter 6, the stimulus sentences of our task were designed to combine the two, that is, a verb marked for the perfective or the imperfective together with an aspectual adverbial.

3.5. Aspectual adverbials analysed

3.5.1. Adverbials denoting point in time

Point adverbials denote a point in time, they specify 'a moment or interval which temporally locates the situation in some way; the relation of the specified time to the situation is vague' (Smith 1991: 155). They²³ combine with the perfective aspect.

Consider the following examples:

²³ Point adverbials are also known as 'frame adverbials' (Bennett and Partee 1972). As the term suggests, the situation talked about fills the time frame specified by the adverbial.

[8.] *Fayame mesimeriano stis 2:00.*

(We)-ate (PF) lunch at 2:00.

We had lunch at 2:00pm.

The point adverbial combines with the perfective *fayame* ‘we ate’ to indicate a completed action.

Point adverbials can also be temporal adverbials, in the sense that they can locate an event in time. However they can be aspectual in some cases; i.e. *stis eksi* ‘at six o'clock’ as opposed to *apo tis dio os tis eksi* ‘from two to six o'clock’, where the former is temporal in locating a situation in time, but can be aspectual, thus pointing to the specific moment as opposed to the later (*apo tis dio os tis eksi* ‘from two to six o'clock’) which marks the duration.

3.5.2. Durative Adverbials

Adverbials of duration contribute to the location of a situation in time with specific emphasis on its duration. They combine with the imperfective aspect and they are compatible with atelic sentences. Consider the following example:

[9.a.] *Mera me ti mera i katastasi tou veltionotan.*

Day with the day the-situation-his was improving (IMPF).

As the days went by his situation was improving.

* [9.b.] *Mera me ti mera i katastasi tou veltiothike.*

Day with the day the-situation-his improved (PF).

As the days went by his situation improved.

In [9.a.] the durative adverbial *mera me ti mera* ‘as the days went by’ co-occurs with the imperfective to emphasise the duration of the atelic event of the improvement of a situation. It would be ungrammatical for the perfective aspect to occur instead [9.b.].

[10.a.] *O Kostas eyrafe apo tis dio os tis eski.*

(The)-Kostas was writing (IMPF) from two to six.

Kostas was writing from two to six.

In [10.a.] emphasis is put on the duration of the event of writing, which has the semantic feature of being atelic, as it has an arbitrary final point: it can stop any time. Again the durative adverbial combines with the imperfective aspect *eyrafe* ‘was writing’ in an atelic sentence.

However, sometimes the co-occurrence of a durative adverbial with the perfective aspect of a verb in a telic situation is possible:

[10.b.] *O Kostas eyrapse to dokimio apo tis dio os tis eski.*

(The)-Kostas wrote (PF) the essay from two to six.

Kostas wrote the essay from two to six.

In this case, the durative adverbial *apo tis dio os tis eksi* 'from two to six'²⁴ co-occurs with the perfective aspect in a telic sentence. This example ([10.b.]) requires a special interpretation. It puts emphasis on the situation type of the event; writing the essay is an accomplishment, it is a dynamic durative telic event consisting of a process with successive stages and an outcome. Thus, the appearance of the definite noun phrase (object) in the example [10.b.] is important and can be discussed in terms of *aspectual coercion*. There may also exist an implication hidden behind the use of the perfective aspect: Kostas might have intended (planned) to write the essay in more than just four hours, but he had to complete it in four hours either because the only time he had at his disposal was from two to six, or because he might have been so good and fast that he actually succeeded in completing his task at the interval from two to five.

Moreover, the durative adverbial *apo tis dio os tis eksi* 'from two to six' in this situation ([10.b.]) is not a simple durative adverbial, it is a *(durative) completive adverbial*. According to Smith, 'Completive adverbials locate an event at an interval, during which the event is completed. They are telic in aspectual value.' (1991: 157). Completive adverbials are compatible with telic events, and odd with atelic ones. They combine with the perfective:

[11.] O Yioryos pistepse sta fadasmata se mia ora.

The-Yioryos believed (PF) in ghosts in an hour.

Yioryos came to believe in ghosts in an hour.

²⁴ From the uses of the temporal adverbial *apo tis dio os tis eksi* 'from two to six', we reach the conclusion that there exist adverbials that can belong to both sub-categories of durative adverbials: they can be either general durative adverbials or durative completive adverbials.

In [11.], the completive adverbial *se mia ora* ‘in an hour’ requires the perfective aspect *pistepse* ‘believed’. The interpretation of this telic clause is that at the end of an hour Yioryos had begun to believe in ghosts. As regards the situation types of the events, this is an achievement. Achievements are dynamic, telic, instantaneous events and so is the starting point of believing in ghosts in this case.

In the case of accomplishments, the perfective co-occurs with completive adverbials as well:

[12.a.] I Maria mayirepse ena iperoho fagito se misi ora.

The-Maria cooked (PF) a delicious meal in half-(an)-hour.

Maria cooked a delicious meal in half an hour.

In [12.a.], the implied meaning is that Maria succeeded in preparing an excellent meal in the interval of just half an hour. The telic event of the cooking of the meal went through all its stages and reached an outcome in the time interval the completive adverbial had set.

An interesting exception involving the situation type of achievements, however, occurs when the achievement has an interpretation that involves repetitions in the context of a completive adverbial:

[12.b.] I Maria mayireve ena iperoho fagito se misi ora.

The-Maria cooked (IMPF) a delicious meal in half-(an)-hour.

Maria cooked (=used to cook) a delicious meal in half an hour.

The imperfective *mayireve* ‘cooked’ combines with the completive adverbial in this case, because the event is seen from a habitual point of view: the interpretation is that Maria used to prepare meals in half an hour, she was cooking delicious meals frequently. The habitual viewpoint (which denotes frequency in a sense) seems to override in this situation and, therefore, the imperfective is selected instead of the normally expected perfective aspectual value of the verbal form.

3.5.3. Frequency Adverbials

Frequency adverbials provide information that contributes to the temporal location of a situation. They do so by ‘indicating the recurrent pattern of events or states within the reference interval’ (Smith 1991: 159). The presence of a frequency adverbial makes a sentence unequivocally habitual, but it is not always required for the habitual interpretation.

In MG, frequency adverbials select the imperfective aspect of the verb in the clause they occur in. Such sentences as the one to follow, where the matrix verb is in the imperfective aspect and is followed by a frequency adverbial, indicate a habitual situation:

[13.] *Otan kanoume diakopes, piyenoume sti thalassa kathe mera.*

When (we)-are on holiday, (we)-go (IMPF) to the sea every day.

When we are on holiday, we go to the sea every day.

Similarly, in [14.a.], the frequency adverbial *kathe toso* ‘every so often’ combines with the imperfective *sinandousa* ‘I would meet’ to depict the frequency of the occurrence of the event:

[14.a.] Ti sinandousa kathe toso.

Her (I)-met (IMPF) every so often.

I would meet her every so often.

However, there exist frequency adverbials that denote number of times (Mourelatos 1981: 209) calls them ‘cardinal count adverbials’). Examples of those are: *dio fores* ‘twice’, *ametrites fores* ‘innumerable times’. These adverbials are characteristically used with the perfective aspect:

[14.b.] Ti sinadisa dio fores.

Her (I)-met (PF) twice.

I met her twice.

However, if these cardinal count adverbials occur with some other factor in the context which conditions the imperfective, as in *dio fores to hrono* ‘twice a year’, then they are used with the imperfective, since each of these adverbials is considered as indicating a completed series consisting of a specified number of times. In such cases, these complex adverbials, while compositional, act for purposes of aspect selection as units with a particular function. For instance:

[14.c.] *Ti sinadousa dio fores to hrono.*

Her (I)-met (IMPF) two times a year.

I would meet her twice a year.

In [14.c.], the cardinal count adverbial *dio fores* ‘twice’ co-occurs with the frequency adverbial *to hrono* ‘a year’. In such a case the frequency adverbial overrides the cardinal count one and the imperfective is always selected instead. Newton and Veloudis explain this: ‘... while such expressions of rate of occurrence (‘rate expressions’ (=frequency)) themselves select imperfective aspect, expressions indicating a finite totality of occasions (‘once’, ‘1,000,003 times’) select the perfective, so that the operating factor is not multiplicity per se but relative frequency.’ (Newton and Veloudis, 1982: 283).

3.5.4. Adverbial expressions combining with either aspect

There exist some adverbial expressions in MG that have two (or more) senses. At least one of these senses does not co-occur with the perfective aspect, whereas when these adverbials are used in their other senses, they can combine with both aspects. Table 1, adapted from Hesse (1980: 28), summarises how some of these adverbial expressions interact with aspect according to the meaning they carry:

	<u>with both aspects</u>	<u>only with imperfective</u>
<i>Akoma</i>	besides, also ²⁵ , yet	Still
<i>Taktika</i>	Orderly	Regularly

Table 1: The interaction of the different meanings of some adverbial expressions with MG aspect.

Consider the following example:

[15.a.] Diavasa akoma Solomo.

(I)-read (PF) also Solomos.

I also read Solomos.

[15.b.] Diavaza akoma Solomo.

(I)-was reading (IMPF) also/still Solomos.

I was also/still reading Solomos.

Regarding the examples [15.a.] and [15.b.], when the adverbial *akoma* selects the perfective aspect, it rules out the potential meaning ‘still’. Or, we can say that when *akoma* has the meaning ‘still’, it can only combine with the imperfective aspect of the verb it modifies.

²⁵ When *akoma* has the sense ‘also’, *kai* ‘and’ is often added: *akoma kai*.

3.5.5. *Aspectual adjectives vs aspectual adverbials*

From a morphological point of view, adverbs can be distinguished into a] non-derived ones, e.g. adverbs like, *simera* (today), and b] derived ones, e.g. adverbs like *kathimerina* (daily), *sihna* (often). The traditional view is that adverbs are derived from adjectives (Lakoff 1968, Katz and Postal 1964):

Sihnos (frequent) → *sihna* (frequently, often)

Kathimerinos (daily) → *kathimerina* (daily) / *kathe mera* (every day)

Let us examine if aspectual adverbials share the same meaning representation as the equivalent aspectual adjectives and if we can paraphrase a clause containing an aspectual adverbial with an adjectivally-modified one:

[16.a.] I Maria diavaze (IMPF) tis efimerides *kathe mera*. Afto ti voithise sto na ine enimeromeni se polla themata.

Maria was reading (IMPF) the newspapers every day. This helped her to be well informed about many subjects.

[16.b.] To *kathimerino* diabasma ton efimeridon voithise (PF)/voithuse (IMPF) ti Maria sto na ine enimeromeni se polla themata.

The daily reading of the newspapers helped (PF)/was helping (IMPF) Maria in being well informed about many subjects.

Whereas in a clause with an aspectual adverbial, as already explained in previous sections of this chapter, there are “conditions” on the interaction of the aspectual

adverbial and the aspectual marking on the verb, this does not appear to be the case when an aspectual adjective appears in the clause. The aspectual marking on the verb remains unaffected. This is probably due to the fact that adverbs take scope over the verbal domain, whereas adjectives take scope over the nominal domain. For these reasons in examining the acquisition of aspect in MG, no “aspectual” adjectives were employed, as they do not interact with the aspectual characteristics depicted on the verb.

3.6. Multiple aspectual adverbial constructions

So far, I have presented how each of the different types of aspectual adverbials interacts with MG aspect. The question now is: how are we to account for those cases where more than one adverbial can co-occur? What is the impact on the calculation of the aspectual value of the verb in the clause? The best explanations can be given along the lines of Moens and Steedman’s (1988) aspectual coercion theory, which is presented below. However, Verkuyl (1993)’s compositionality theory (which is discussed in the next section) presents a good alternative.

3.6.1. Aspectual Coercion

Verbs may, when taken in isolation, be more naturally interpreted as having the imperfective or the perfective aspectual value, but the phrases that contain them may have a different aspectual status when these verbs are combined with arguments or specifiers or adjuncts (other sentential constituents, e.g. adverbials). This

phenomenon, the shift of the aspectual situation depending on the different possible combinations of the verbs, is called aspectual coercion. Multiple shifts are possible in a clause, as shown in Moens and Steedman's splendid example:

[17.] “It took me two weeks to play the Minute Waltz in less than sixty seconds for an hour” (Moens and Steedman 1988:20).

If we attempt to analyse this example, we will notice certain shifts of the aspectual value and interpretation of the clause, despite the fact that the morphological marking on the verb remains the same. Consider the following:

[17.1.] [I played]: aspectual situation: generic

[17.2.] [I played the Minute Waltz]: this clause is perfective in aspectual value and depicts a delimited event.

[17.3.] [I played the Minute Waltz in less than sixty seconds]: the same [perfective] aspectual value is retained

[17.4.] [I played the Minute Waltz in less than sixty seconds for an hour]: there is a shift of the aspectual interpretation of the clause to the imperfective value

[17.5.] [It took me two weeks to play the Minute Waltz in less than sixty seconds for an hour]: the aspectual situation shifts to the perfective.

On aspectual adverbials

Although the aspect of the verb remains unchanged in the above clause, the clause's aspectual status shifts from progressive or enduring (imperfective) to completed (perfective) depending on the aspectual properties of the adverbials introduced in the clause.

So, it seems to be the case that “while inherent lexical or structural semantic properties place constraints on the possibilities for aspectual status, they do not uniquely determine it, and it is not an objective property of the situations that sentences describe that one or other aspectual status is the only correct one.” (Pulman 1997:1)

However, let's now consider the equivalent of the above example in Modern Greek:

[18.] Mu pire dio evdomades yia na pekso to “Minute Waltz” se liyotero apo ena leptο yia mia ora.

Me took two weeks to play (PF) the Minute Waltz in less than a minute for an hour.

It took me two weeks to play the Minute Waltz in less than a minute for an hour.

Let's analyse it like its English equivalent above:

[18.1.] [Pezo (impf).]

[18.2.] [Pezo (impf) to “Minute Waltz”.]

[18.3.] [Pezo (impf) to “Minute Waltz” se liyotero apo ena leptο.]

[18.4.] [Pezo (*impf*) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.]

[18.5.a.] ![Mu pire (pf) dio evdomades yia na pezo (impf) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.] (This is odd; it is acceptable with the reading “it took me two weeks *to learn* to play....)

[18.5.c.] [Mu pire (pf) dio evdomades yia na pekso (pf) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.]

However, in MG there is only one aspectual marking for the verbs in the present tense. This marking is imperfective but, in the absence of a perfective counterpart, it must account for the semantic interpretations incurred by both the perfective and the imperfective aspectual values. The question is what would happen, should we shift the same situation to the past? This time we will use the perfective aspectual marking.

[19.1.] [Epekso (*pf*).]

[19.2.] [Epekso (*pf*) to “Minute Waltz”.]

[19.3.] [Epekso (*pf*) to “Minute Waltz” se liyotero apo ena lepto.]

[19.4.a.] !*[Epekso (*pf*) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.]

[19.4.b.] [*Epeza (impf)* to “Minute Waltz” se liyotero apo ena lepto yia mia ora.]

[19.5.a.] *!Mou pire (pf) dio evdomades yia na pezo (impf) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.*]

[19.5.b.] *[Mou pire (pf) dio evdomades yia na pekso (pf) to “Minute Waltz” se liyotero apo ena lepto yia mia ora.*]

One can notice that the situation in MG is not the same as in English. When the durative adverbial “*yia mia ora*” (for an hour) is introduced into the clause ([19.4.a.]), the clause becomes odd (one may also say it is ungrammatical), because there appears to be a conflict between the aspectual properties of the adverbial and those of the aspectual marking of the verb. This is why in such a case we would need to change the aspectual marking of the verb from perfective to imperfective, so that they both refer to a continuous event. The situation evolves in a similar fashion in [19.5.a.] and [19.5.b.]

The above explains why it has proved difficult to systematize the mechanisms governing the phenomenon of aspectual coercion and “...the central problem for the theory of aspect is to determine how the aspectual characteristics of complex phrases are determined by those of their parts.” (Kamp and Reyle 1993: 570).

Although Evans (1998) challenges the view that coercion is the most appropriate way to account for the syntax-semantics relationship of aspectual forms, I think that in MG we do need a coercive account to discuss the special relation between aspect and aspectual adverbials. And Moens’ aspectual coercion “network” is probably the best way to analyze and explain the Greek aspectual coercion examples above. His

“addition” coercions accommodate the “extra layers” of meaning added to the ‘basic’ meaning and his “stripping” coercions justify the focus shift to other layers of meaning. His theory will be further analyzed in the section referring to event structure later in this chapter.

3.6.2. Aspectuality - Compositionality

Verkuyl (1993) refers to the phenomenon discussed above as inner and outer aspect, and he acknowledges that the role of aspectual adverbials in aspect construal is different from the role of other constituents. (We will examine the interaction of aspectual adverbials with aspect in the next chapter.) Verkuyl uses the term “aspectuality”: he employs the term “inner aspectuality” for the aspectual information expressed by what he characterizes as “the aspectual kernel”, consisting of the verb and its internal and external arguments. He then uses the term “outer aspectuality” to describe “the result of applying modifying adverbials to inner aspectual information” (Verkuyl 1997:3)

He examines the “composition of inner aspect”, which concerns the relationship between a verb and its arguments:

- [19.1.] They ate cheese.
- [19.2.] They ate from the cheese.
- [19.3.] They ate sandwiches.
- [19.4.] They ate three sandwiches.
- [19.5.] They ate a sandwich.

Verkuyl (1972) distinguishes between durative and terminative sentences in the above set, and his line of argument is that “eat” being constant, the aspectual differences in these sentences must be attributed to the difference between the complements (cheese, from the cheese, sandwiches, three sandwiches, a sandwich).

Verkuyl (1993) adopts a compositionality approach; his analysis (as will be made obvious) differs considerably from event semantic approaches. To him, the *aspectual value* of a sentence is calculated compositionally and it is not determined by verbs in isolation. It is to be calculated by:

- 1] The verb's Aktionsart (situation aspect of the verb, e.g. whether the event type is a state, activity, accomplishment or achievement)
- 2] Viewpoint aspect (verbal aspect, whether the event is presented from a perfective, completed viewpoint, or an imperfective, incomplete viewpoint.
- 3] The properties of the subject and object NPs: whether they are quantized NPs (*build two houses*) or mass nouns or bare plurals (*build houses*).
- 4] Adverbial expressions of duration or completion, such as “in an hour” or “for an hour”

In his theory Verkuyl claims that classification into Vendlerian verb classes is linguistically epiphenomenal and that the only relevant question is how aspectual properties of the VP are derived compositionally, treating lexical classes as by-products of the theory, rather than theoretical entities in themselves. Our framework is very different and is based on the fact that situation aspect types are not generalisations over verb meanings but sets of properties and constraints on how

grammar allows us to individuate events. (Rothstein 2004²⁶, Parsons 1990, Landman 1995, 2000)

Having presented and discussed aspectual adverbials, we need to analyse their syntactic status. To this we turn next.

3.7. Theoretical approaches to adverbs - The syntactic status of adverbs

In my analysis of aspectual adverbials I will follow Cinque 1999, whose theory of adverbs is one that accounts for both the semantic features and the syntactic characteristics of this quite heterogeneous category. He suggests that adverbs head their own maximal projections (AdvPs) and that they occupy the (unique) Spec positions of distinct maximal projections.

However, before I go on to such an analysis, I will discuss the literature regarding the status of specifiers in syntax, as well as different syntactic and semantic approaches to adverbs.

In attempting to provide a theory of adverbs, one is cautious because of the range of syntactic positions they can surface at in a clause and because of the many different semantic and interpretative effects they encode. They form a category with many different heterogeneous syntactic and semantic characteristics. The approaches that

²⁶ In detail, Rothstein assumes that verbs denote sets of events or an event (or eventuality) type, and that thematic roles denote functions from sets of events to their participants; and we can thus talk of the event-type denoted by V as showing the properties which determine the lexical class of the V (p. 4).

have been developed have attempted to take into account these characteristics and to provide an adequate analysis of adverbs.

In the literature, adverbs have been analysed as:

[A] specifiers,

[B] adjuncts,

[C] complements.

As most claims regarding the syntactic status of adverbs favour [A] or [B] above, let's briefly examine their position in the literature.

3.7.1. Early approaches to adverbs

Jackendoff (1972) is one of the early approaches prior to x-bar syntax; his classification is based on a combination of syntactic and semantic properties of adverbs. It is useful to present it, even though it does not pertain to the current analyses of adverbs as specifiers or adjuncts or complements, because his analysis points to the complexity of adverbs due to the many syntactic positions they can appear at. However, our outlook on syntax is based on minimalist assumptions.

On the syntactic front, Jackendoff suggested a tripartite distributional account of sentential adverbs, which have surface realisations [a] sentence initially, [b] sentence

finally, or [c] in ‘auxiliary position’ (that is, between the subject and the verb, either before or after the auxiliary if one is present –1972: 49ff).

Based on these three positions at which adverbs can surface, he proposed a classification based on the distributional characteristics of adverbs and their semantic properties. Adverbs are classified into six categories: [a] those that can appear in any of the three syntactic positions and change their meaning depending on which position they occupy; [b] those that can appear in all three syntactic positions, but do not change their meaning; [c] those which can appear in initial and auxiliary position only; [d] those which can appear in auxiliary and final position only; [e] those which can appear in auxiliary position only; [f] those which can appear in final position only.

Let us now turn to the syntactic framework our work pertains to.

3.7.2. Minimalism and specifiers

There exist two versions of minimalism and there is a difference lying behind them: The first version of Minimalism (Chomsky 1989, 1993) assumes that agreement features project a separate functional head, allowing the unification of argument case licencing in a specifier-head configuration. The second version (Chomsky 1995: Chapter 4) dispenses with agreement projections and assumes that the only important functional projections in the clause are TP and CP. In this version, Chomsky proposes that the checking operation and the elimination of uninterpretable features takes place

via a system of multiple specifiers. Given the definition of Merge, it is a consequence of his system that multiple-specifier structures are allowed. Adger et al comment on Chomsky's system:

“The distinction of adjuncts and specifiers becomes otiose. His definition of merge provides no way of distinguishing between an element that attaches to a phrasal projection and an element that attaches to a non-phrasal projection, because the notion of phrasal in this system is not a primitive. Chomsky does not introduce a distinction between adjunction and substitution operations, which parallels the specifier/adjunct split; he adopts a system whereby merge applying to a projected category may construct an output with a simplex label or a complex label; the former corresponds to the specifier case and the latter to adjuncts.”
(1999: 10)

Let us hold onto the above comments and briefly present Kayne's theory. We will return to the discussion of the issue they present in terms of our decision to treat aspectual adverbials as specifiers.

Kayne's Antisymmetry theory (1994) is similar to that of Chomsky, but restricts specifiers to one per head. Kayne also argues for the *Linear Correspondence Axiom (LCA)* that much of x-bar theory is derivable from a constraint on the proper linearization of hierarchical structure. Furthermore, the human language faculty is in fact rigidly inflexible when it comes to the relation between hierarchical structure and linear order. Heads must always precede their associated complement position.

Adjunctions must always be to the left, never to the right. His theory predicts that specifiers are generated to the left of their heads.

With all the above in mind, under the minimalist framework, which is the one this thesis is assuming, both specifiers and adjuncts are eligible candidates to host our aspectual adverbials. The distinction between the two syntactic positions is quite a thin one; in fact in Minimalism the basic structural definition of specification and adjunction is the same. So, if the distinction between them is otiose, as Adger et al (1999) comment, then we can easily pick the one or the other in deciding on our analysis of aspectual adverbials and base our choice on different grounds.

I will follow Cinque (1999) and Alexiadou (1997) and I will treat adverbs as specifiers. Then, I need to answer the following question: Why are adverbs to be located in the spec-position rather than favour adjunction instead?

A system that analyses adverbs as specifiers is a more restrictive one than a system that analyses them as adjuncts. The rigidly fixed order of AdvPs is entirely unexpected under adjunction, whereas “it is understandable under the “location-in-Spec” hypothesis, at least if it can be argued to follow from the fixed relative order of the heads via the general Spec/head agreement relation” (Cinque 1999: 44). Adverbs appear in limited number, as there is a limited number of functional projections. Their restrictive relative order follows if they are specifiers, but does not if they are adjuncts, since adjuncts are supposed to be rather free and there is no principled reason to constrain their distribution. Finally, the “location-in-Spec” hypothesis is preferable to the adjunction hypothesis, because the fact that AdvPs are arguably on

left branches would have to be stipulated under the latter, whereas it follows under the former, since Specs are taken to be on left branches (following Kayne 1994).

In the next section I will present Cinque and Alexiadou's theories. Their proposals are indeed very similar.

3.7.2.1. Cinque 1999 and Alexiadou 1994, 1997

Cinque's (1999) theory of adverbs establishes that adverbs are specifiers and they are merged in a variety of structural positions and they are not subject to movement²⁷; instead main verbs move in Cinque's syntactic representation. The recurrent picture that one finds in this domain is that they not only are rigidly ordered with respect to each other, but that each of the mood, modality, tense, aspect, and voice categories is made up, at a finer level, of a number of distinct heads, which also appear to be rigidly ordered.

The functional structure of a clause then is very rich; languages are generally much richer in the realization of different classes of AdvPs than in the generalization of the corresponding heads. If, according to Cinque, each adverb class indeed corresponds to a different functional head, then, there is evidence that the entire array of functional heads (and projections) is available, even where there is no overt morphology corresponding to the heads, as the respective specifiers are available.

²⁷ It is for this reason that adverbs may be useful "tools", when examining movement processes of other categories, especially verbs (Pollock 1989, Ouhalla 1990, Costa 1996)

Thus, Cinque claims that no acquisitional issue arises from considering the structure of the clause provided by UG as rich and articulated. The consequence from this universal hierarchy of clausal functional projections is that less is left for the child to acquire. He/she will only need to recognize and locate in the appropriate structural places made available by UG the morphological and lexical material provided by his/her language.

Cinque suggests that it would be difficult for a child to determine on empirical grounds the relative position of AdvPs. Their relative order should rather follow from UG once the meaning of each adverb/specifier is recognized.

Alexiadou's proposal (1994, 1997) is quite similar to Cinque's; she proposes the adverbial licensing criterion: "adverbs are licensed as specifiers of functional projections by the relevant feature associated with the head" (1994: 46). Additionally, she proposes a very restrictive approach, where each adverb class is licensed by one and only one head. This claim presupposes the existence of features on the adverbs, which must be in an agreement relation with the licensing head, and entails that the distribution of base generated adjuncts cannot be arbitrary.

Aspectual adverbials are then generated in the specifier position of the AspP in MG and are licensed under feature matching, i.e. agreement with the relevant head features. The adverb should be a specifier of a head in order to be formally licensed. Furthermore, its features²⁸ match those of the respective head. Adverbs being licensed

²⁸ According to Alexiadou, ASP and the adverbs are marked for the following features:

ASP		ADVERBS
+ PERF	-PERF	+/-Durative
+Punctual	+Habitual	+/-Definite Frequency
+Definite	-Definite	+/-Point
	+Durative	

as specifiers of functional projections, aspectual adverbials are taken to be universally on a left branch. So, in the case of an overt order where the V precedes the adverb, the verb has moved past the adverb. In addition, the adverb is generated in this position, i.e. the licensing configuration is not reached via movement.

Having presented and discussed the syntactic status of aspectual adverbials as specifiers, let us now briefly turn to other proposals in the literature.

3.7.2.2. Aspectual adverbials – different approaches

Adverbs have received different treatments from the one we are adopting in the literature.

Larson 1985 posits that adverbials, in general, are assigned adjunct θ -roles

Larson 1988 suggests that adverbs (with specific reference to time and manner adjuncts realised as prepositional phrases) are “not outermost adjuncts, but rather must be innermost complements” (p.346)

Xydopoulos (1994) assumes a theory of adverbial complementation, suggesting that the adverbials are themselves selecting the phrase they modify and not vice versa. The selectional properties of adverbials derive from their semantic content and accordingly from the semantic type they belong to (temporal, measure, aspectual, aktionsart, manner). However, given the verb's central role both in syntax and

+Continuous

The distinction between the perfective vs imperfective is one of morphology. The adverbs have these features in their lexical entry: for example, they are marked [+ADV, +ASP, +DUR]. Under Spec-Head Agreement a [+Durative] head licences a [+Durative] adverb and a [+Punctual] head licences a [+Point] adverb...

However, we are following Smith's aspectual features for aspect.

semantics, we would not want to say that adverbials select the phrase they modify, the VP in this case. We would rather say that they place semantic restrictions on the verb or that semantically they delimit the event or the situation described by the verb.

Xydopoulos claims that adverbials are inserted into structures through a projection strategy along the lines of Sportiche's (1988) "adjunct projection principle"

Temporal adverbials: adjunction to TNSP [TNSP TNSP ADV]

Manner and Measure adverbials: adjoin to VP [VP VP ADV]

Locative adverbials: semantically linked to the Object [_{V'} [_{V'} V Object] ADV]

It is in this context that his theory could account for the aspectual versus the aktionsart adverbials. Given that aspectual adverbials affect the aspectual value of the verbs in MG, they could adjoin to an AspP (aspect phrase). Aktionsart adverbials, on the other hand, would adjoin to the VP, because they modify the verb's aktionsart. This is what the syntactic representation would look like:

Aspectual adverbials: [_{ASPP} ASPP ADV]

Aktionsart adverbials: [_{VP} VP ADV].

It should be noted that the syntactic representation of the aktionsart adverbials is no different from Xydopoulos treatment of manner and measure adverbials. This could lead towards a more unified account of adverbials in MG, but the properties of these different types of adverbials need to be examined to allow us to make such a claim.

Finally, an approach that is completely opposite to ours: Cormack (1999) suggests that under minimalist concerns we may eliminate specifiers, the immediate implication being that aspectual adverbials are to be treated as adjuncts instead. For her putative specifiers have various alternative descriptions.

To sum up, we have looked at the treatment of adverbs in the literature and aspectual adverbials in particular and having examined the alternatives, we have followed a specifier analysis for aspectual adverbials. However, Chomsky's theory does not exclude the different possibilities, as his basic definition of complementation, specification and adjunction is the same.

We will now turn to the acquisitional issues and theories that pertain to our thesis.

Chapter 4

THEORETICAL BACKGROUND TO THE ACQUISITION OF ASPECT

4.1. Introduction

One needs to address the "logical problem of language acquisition": the ease and uniformity with which children acquire the ambient language in spite of the fact that they are exposed to qualitatively and quantitatively uneven input. The "logical problem of language acquisition" hinges upon the types of evidence children encounter and the uses they put it to (positive evidence, direct negative evidence, indirect negative evidence).

4.2. Theories on the acquisition of language

The main focus of current issues in language acquisition is whether children are equipped with innate principles or mechanisms in their acquisition of language.

There exist two approaches:

Theoretical background to the acquisition of aspect

- a) the nativist approaches, which argue strongly for the existence of *a priori* domain specific principles or mechanisms for language. These account for the various patterns of the acquisition of aspect with recourse to pre-specified, innate knowledge of specific semantic categories.

- b) the functionalist approaches, which account for the mechanism of the acquisition of aspect by reference to statistical, connectionist mechanisms that explore the learner's ability to detect and form patterns in the linguistic input.

Few people would not agree with the idea that humans have a special, biological capacity to learn language. The question then is what constitutes this capacity and how it is related to the process of language acquisition. (see discussions on this debate in Elman et al. 1996, Sampson 1997, Tomasello 1995). According to the nativists, this capacity must include principles specifically designed for language, which are already in place when children become engaged in language learning. According to the functionalists, language is not innate but learned. The process of language acquisition consists of 'extracting the patterns that hold between forms and meanings in continuous speech and linguistic input' plus 'the ability to analyse the linguistic input' [Li & Shirai 2000: 31].

The debate between the nativist and the functionalist approaches to language acquisition stems from cognitive science and the two opposing views that follow:

Theoretical background to the acquisition of aspect

- a) the human mind being viewed as a modular system whose architecture is largely predetermined or innate (Chomsky 1988; Fodor 1983, Pinker 1994)
- b) the human mind being viewed as a highly interactive system in which multiple components can interact simultaneously at all levels. (Rumelhart, McClelland and the PDP Research Group 1986; Elman et al. 1996)

4.3. Theories on the acquisition of aspect

Having in mind the two different approaches to language acquisition as introduced above, we will now move to the issue of the acquisition of aspect.

Firstly, we will look at the functionalist approaches. These advocate a functional, input-based, probabilistic learning approach to the problem of the acquisition of aspect. It is along these lines that Li and Shirai (2000) argue that the acquisition of aspect can be best described as a connectionist process “in which the learner is engaged in computing the probabilistic co-occurrences of semantic properties, lexical forms, and morphological devices” (p. 149). They implement this process with a specific connectionist model, the self-organising neural network model of language acquisition.

However, if one is to further analyse and discuss the functionalist approaches, the following counter argument needs to be stated: Connectionism (and usage-based approaches in general) predict that *frequency* of forms in the input should be a major

determinant of what children produce, and that seems not to be borne out in practice. Children's overgeneralisations sometimes follow the predictions of frequency-based analyses but the strongest evidence against connectionist-type treatments comes when children produce something that is licensed by UG - hence occurs in some language - but does not occur in the input at all. An example is Wh copying by English children (e.g. *Who did you say who came?*) which is possible in some varieties of German but no variety of English. Such examples *never* occur in the input to the child and their appearance in the child's output is incompatible with functionalist principles²⁹

We will now turn to further discussion of the nativist approaches.

Bickerton's Language Bioprogram hypothesis (1984) falls within this framework; his hypothesis advocates that certain semantic distinctions are biologically pre-programmed and emerge early in human language acquisition. Children have innate semantic categories that roughly correspond to the situation aspect distinctions of verbs. For Bickerton, two important innate semantic distinctions in the domain of aspect are those between state and process and between punctual and non-punctual categories. Because the distinctions are by hypothesis innate, early on in language development states will be marked differently from processes, and punctual situations will be marked differently from non-punctual situations, probably by the use of different tense-aspect markers.

²⁹ For discussion see Thornton's review of Snyder (Thornton 2008).

Quite similarly, Slobin (1985) proposed that children come to the language acquisition task with a pre-structured semantic space in the Basic Child Grammar. This semantic space contains a universal set of pre-linguistic semantic notions, initially independent of the child's linguistic experience, and they act like magnets to strongly attract the mapping of grammatical forms of the input language.

We will now turn to the theory of Principle and Parameters, which is the one we are advocating in our analysis of the acquisition of aspect.

4.4. On the Innateness Hypothesis

Universal Grammar and The Principles and Parameters model of acquisition

The most plausible explanation of the uniformity and rapidity of first language acquisition is to posit that the course of acquisition is determined by a biologically endowed innate language faculty (= language acquisition programme) within the mind/brain, which provides children with a (genetically transmitted) algorithm for developing a grammar, on the basis of their linguistic experience.

Chomsky has presented arguments in favour of the claim that some aspects of language are innate.

a- "*The poverty-of-the-stimulus*" argument³⁰: the data in the stimulus are too meagre to justify the knowledge that is built out of them. With respect to this argument, Wexler (1991:253) states the following: 'Chomsky's answer notes that the attained grammar (= the adult grammar which is the target of the language the children are constructing) goes orders of magnitude beyond the information provided by the input data and concludes that much linguistic knowledge must therefore be innate.'

b- *Language universals*: "Language is part of the human inheritance; it is in our genes" (Chomsky 1980:134). "These universals of language determine the form of the language that children acquire: indeed, so much of the language is pre-determined that acquisition in the usual sense is unnecessary; the language just develops on the basis of some triggering input" (Smith 1999: 168).

In language acquisition, the language faculty must incorporate a set of *Principles* of Universal Grammar (UG). Furthermore, acquiring a language means further setting the *Parameters* of UG properly. We call Parameters language particular aspects of grammatical structure which children have to learn as part of the task of acquiring their native language. Parameters are associated with a set of lexical items, namely functional categories. Within this model, the task of language acquirers is to set the right parametric values associated with functional categories, on the basis of the input they are exposed to. Thus UG along with the appropriate trigger experience yields a

³⁰ For discussion on the 'poverty-of-the-stimulus' argument see Pullum and Scholz (2002).

particular grammar. Parameter setting allows the child to acquire the circumscribed variation between languages.

Following Radford (1990), the child does not acquire rules, but settings for parameters, which interacting with the network of principles create a core grammar.

The parameter setting model of acquisition raises the following question: At what point in the child's development do specific parameters come "on-line" (=become available to be set)?

Two hypotheses present an answer to this question: the continuity hypothesis and the maturation hypothesis.

4.4.1. The Continuity hypothesis

Universal Grammar is available very early in the development of language and developmental stages correspond to the restructurings that result when the child recognises "triggering data".

According to the Continuity Hypothesis, all principles of UG and all parameter settings are available to the language learner from the onset of the acquisition process; this entails that the child and the adult language have the same grammatical

constraints and parameter settings (Pinker 1984, 1987, Hyams 1986, 1987). Further, one of the predictions of a strong interpretation of continuity is that the full range of functional projections is immediately available to the language learner. Given the kind of movement where functional categories attract other elements, why is it then that children do not display the full range of movement structures seen in adult grammars? Why are child grammars not immediately identical to adult grammars?

The explanation relies on a weaker interpretation of Continuity³¹, which makes the emergence of structure dependent on triggering data. According to this interpretation of Continuity, even in the initial stages of language acquisition, clause structure is similar to the adult one, as both substantive and functional categories are present and not constrained by maturation. Parameters, however, are not yet fixed to their target value. The setting of the parameters depends on the availability (and the child's exposure) of an appropriate set of data, namely 'triggering' data.

Following the Continuity hypothesis, some or all functional categories are present right from the beginning, some of them not being overtly realised though. The question is why is this happening? Children's vocabulary is limited in the beginning. Also there exist articulation constraints due to biological and cognitive reasons. For example, in Weissenborn (1990) and Boser et al (1992), the German child is said to have an IP and CP already at the two-word stage. The fact that the child does not use

³¹ For others, the possibility is to deny Continuity and claim that structure, principles or operations of grammar mature in a child.

the full CP-structure is due to the complex nature of the morphology of German verbs. Following Weissenborn's analysis of early null subjects, young children leave out many subjects that are employed in the adult grammar because they have not yet acquired the appropriate pragmatic constraints that hold for null versus overt subjects in adult grammars (cf. Clahsen 1996: xix).

4.4.2. The Maturation hypothesis

The Maturation hypothesis argues that certain properties are missing from early child grammars until the relevant principles or grammatical categories regulating those properties appear. These categories and principles are subject to maturation. There are two accounts for this hypothesis

A] "UG constrained maturation": Principles of UG are present from the start, but specific elements of linguistic knowledge are genetically scheduled to become operative at a later stage. This hypothesis assumes that maturation affects the Principles of UG (Felix 1984, Borer and Wexler, 1987)

B] The "Structure-building" account: Maturation affects functional categories, which are absent in children's earliest production (e.g. INFL and CP) and they mature in the 3rd year of life.

Both maturational positions involve change as well as a series of grammar-internal restructurings, leading to consequent reinterpretation of the input data.

We will now turn to the issue of the acquisition of functional categories, aspect being one of them, in the light of the Continuity and the Maturation hypotheses.

4.4.3. The acquisition of functional categories

The debate between the Continuity and the Maturation Hypotheses.

There are opinions covering virtually every possibility for the acquisition of functional categories in child language³². We will investigate the underspecification of functional categories in the light of the continuity vs the maturation hypotheses.

The non-adult forms produced by children are explained in terms of the underspecification of functional categories.

In support of the continuity hypothesis, Hyams (1996) argued that functional nodes, both in the clausal and nominal domains, may be underspecified in the sense of being "unindexed": not part of syntactic chains that anchor the event or the referent.

³² Following Philippaki-Warbuton (1998), functional categories have acquired great importance because their choice, status (strong, weak), and position determine the organisation of sentences. In fact, the lexical categories are connected to each other through the functional categories

Along the same lines, Clahsen (1996) (Lexical Learning Hypothesis) suggested that UG principles are available in early child grammars, but language specific functional heads and their feature specification are learned gradually on the basis of exposure characterised by underspecified functional projections.

In contrast, Wexler (1994) tried to account for the underspecification by arguing that the absence of a particular functional head (Tense or Agr) may itself be caused by the presence of a development constraint in child grammars.

Tsimplici (1992) also believes that functional categories are subject to maturation. According to her theory, functional categories are characterised by the absence of a conceptual counterpart in the mental lexicon. In this respect, the distinction between functional and substantive categories can be formulated as the presence vs absence of a 1:1 correspondence between categories and concepts. This suggestion does not imply that functional categories lack semantic content altogether, but they have no encyclopaedic content. (e.g. negation and time correspond to a semantic slot in the mental lexicon given that they play a crucial role in the logical interpretation of a sentence.) Functional categories are responsible for parametric variation - they are missing from early child grammars.

To recapitulate on this debate, some (including Radford, Platzack) believe that the early stages are characterized by the absence of all functional projections and early

grammars comprise just thematic-lexical categories (the maturation theory). At the other extreme are those who argue for ‘initially complete ‘skeletons’ of phrase structure, clothed in null elements’ (including Valian, Hyams, Verrips and Weissenborn) (those who favour continuity).

In between these points there are many options, which try to reconcile the two extremes. One possibility is that some kind of functional projection exists, though incompletely specified (Clahsen & Penke, Meisel & Muller, Gawlitzek-Maiwald, Tracy and Fritzenschaft). Developments within that phrase structure then trigger the construction of a further layer of functional projections, or a metamorphosis in the features already existing. Alternatively, Penner believes the first functional projection has all the appropriate properties, but then layers are added without resetting of parameters. Demuth’s compromise between the two extremes is that null elements must be replaced by phonological material before movement is licensed. Other alternatives still exist: Roeper (1988) and Roeper and de Villiers (1992) have argued that a change occurs in functional categories from non-maximal to maximal, with the specifier of each category needing a trigger.

When preparing models of the young child’s grammar of functional categories the following questions need to be looked into.

Is it necessary to have each stage of development represent a possible human grammar? (i.e. continuity) This is related to the question of the range of variation

allowed by UG. Those who suggest incomplete or missing functional categories argue that there is parametric variation even among adult languages: maybe Japanese has no C (Fukui, 1986), or maybe INFL is more or less articulated (Ouhalla (1991), so that there is continuity at least with UG in proposing an initial state different than the adult language.

One implication for children's grammars being very different from adult grammars is that much of the input would be discarded, for how could it be accommodated to such an under-specified grammar? Children would not be able to understand and 'work round' the adult grammar to build their own if their initial grammar was so different and so incomplete. Finally, one needs to consider the fact that biological factors (e.g. articulation) constrain the realization of functional categories in children's grammars at very early ages.

In general, there is a tendency to assume continuity with the adult grammar in the domain of functional categories, rather than to adopt models that assume growth and change. I will adopt this position myself for the reasons presented above, as well as for the ones to follow.

I find it hard to understand how it is to be decided that a child grammar may come equipped for certain categories (e.g. substantive) and not for others (e.g. functional). On what criteria is such a selection performed and a child grammar said to be created at its onset? {cf. your remarks about Tsimpli above} Further, regarding aspect in MG,

the verb comes marked for aspect. Additionally, as we have discussed previously, aspect is a functional category and it is present from very early, from the very early verbs the children utter, even if they are still unable to articulate them correctly. Children then need to associate the aspectual marking with the appropriate semantics incurred by it. This is performed gradually. How would the maturation hypothesis account for that?

I would like to make the following comment; language acquisition and development are inseparable; no matter if functional categories are present from the beginning but are activated later, or no matter if they are absent in the beginning and emerge later on, change and development are undeniably the key-words of language acquisition, whether that development is ‘continuous’ or ‘maturational’.

Finally, it is our belief that under minimalist assumptions³³, language acquisition could be seen as the process of setting the strength of features of pre-existing functional categories based on the incoming data.

This brings us to our next section where we look at studies on the acquisition of aspect in other languages in the literature. Finally we will turn to the development of the functional category of aspect in Greek, this being our main focus.

³³ In Minimalism, it is not the presence of functional categories alone that triggers movement, but rather the strength of the features of those functional categories.

4.5. Acquisition of aspect in different languages – Empirical findings

It has been found in the literature that young children initially restrict aspect morphology to specific categories of situation aspect. Following Bloom et al (1980) (in Li 2000), this restricted or “under-generalized” use is found in diverse languages such as Chinese, English, French, Italian, Japanese and Turkish.

English-speaking children tend to associate the use of the progressive marker *-ing* only with atelic, activity verbs, such as *play, ride, write*, whereas they associate the past perfective marker *-ed* only with telic verbs (accomplishments and achievements), such as *find, fall, break*. This strong association weakens over time, and eventually children develop adult-like competence in using both the progressive and the perfective aspectual markers with different lexical categories.³⁴

The interaction of viewpoint and situation aspect has been shown in the Turkish language. Aksu-Koc (1998) found that in Turkish the child has stronger preferences for, and firstly uses the past inflection *-dl* with, achievement and the present/imperfective inflection *-lyor* with activity and stative verbs. She also found that the development of *-dl* is faster than that of *-lyor*.

³⁴ In a similar fashion, Brown (1973) found that children never overgeneralize the progressive marker *-ing* to stative verbs (i.e. they don't say *knowing* or *wanting*). This was later taken as evidence that the distinction between state and process is innate (Bickerton 1981, 1984; Smith 1991, 1997)

The emergence of tense-aspect morphology in Japanese does not necessarily follow the predictions of the Aspect Hypothesis³⁵ (Shirai & Andersen 1995), Shirai found. He also found clear individual differences among children in the emergence of durative aspect markers.

Mandarin Chinese (Li & Bowerman 1998) shows better results in comprehension, production and repetition of sentences containing those particular combinations of aspect-marking and verb types that have been observed to emerge early in naturalistic production in other languages: that is perfective marking with telic/resultative verbs and progressive marking with durative, activity verbs.

Furthermore, it has turned out that lexical and grammatical aspect interact, aspect standing at the “interface between the lexicon and the grammar” (Li, 2000:5).

Finally, the following associations have been observed when children are learning their language³⁶:

- (a) Learners first use (perfective) past marking on achievements and accomplishments, eventually extending use to activities and statives.
- (b) In languages that encode the perfective/imperfective distinction,

³⁵ The Aspect Hypothesis uses the Vendlerian event type categorization as a tool and posits certain generalizations. The following of the generalizations has been found very clearly in Romance languages and Greek: ‘In languages that encode the perfective/imperfective distinction, imperfective past develops later than perfective past, and imperfective past marking initially is used predominantly with state and activity verbs.’³

³⁶ Actually these remarks are also about adults learning a second language.

Theoretical background to the acquisition of aspect

imperfective past appears later than perfective past, and imperfective past marking begins with statives, extending to activities, accomplishments, and achievements.

- (c) In languages that have progressive aspect, progressive marking begins with activities, then extends to accomplishments and achievements.
- (d) Progressive marking is not incorrectly overgeneralised to statives.

(Kempchinsky & Slabakova 2005: 7)

The question is: what is the situation with the acquisition of aspect in Modern Greek language? We will now turn to this issue and to the two experiments that were carried out and are presented in the two chapters to follow.

4.6. Acquisition of Aspect in MG

The acquisition of aspect in MG has been looked at by many scholars.

Below are some general remarks on the acquisition of MG verbal inflection, and on the emergence of aspect morphology as presented by Stephany.

Theoretical background to the acquisition of aspect

Age 1;10	<p>The grammatical categories of perfective and imperfective aspect (running through indicative, subjunctive and imperative mood) are distinguished in the verb forms. Perfective and imperfective aspect are marked on the verb stem</p> <p>The child has acquired:</p> <ul style="list-style-type: none"> - the perfective past - the imperfective non-past <p>There exists no imperfective past yet: so, at this stage:</p> <ul style="list-style-type: none"> - the perfective indicative corresponds to the adults' past tense forms - the imperfective indicative corresponds to adults' non-past tense forms. <p>-- Perfective simple past is firstly attested.</p>
Age 2;4	<p>-Imperfective past forms emerge</p> <p>Opposition between the perfective and imperfective aspect in the past was found to develop between 2;6 and 3;9</p> <p>-The habitual meaning of the imperfective past emerges later than the durative meaning.</p> <p>-Incorrect combinations of perfective verb forms with iterative adverbials.</p> <p>-overgeneralisation: overusing the perfective stem of telic verbs.</p>
Age 2;10	<p>Perfective and imperfective aspects are marked on the verb stem 98% correctly.</p>

Furthermore, the influence of situation aspect on viewpoint aspect has also been looked at by Stephany [1981, 1997]. Stephany's classification³⁷ of the verbs was somewhat different to ours: she had three categories: statives (e.g. know, be cold), resultatives (e.g. fall, take) and non-resultatives (e.g. cry, read). She found that resultatives occurred more frequently with the perfective aspect, whereas non-resultatives occurred with the imperfective and finally statives were exclusively combined with the imperfective. Further to that, her hypothesis that the patterns of the input language affected the patterns displayed in MG child language was verified.

4.6.1. The acquisition of the semantics of aspect- Presuppositions

Stephany's results pertain mainly to the acquisition of the morphology of aspect in MG. It is important to point this out because the verb in MG comes obligatorily marked for aspect, as it is part of its theme (stem). Thus, when children acquire the verbal system, they will automatically have their verbs marked aspectually either for the perfective or for the imperfective aspect. However, this does not mean that they have mastered aspect and its semantics.

³⁷ Stative verbs: they describe situations that are 'homogenous, continuous and unchanging throughout [their] duration' (Lyons,1977) e.g. ksero, kriono. Dynamic verbs: they describe situations that are occurring: a) Resultative dynamic verbs (situations of short duration that end a state different from the one before the situation occurred e.g. pefto, perno) b) non-resultative dynamic verbs (durative situations not striving towards a natural end-point e.g.kleo, diavazo)

We therefore need to spell out what *we* presuppose the “semantics of aspect” that the children are acquiring actually is. That is, we need a semantic analysis that is the explicit target of the children’s acquisition process.

Our primary aim has been to find out whether the children are aware of the fact that when they are marking a verb for the perfective or the imperfective grammatical aspect, they are actually presenting an event from a specific viewpoint. For example, are they aware of the distinction between the following:

- (a) O Kostas zoyrafi-z-e mia zoyrafia.

The-Kostas was drawing-IMPF a picture.

Kostas was drawing a picture.

- (b) O Kostas zoyrafi-s-e mia zoyrafia.

The-Kostas drew-PF a picture.

Kostas drew a picture.

When uttering (a) or (b) are they aware of the semantics triggered by the perfective or the imperfective aspect on the verb? Are they aware of the differences incurred by the one or the other aspectual value? And are they able to associate the imperfective aspect on (a) above with an atelic, an ongoing event with no obvious endpoint and the perfective aspect on (b) with a telic, a completed event?

Furthermore, acquiring the semantics of aspect would also entail that the children become aware of the internal temporal structure of an event, that is

- (a) the semantics associated with situation aspect and the Vendlerian classification of verbs into activities, accomplishments, achievements and states, and
- (b) the semantics of aspect that emerge from the relationship between the verb and its arguments in a clause, that is, the inherent aspectual properties of a clause.

With respect to the acquisition of the semantics of situation aspect, the children would need to understand the internal structure of the event denoted by a verb (and its arguments), in terms of initial point - stages- endpoint, so either children need to acquire event structure first and the semantics associated with it, before they associate the semantics of situation aspect with it, or the two processes take place simultaneously.

At this point taking into consideration that lexical and grammatical aspect interact, aspect standing at the “interface between the lexicon and the grammar” (Li, 2000:5) as well as our presupposition regarding the “semantics of aspect” that the children are acquiring actually is (already presented above), we will turn to the next section of this thesis, the experimental chapters.

We run two different experiments; below is a brief summary of their aims as well as what motivated them.

1) *The 'red and green story' experiment.*

This was a sentence-picture matching task. Our aim has been to investigate the following:

- a- the acquisition of viewpoint aspect
- b- the acquisition of situation aspect
- c- the interaction of viewpoint and situation aspect in the acquisition process.
- d- The event structure in children's grammars.

2) *The 'aliens' experiment.*

That was an elicited imitation task during which the children were to perform a sentence repetition task. The design of the stimuli sentences was motivated by the following considerations:

- a) How do children acquire the semantics of aspect?
- b) Given that aspect interacts with aspectual adverbials, (aspectual adverbials are sensitive to the perfective - imperfective distinction), the following idea triggered our experiment: if children can associate the properties of viewpoint aspect with those of aspectual adverbials, then this is an indication of them mastering the semantics of aspect. So we looked at the acquisition of aspect from this perspective as well.

c) Finally, having employed aspectual adverbials in our experiment, we exploited them further. We looked at the following: What is the position that aspectual adverbials are base-generated at in children's grammars? What happens when there is more than one aspectual adverbial in the clause?

Let us now present and discuss our experiments and our findings in detail.

Chapter 5

ON THE «RED AND GREEN STORY» EXPERIMENT

5.1. Introduction

In order to be able to draw conclusions on the acquisition of aspect in its distinct manifestations (the morphology, the syntax and the semantics), we devised the «green and red story experiment». Our aim has been to investigate the following:

- a - the acquisition of viewpoint aspect
- b- the acquisition of situation aspect
- c- the interaction of viewpoint and situation aspect in the acquisition process
- d- event structure acquisition in Modern Greek

5.2. The experimental method

5.2.1. The participants

The experiment was conducted at "Nautilus" nursery school, at Patras in Greece. An independent sample of subjects³⁸ was chosen from four different age groups: The first group comprised ten children, aged two to three; they will be called two-year-olds from now on. The second group had ten children, aged three to four, which will be our three-year-olds. The third group had ten subjects, aged from four to five, which will be called four-year-olds. And the fourth group comprised ten subjects, aged five to six; these will be our five-year-olds.

5.2.2. Material – The picture stories

A sentence-picture matching task was carried out. The material and procedure were adapted and inspired by a task that was devised by Li and Bowerman (1998) to test children's comprehension of viewpoint and situation aspect in Chinese.

The aspectual distinctions are represented in pairs of contrasting picture stories³⁹. Each story was made up of two pictures⁴⁰; the first picture was the same in either story. Both stories of a pair could be described by employing the same verb; the difference between them corresponded to the contrast between the perfective and the

³⁸ The subjects can be found in Appendix 1, p.227.

³⁹ We wish to thank Professor Ping Li for supplying us with the picture stories.

⁴⁰ A set of picture stories can be found in Appendix 2, p.229.

imperfective aspectual marking on the verb. The paired stories were bordered with different colours, one red and one green, and certain details on the pictures were coloured red or green accordingly. The one story then was the “red story” and the other was the “green story”; this naming of the picture stories allowed the two pictures of each story to be referred to as a unit. The picture stories were 18 in total.

According to Li & Bowerman (1998), “these pairs of two-picture stories have two methodological advantages over pairs of single pictures”. Aspect has to do with the contour of a situation over time; the stages of a situation can be depicted more clearly in successive frames than in single pictures.

5.2.3. Procedure

5.2.3.1. The task

Each of the subjects was presented with one pair of stories at a time. Initially they were asked to describe what they could see in each one of the picture stories. Then they were presented with a sentence and they were asked to choose the story that they thought matched the sentence in the best way. The verb in the sentence presented to them was marked for the imperfective or the perfective aspect, to indicate an ongoing or a completed event respectively. The red picture story always presented the event as ongoing, describing the initial and middle stages. The green story presented the event as completed, showing the initial and final stages. The children were presented with

30 stimulus sentences in total. The verb was marked for the imperfective aspect in 15 of them and for the perfective aspect in the remaining 15. The verbs in these sentences had also been carefully chosen and categorised for situation aspect as well. There were 6 sentences for each situation aspect type. The stimulus sentences were randomised, so that the children would avoid being presented with sentences marked for the same viewpoint or situation aspect repeatedly.

5.2.3.2. Control conditions

When we carried out the experiment, certain factors had to be taken into consideration and controlled for accordingly:

1 - The children's potential preference for the red over the green colour or vice versa. This was tested to check whether the subjects' preference for one or the other colour affected their selection of the red or the green story when asked to decide which of the two stories the stimulus sentence described best. Typically a child who told us that he preferred the red colour over the green one actually selected the green story more times than the red one, so preference for the red colour did not appear to bias the story selection.

2- When describing the picture stories presented to them, the children had the tendency to naturally present the whole story with its completion. So, the fact that the red story was showing an event, the natural completion of which was depicted in the green story had to be taken into consideration. We needed the children to focus on the

description of the event of the red story and present it from their own viewpoint rather than visualize the completion of the scenario of the picture story by looking at the green story right from the beginning. In this way, their description of the red story would not be biased by the green story. To control for this, the green story of each pair was only presented after the children had talked about the red one to see how they would describe the red story with the green one out of sight, and therefore for the completion of the scenario –if existing- to be independent of the content of the green story.

3- Further to this, it should be mentioned that our youngest subjects (2-year-olds) sometimes did not seem to realise that the two pictures of the red or the green story were to form a logical sequence and describe one story. For example, some children thought that the boy in picture one of a red story was different from the boy in picture two of the same story and not the same boy involved in a single event. To solve this problem, the experimenter would point out to the child that the boy (in the example above) is the same boy in both pictures and that each set of pictures makes up a story. The reason that the experimenter would provide extra explanations where needed was that it was essential that the subjects understood what the stories were describing, in order for them to be able to perform the story selection task they were required to immediately afterwards.

4- Finally, it should be noted here that the actual content of the picture stories did not appear to affect the children in their matching of the stimulus sentence against the red or the green story of each pair of stories they were presented with. Their liking of the

picture stories actually captured their attention intact and this facilitated the experimental task.

5.2.3.3. Aims

As explained above the first part of the analysis is to look at how the children associate the perfective or the imperfective marking of the verbs in the sentences with the stories given to them. Through this association we will be able to test the acquisition of viewpoint aspect in the various age groups.

The second part of the analysis will test the association of viewpoint aspect and situation aspect. I want to see if the children understand the perfective or imperfective marking of a verb better with some verb types than with others. The question then is if and how viewpoint (expressed with the perfective or the imperfective marking on the verb) and situation aspect interact and affect children's responses in the experiment. Is situation aspect affecting the children's understanding of the perfective or imperfective markers on the verb?

When classifying the verbs in terms of the event type they denote, the following aspectual features were looked at: whether the verbs were dynamic or non- dynamic, whether they were telic (with inherent endpoint) or atelic, whether they were punctual and instantaneous, or whether they were characterising situations as having successive

phases. The question is if any of these features is more important and crucial for the children in their acquisition process.

5.2.3.4. Classifications

I will first classify the verbs used in the above sentences according to their inherent aspectual properties. I will follow the Vendlerian line of classification, which is based on the event type the verbs denote and is as follows: Vendler classified the verbs - actually verb phrases - into *activities*, *accomplishments*, *achievements* and *states*. I will further include the event type that Smith added, *semelfactives*.

With reference to situation aspect and the “inherent endpoint” notion, activity, semelfactive and state verbs are “*atelic*”, not telic, in that they encode no endpoint, and accomplishment and achievement verbs are “*telic*”, in that they do encode an endpoint.

Some linguists have extended the Vendlerian classification by classifying verbs into pairs of contrasts, not only as telic versus atelic, but also punctual versus durative, and stative versus dynamic [Comrie 1976]. Further, I will classify my verbs into pairs contrasting by reference to aspectual features, as analysed by Smith [1991 [+/- telic], [+/- punctual], [+/-dynamic].

With all the above in mind, let's categorise the verbs in the stimulus sentences⁴¹ in terms of viewpoint aspect, situation aspect and pairs of aspectual features.

id	Sentence	Situation Aspect	Viewpoint Aspect	Aspectual Features Set 1	Aspectual Features Set 2	Aspectual Features Set 3
1	To koritsaki zoyrafizi ena louloudaki The little girl is painting a flower.	Accomplishment	IMPF	Telic	Durative	Dynamic
2	To koritsaki zoyrafise mia zoyrafia. The little girl drew a picture.	Accomplishment	PF	Telic	Durative	Dynamic
3	Ta pedakia piyan sto sholio. The children went to school.	Accomplishment	PF	Telic	Durative	Dynamic
4	Ta pedia piyenoun sto sholio. The children are going to school.	Activity	IMPF	Atelic	Durative	Dynamic
5	O babas aneveni ena ena ta skalopatia. Daddy is going up the stairs one by one.	Achievement	IMPF	Telic	Punctual	Dynamic
6	O batrahoulis vriskete stin akri tis limnoulas.	State	IMPF	Atelic	Durative	Non-Dynamic

⁴¹ The reader is referred to Appendix 3, p.231, which further includes the correct matching story for each stimulus sentence.

On the 'red and green' story

7	O vtrahoulis horopidise (= ekane pidimatakia) apo noufaro se noufaro. The little frog jumped from waterlily to waterlily.	Semelfactive	PF	Atelic	Puctual	Dynamic
8	O kirios ipie yala. The man drank milk.	Activity	PF	Atelic	Durative	Dynamic
9	To koritsaki kouvalise nero. The little girl carried water.	Activity	PF	Atelic	Durative	Dynamic
10	To koritsaki stekete dipla sto kouvadaki. The little girl is standing next to the bucket.	State	IMPF	Atelic	Durative	Non-Dynamic
11	To pedaki kolibai. The child is swimming.	Activity	IMPF	Atelic	Durative	Dynamic
12	To pedaki kerdise ton ayona. The little child won the race.	Accomplishment	PF	Telic	Durative	Dynamic
13	O pappous diavase istories apo to vivlio. Grandpa read stories from the book.	Activity	PF	Atelic	Durative	Dynamic
14	To pedaki ftiahni kati me ta touvlakia tou. The child is making something with his toy-bricks.	Accomplishment	IMPF	Telic	Durative	Dynamic

On the 'red and green' story

15	To pedaki eftiakse ena spitaki me ta touvlakia tou. The child made a house with his toy-bricks.	Achievement	PF	Telic	Punctual	Dynamic
16	O babas ine pano stin karekla. Dad is on the chair.	State	IMPF	Atelic	Durative	Non-Dynamic
17	O kirios kremase ton pinaka ston tixo. The gentleman hung the painting on the wall.	Achievement	PF	Telic	Punctual	Dynamic
18	O tixos itan pia omorfa diakosmimenos. The wall was then beautifully decorated.	State	PF	Atelic	Durative	Non-Dynamic
19	O ayrotis klotsai to yourounaki. The farmer is kicking the little pig.	Semelfactive	IMPF	Atelic	Punctual	Dynamic
20	To yourounaki itan tromaymeno. The little pig was scared.	State	PF	Atelic	Durative	Non-Dynamic
21	To koritsaki ntithike. The little girl got dressed.	Achievement	PF	Telic	Punctual	Dynamic
22	To koritsaki vazi ta rouxa tou. The little girl is putting on her clothes.	Accomplishment	IMPF	Telic	Durative	Dynamic

On the 'red and green' story

23	O kirios perni mia efimerida yia na diavasi. The gentleman is getting a newspaper to read.	Achievement	IMPF	Telic	Punctual	Dynamic
24	O babas patai ton diakopti. Daddy pushes the switch.	Semelfactive	IMPF	Atelic	Punctual	Dynamic
25	O babas svini to fos. My dad turns the light off.	Achievement	IMPF	Telic	Punctual	Dynamic
26	To fos itan klisto. The light was off.	State	PF	Atelic	Durative	Non-Dynamic
27	To potiri pefti. The glass is falling.	Semelfactive	IMPF	Atelic	Punctual	Dynamic
28	O athlitis trehi. The athlete is running.	Activity	IMPF	Atelic	Durative	Dynamic
29	O pithikos ektelese toubes ston aera. The monkey turned somersaults in the air.	Semelfactive	PF	Atelic	Punctual	Dynamic
30	To pedaki fternistike. ksana ke ksana. The little child sneezed again and again.	Semelfactive	PF	Atelic	Punctual	Dynamic

The experiment was carefully designed in order to properly account for all classifications, as described in the following tables:

Viewpoint Aspect	Number of sentences
	1200
IMPF	600
PF	600

Situation Aspect	Number of sentences
	1200
Accomplishment	240
Achievement	240
Activity	240
Semelfactive	240
State	240

It becomes obvious that both viewpoint and situation aspect have been designed to be treated as variables and the conditions that have been created are well balanced. Our analysis will also include three sets of aspectual features⁴², the occurrence of which follows from the situation aspect classification.

5.2.3.5. Data Analysis – The statistics

Coding and reference categories:

Following our previous discussion, in our analysis we used seven categorical variables.

- Age: (2-3 years-old, 3-4 years-old, 4-5 years-old, 5-6 years-old)
- Situation Aspect: (ACCOMPLISHMENT, ACHIEVEMENT, ACTIVITY, SEMELFACTIVE, STATE)

⁴² The equivalent tables for (deriving) the aspectual features are to be found in Appendix 4, p.235.

- Viewpoint Aspect: (IMPF, PF)
- Answers (Correct, Incorrect)
- Aspectual Features Set 1 (Telic, Atelic)
- Aspectual Features Set 2 (Punctual, Durative)
- Aspectual Features Set 3 (Dynamic, Non-Dynamic)

In our experiment we want to see if there is a relationship between two categorical variables (e.g. Answers and Age) when we divide our sample firstly according to the Viewpoint Aspect, secondly according the Situation Aspect and then according to Aspectual Features Set 1, Aspectual Features Set 2, Aspectual Features Set 3. The best test for our experiment is Pearson's Chi Square test (Fisher, 1922; Pearson, 1900). We also wish to examine the statistical significance of the associations between the categorical variables such as Age, Situation Aspect, and Viewpoint Aspect. Chi-Square tests the hypothesis that the row and column variables are independent, without indicating strength or direction of the relationship.

Chi Square or Pearson-Fisher (χ^2) test was proposed as a measure of random departure between observation and the theoretical model by Karl PEARSON and was later corrected by Ronald FISHER. The agreement between observation and the model are tested through the division of the interval of observation in a given number of intervals (let this number be n) by X^2 expression given in the Equation:

$$X^2 = \sum_{i=1}^n (O_i - E_i)^2 / E_i ; p = p_{\chi^2}(X^2, n - t - 1)$$

where X^2 = chi square statistic; O_i and E_i are the observed and expected frequencies in the i -th frequency class; $p\chi^2$ = probability of observing the X^2 departure (from 0) by using chi square distribution; n = number of classes; t is the number of central tendency measures estimated parameters). Usually the agreement is accepted when p is no less than 5%.

This is a well-known statistic based on the simple idea of comparing the frequencies we observe in certain categories to the frequencies we might expect to get in those categories by chance. Thus, we test the null hypothesis that the two means are equal and independent. If the probability (p) of the test falls below a threshold level (set at 0.05, i.e. 5%), then the null hypothesis is rejected in favour of the alternative. If Sig. is less than 0.05, then the test is significant at 95% confidence and, equivalently, the hypothesis that the means are equal can be rejected at the 95% level of confidence. Thus, the interacting values significantly contributing to the explanation of the distribution of data in any relevant table will show there is some relationship between specific age group and correct usage of the aspect type.

5.3. Results

5.3.1. Overview of Results

The experiment we conducted, followed by an in-depth analysis of the data we collected, has provided us with useful and enlightening results into the acquisition of aspect by little children.

In terms of viewpoint aspect, our major finding is that imperfective aspect is acquired first. During the acquisition process, the perfective and the imperfective are better employed as time goes by, until being fully mastered.

Turning to situation aspect, semelfactives and states are better employed from as early as the age of two. Accomplishments are well-attested at the age of three and finally children acquire achievements and activities.

Most importantly, our results clearly prove that viewpoint and situation aspect interact during the acquisition process, that is, the children's use of the perfective and the imperfective aspectual marking on the verb is related to its situation type.

Finally, by means of mapping our findings about situation aspect onto Moens & Steedman's event types and further analysing them in the light of Cormack and Smith's (1999) event structure theory, we found that little children acquire event structure very early, at the age of three.

We will now move to a more detailed presentation and discussion of our results, starting from the statistical methods we employed towards a detailed analysis of our findings.

5.3.2. *Characterising the children's responses*

In our analysis the children's responses are characterised in terms of two possible outcomes: that is, we adopted a classification that distinguishes between *correct* and *incorrect* story selection.

It was first established that the children were able to describe the picture stories in their own way. Then the experimenter would present the stimulus sentence and the children had to choose the story that matched the sentence. The reader is referred to two examples below to get an idea of the dialogues we had with the children.

A)...

- Ena ayoraki pini to yala tou.

One boy-DIM drink-IMPF the milk his

(A young boy is drinking (IMPF) his milk).

- K' edo?

and here?

(and in this picture story?)

- To'hi pii ke pai alou.

it (he) has drunk (PF) and (he) goes elsewhere

(He has drunk it and he is going somewhere else.)

- *stimulus sentence*: To ayoraki ipie yala.

The little boy drank (PF) milk

The young boy drank milk.

- PRASINI(green story)

- Yiati?

(Why?)

- Yiati tora to teliose.

Because now it (he) finished (PF).

(Because now he finished it.)

B).....

- Edo anevike se mia karekla ke pire ti fotoyrafia.

Here (he) climbed (PF) on a chair and took the photograph.

(In this picture story he climbed on a chair and took the photograph.)

- Ki edo? Ti tin kani ti fotoyrafia?

And here? What it does (IMPF) the photograph?

(And here? What is he doing with the photograph?)

- Tin kolai.

It (he) sticks (IMPF).

(He is sticking it on.)

- Pou tin kolai?

Where it (he) sticks (IMPF)?

(where is he sticking it?)

- Eki pou itan.

There that was.

(At the place where it was.)

- Yia na doume ke tin ali istoria.

For to see and the other story.

(Let's take a look at the other story.)

On the 'red and green' story

- Pali anevike yia na tin kremasi.

Again (he) climbed (PF) for to it hang.

(Again he climbed on a chair to hang it.)

- Ki edo ti ekane?

And here what did (he)?

(And what did he do in this picture?)

- Edo efiye.

Here (he) left (PF).

(He left.)

- *Stimulus sentence*: O kurios kremase mia fotoyrafia ston tixo.

The man hanged (PF) a photograph on the wall.

(The man hanged a picture on the wall)

- PRASINI (green story).

- Yiati? (Why?)

- Yiati exi teliosi.

Because (he) has finished. (PF)

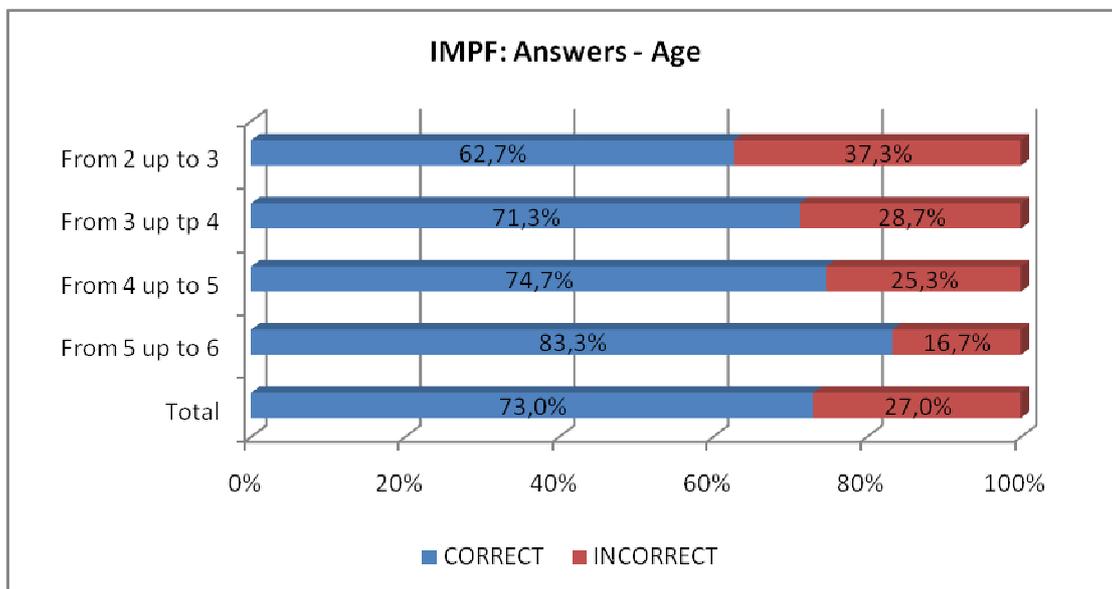
(Because he has finished.)

Further to this, it should be mentioned that our youngest subjects (2-year-olds) sometimes did not seem to realise that the two pictures of the red or the green story were to form a logical sequence and describe one story. The experimenter would point out to the child that each set of pictures makes up a story. The reason that the experimenter would provide this explanation where needed was that it was essential that the subjects understood what the stories were describing, in order for them to be able to perform the story selection task that was required of them.

5.3.3. The acquisition of Viewpoint Aspect

First of all, we want to check if there is a relation between Age and Viewpoint Aspect. For this reason we use the Crosstabs procedure of SPSS to test if the results are statistically significant. The asymptotic significance of the chi-square statistic⁴³ is shown to be less than 0.05 for IMPF (Chi-square=16.67, df=3, p<0.05) and for PF Chi-square=34.48, p<0.001. So, it is safe to say that the results for Viewpoint Aspects are not due to chance variation, which implies that there is a relationship between Age and Viewpoint Aspect determining whether the Answers are Correct or Incorrect.

5.3.3.1. Viewpoint Aspect: Imperfective



Graph 1: The findings on the acquisition of Imperfective Aspect across the Ages. The relevant statistical analysis is in Appendix 6.1., p.242.

⁴³ The statistical analysis' results have been placed in the Appendices, each one with the relevant heading to guide the reader through.

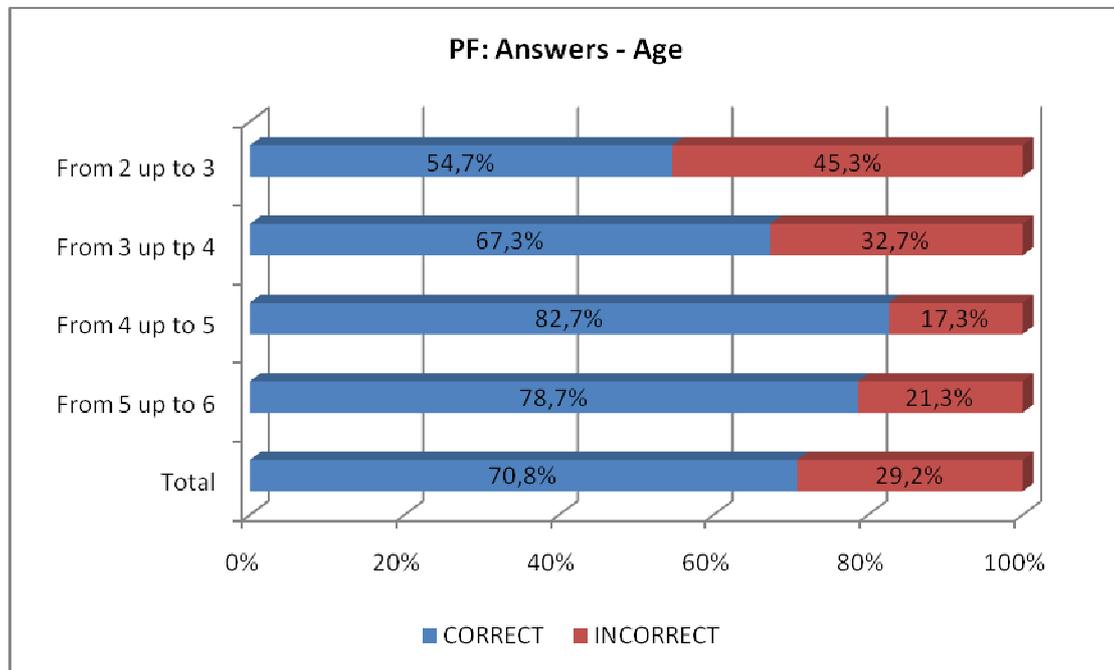
On the 'red and green' story

There was a significant association between age and whether children answered correctly for the IMPF or not. (Chi-square=16.67, df=3, $p<0.05$).

We can see that out of 600 answers, there were 438 correct answers for the IMPF (73.0% of the total). At the age 2 to 3, the subjects gave 94 correct answers (62.7%), at the age of 3 they produced 107 correct answers (71.3%), at the age of 4 their correct responses increased to 112 (74.7%) and at the age of 5, the number of correct responses rose to 125 (83.3%).

We can clearly see that as the children grow up the percentage of correct answers increases. When they reach the age of 4, almost three out of four children will give a correct answer for IMPF. Children maximized their performance at the age of 5.

5.3.3.2. Viewpoint Aspect: Perfective



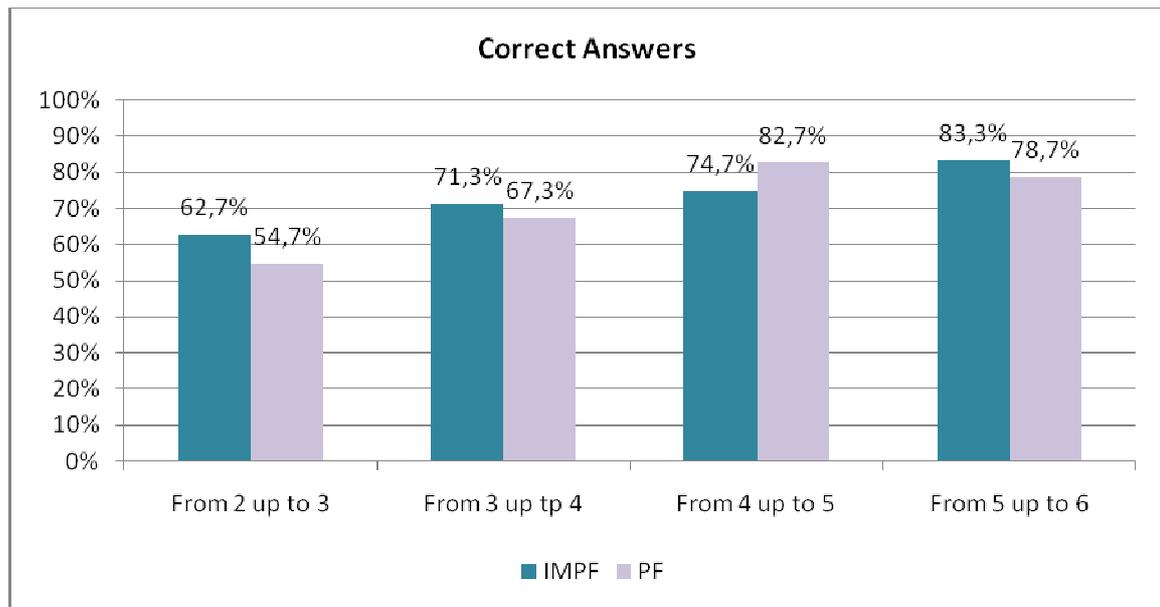
Graph 2: The findings on the acquisition of Perfective Aspect across the Ages. The relevant statistical analysis is in Appendix 6.2., p.244.

There was a significant association between Age and whether or not children answered correctly for the PF. (Chi-square=34.48, df=3, p<0.05)

We can see that out of 600 answers, there were 425 correct answers for the PF (70.8% of the total). At age 2, the subjects gave 82 correct answers (54.7%), at age of 3 they gave 101 correct answers (67.3%), at the age of 4 the number of correct responses rose to 124 (82.7%) and at the age of 5, there were 118 correct responses (78.7%). Again as children grow up, the percentage of correct answers increases. Children maximize their performance at the age of 4.

5.3.3.3. Overall performance for viewpoint aspect

Let us now consider and compare the subjects' performance of viewpoint aspect overall.



Graph 3: The findings on the acquisition of Viewpoint Aspect across the Ages.

Graph 3 above presents the children's employment of the Perfective and the Imperfective aspect across the years. At the age of 2, children have better knowledge of the IMPF. Both knowledge for IMPF and PF improve as the children grow up, but they achieve maximum knowledge of the PF at an earlier age than that of the IMPF.

Let us now focus on the actual results. As we can see in the graph, the Imperfective aspect (62.7%) is better acquired at 2 years of age than the Perfective (54.7%). At 3 years, the Imperfective and Perfective are gradually developed at 71.3% and 67.3% respectively. At 4 years we observe a significant increase in the development of Perfective at 82.7% (which reaches its peak) and a gradual development of the

Imperfective at 74.75%. At 5 years the Imperfective reaches its peak at 83.3% and the Perfective changes lower, at 78.7%.

The development in both types of viewpoint aspect across the ages is transparent and the acquisition of both of them keeps improving until the age of four for the Perfective when it reaches its best and until the age of five for the Imperfective. With the exception of the age of 4, overall, the Imperfective seems to be better employed than the Perfective across the ages. The fact that the situation is somehow different at the age of 4, together with the fact that the Perfective appears to have a lower percentage at the age of 5 in comparison to the one at the age of 4, may suggest that the children are over-generalising the use of the Perfective at that stage (age 4) and at 5 they proceed to properly acquiring and fixing the relevant features that are associated with it. Please note that we are exploring the acquisition of the semantics incurred by the one or the other of the two aspectual values of viewpoint aspect by means of the children's ability to correctly associate viewpoint aspect to the picture stories. Morphologically, the children have acquired them in their system much earlier.

We will now examine the acquisition of situation aspect and after that we will return to viewpoint aspect and we will see the breakdown of how it is mastered in the different situation types. The first tentative conclusion at this point is that the subjects have a better employment of the Imperfective, whereas the Perfective appears to be best mastered first.

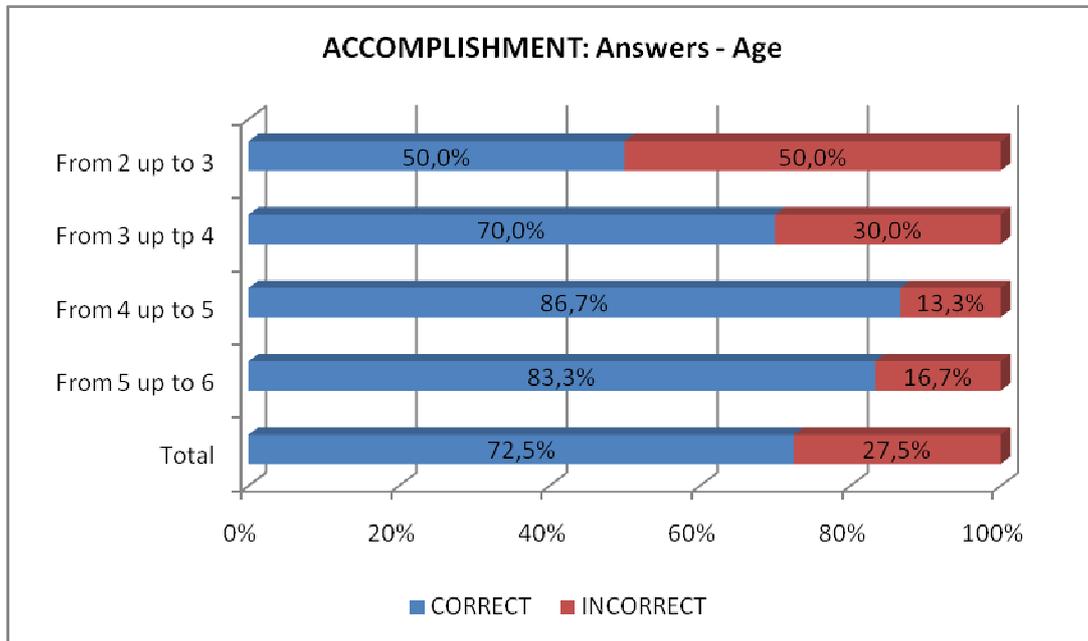
5.3.4. The acquisition of Situation Aspect

The acquisition of situation aspect was then examined. Looking at the results on situation aspect, it is impossible to tell whether these differences are real or due to chance variation without performing a statistical analysis. We need to do the chi-square test to measure the discrepancy between the observed cell counts and what would be expected if the rows and columns were unrelated.

First of all, we need to check if there is a relation between Age and Situation Aspect. The asymptotic significance of the chi-square statistic is less than 0.05 for Accomplishments (Chi-square=24.99, df=3, p=0.00), Achievement (Chi-square=7.89, df=3, p=0.04), Semelfactive (Chi-square=14.41, df=3, p=0.002) and State (Chi-square=11.82, df=3, p=0.008). Thus, it is safe to say that the results for these types of Situation Aspect are not due to chance variation; this implies that there is a strong relationship between Age and Situation Aspect determining whether the Answers are Correct or Incorrect.

For the case of Activity (Chi-square=2.36, df=3, p = 0.501) the results have not turned out to be statistically significant.

5.3.4.1. Situation aspect: Accomplishment

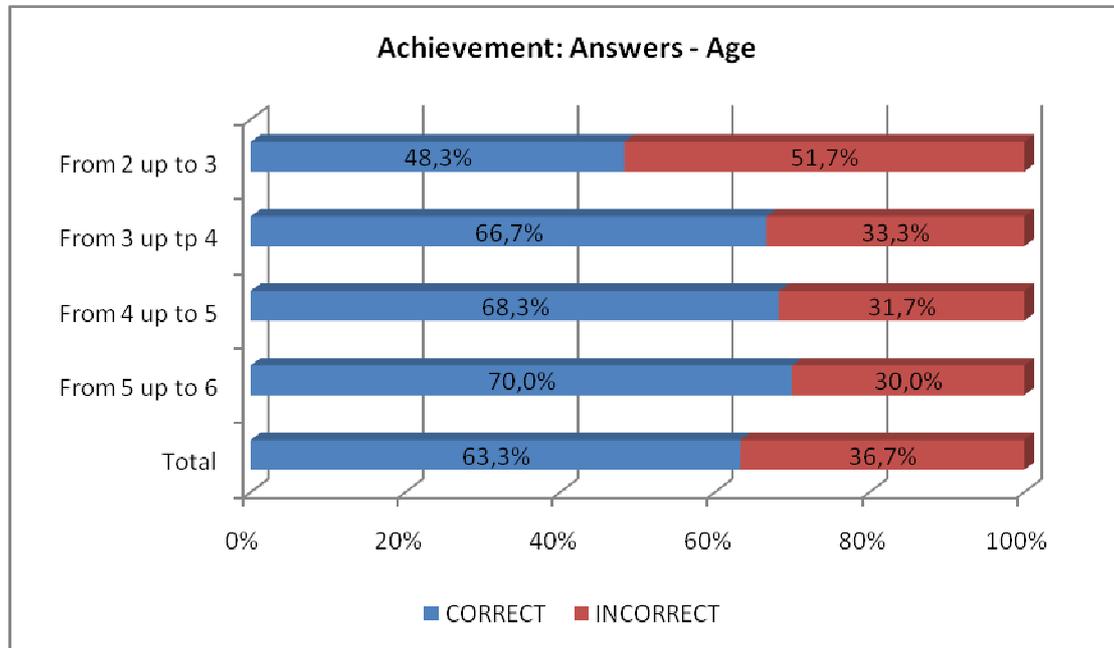


Graph 4: The findings on the acquisition of Accomplishment across the ages. The relevant statistical analysis is in Appendix 6.3., p.246.

There was a significant association (Chi-square=24.99, df=3, p=0.00) between Age and whether or not children answered correctly for Accomplishment.

We can see that out of 240 answers, there were 174 correct answers for Accomplishment (72.5%). The percentages ranged from 50.0%, at the age of two, to 70% at the age of three (42 correct answers); then to 86,6% at the age of 4 (52 correct answers) and to 83,3% at the age of 5(50 correct answers). We observe a gradual development of Accomplishment with the peak at the age of four and a minimal drop at the age of five.

5.3.4.2. Situation aspect: Achievement



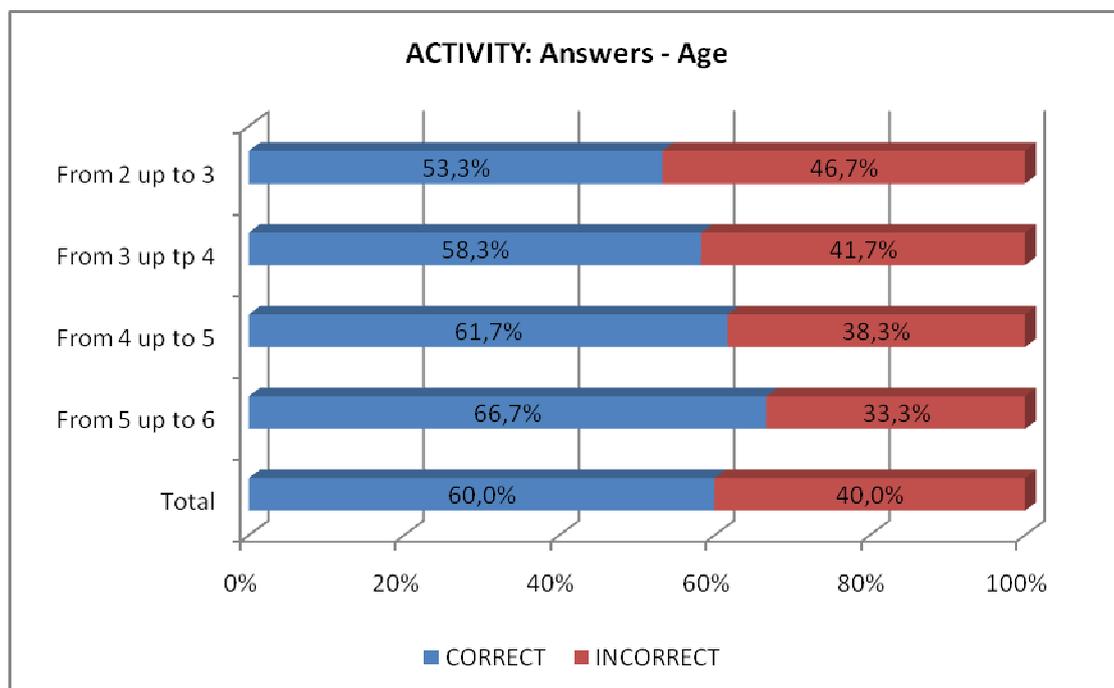
Graph 5: The findings on the acquisition of Achievement across the ages. The relevant statistical analysis is in Appendix 6.4., p.248.

There was a significant association (Chi-square=7.89, $p < 0.005$) between age and whether or not children answered correctly for the Achievement.

We can see that out of 240 answers, there were 152 correct answers for Achievement (63.3%). At the age 2, the subjects gave 29 correct answers (48.3%), at the age of 3 there was a significant rise in the number of correct answers; there were 40, reaching a 66.7%. At the age of 4 they produced 41 correct answers (68.3%) and their performance peaked at the age of 5 with 42 correct answers (70.0%). Therefore, we have observed a gradual development of Achievement, with the peak at the age 5.

The slight U-shape line that Achievements seem to indicate is explained by the fact that the combination of Achievement with Imperfective aspectual marking on the verb may sound a bit odd to the children. Achievements are better understood with the verb marked with the Perfective aspect. 5-year-olds have a better understanding of the semantics incurred by achievements and the imperfective; that is to say that achievements are telic in nature and the imperfective atelic, thus the combination is a bit otiose unless we consider the role of the verbs' complements.

5.3.4.3. *Situation aspect: Activity*



Graph 6: The findings on the acquisition of Activity across the ages. The relevant statistical analysis is in Appendix 6.5., p.250.

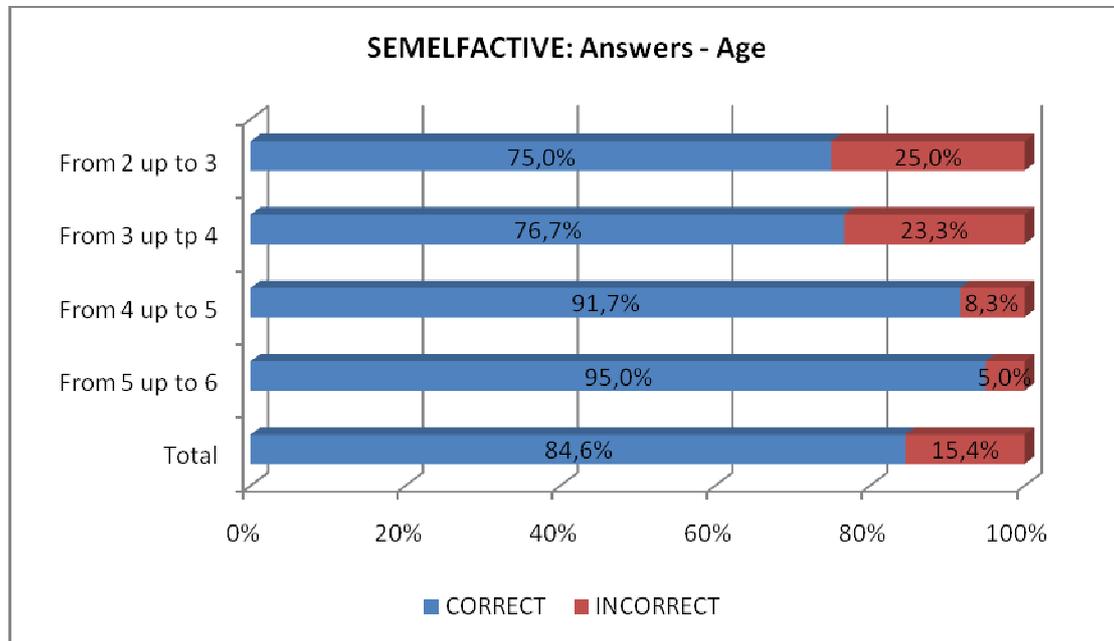
On the 'red and green' story

There was not a significant association between the age and whether or not children answered correctly for Activity. The reason for that is that although it becomes obvious that the percentage of correct answers increases by age, this change is very small during the years.

We can see that in total there were 144 correct answers for Activity (60.0%) and of these the percentages varied slightly across the ages: 53.3% for the two-year-olds, 58.3% for the three-year-olds, 61.7% for the four-year-olds and 66.7% for the five-year-olds.

The reason that the statistical analysis has had this outcome with respect to the category of activity is because children find it difficult to associate Activity with Perfective marking on the verb; the reason being that Activity is atelic in nature and the Perfective marking on the verb implies a telic event and the children find it difficult to work out the interaction between the two.

5.3.4.4. Situation Aspect: Semelfactive



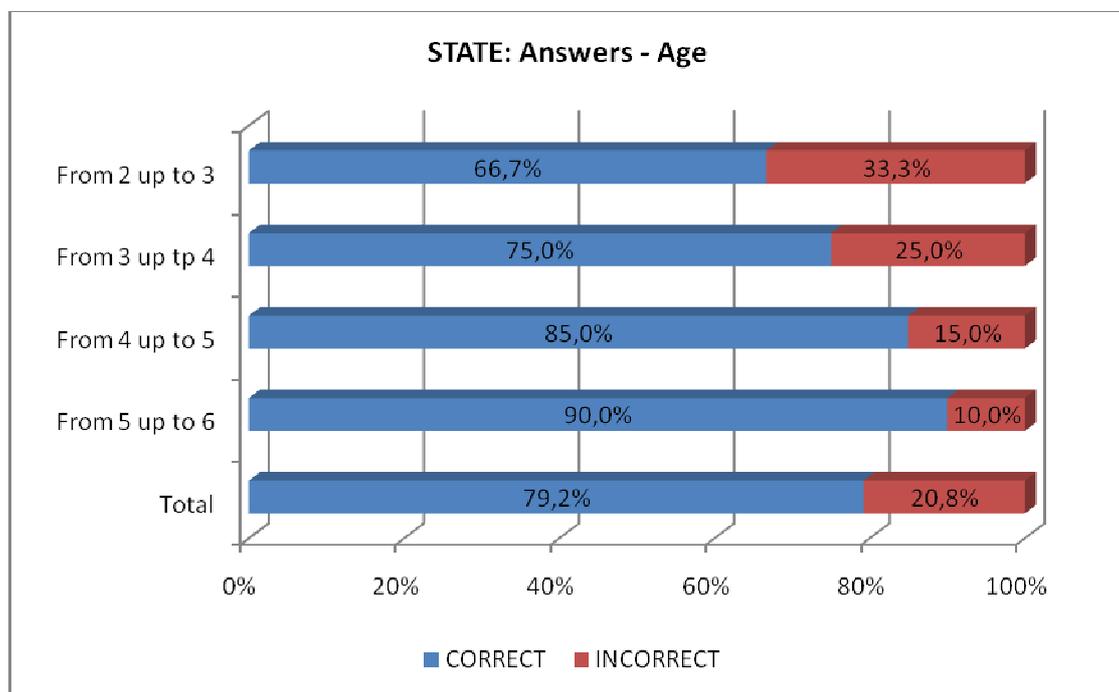
Graph 7: The findings on the acquisition of Semelfactive across the ages. The relevant statistical analysis is in Appendix 6.6., p.252.

There was a significant association (Chi-square=14.41, df=3, p=0.02) between Age and whether or not children answered correctly for the Semelfactive.

We can see that out of 240 answers, there were 203 correct answers for the Semelfactive (84.6%). The children's performance was exceptionally good from as early as the age of two, when it was already at 75% (the subjects gave 45 correct answers), it improved slightly at the age of three (76.7%, 46 correct answers). At the age of four, the percentage of correct answers is 91,7% (55 correct answers) and the acquisition of Semelfactive peaks at the age of five at 95% (57 correct answers).

Among all situation aspect categories, children have been found to exhibit best knowledge of Semelfactives across the ages.

5.3.4.5. Situation Aspect: State



Graph 8: The findings on the acquisition of State across the ages. The relevant statistical analysis is in Appendix 6.7., p.254.

There was a significant association (Chi-square=11.82, df=3, p=0.008) between age and whether or not children answered correctly for the category of State.

We can see that out of 240 answers, there were 190 correct answers for State (79.2).

At the age of two, the subjects' performance was at 66,7% (they gave 40 correct

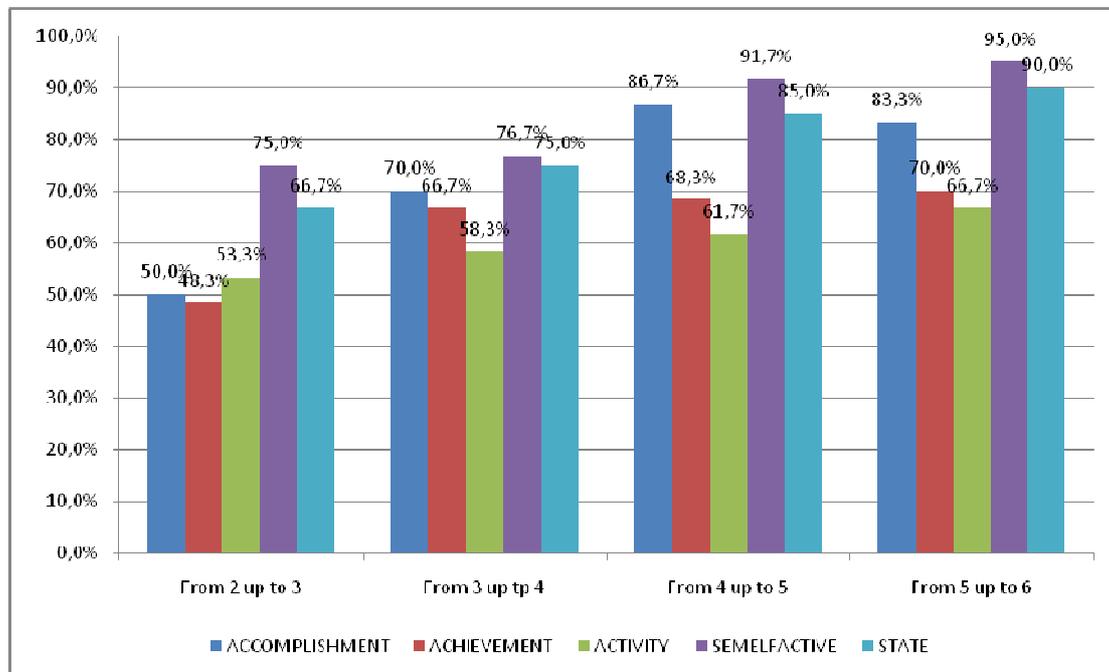
On the 'red and green' story

answers), at the age of three their performance rose to 75% (45 correct answers). The percentage of correct answers further improved at the age of four at 85% (51 correct responses) and peaked at five years of age at 90% (54 correct responses).

State is –along with Semelfactive- one of the best-attested categories throughout the years.

5.3.4.5. The acquisition of Situation Aspect: overall

Having presented our results for each category of Situation Aspect, in order to able to draw some conclusions, it is worth looking at the results altogether. These are presented in graph 9 below:



Graph 9: The findings on the acquisition of Situation Aspect across the ages.

On the 'red and green' story

It becomes obvious that children exhibit very good knowledge of Semelfactive from as early as the age of two. Their performance with semelfactive is the best throughout the ages. By the age of five they have complete mastery of semelfactives in their system. The situation is quite similar for the category of State, which is the second best attained. Accomplishments start quite low at the age of two, but at the age of three, already, the children seem to be gaining good mastery of them, followed by even better performance later on. Achievements are to follow next, but although the children show gradual development on their acquisition of this category, by the age of 5 they have not fully mastered it in their system, the percentage of correct responses being 70% at that age. Finally, activities appear to develop across the ages but the development is only marginal.

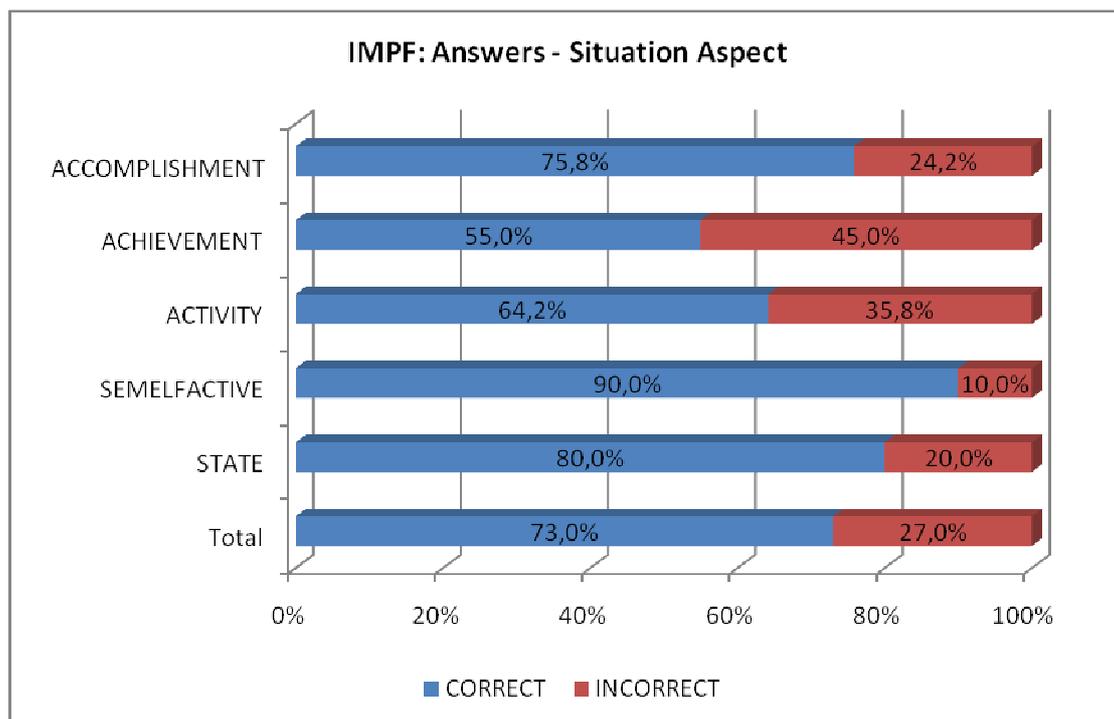
All these findings will be further discussed in terms of the acquisition of the aspectual features in a later section in this chapter.

To sum up, semelfactives and states seem to be better understood by younger subjects. They are followed by accomplishments and later on by achievements and activities. Before we draw our final conclusions though, we need to investigate whether viewpoint aspect and situation aspect interact in the acquisition process. To this we turn next.

5.3.5. The interaction of viewpoint and situation aspect

The statistical analysis we performed has actually shown that viewpoint and situation aspect are related, as the child is acquiring its grammar. So, in this section we will present the results of how the two correlate. This means that we will show how the children employ the perfective and the imperfective aspect in the various situation types. Below are the graphs to illustrate our findings.

5.3.5.1. The intersection of the Imperfective and Situation Aspect



Graph 10: The findings on the interaction of the Imperfective and Situation Aspect⁴⁴.

The relevant statistical analysis is in Appendix 6.8., p.256.

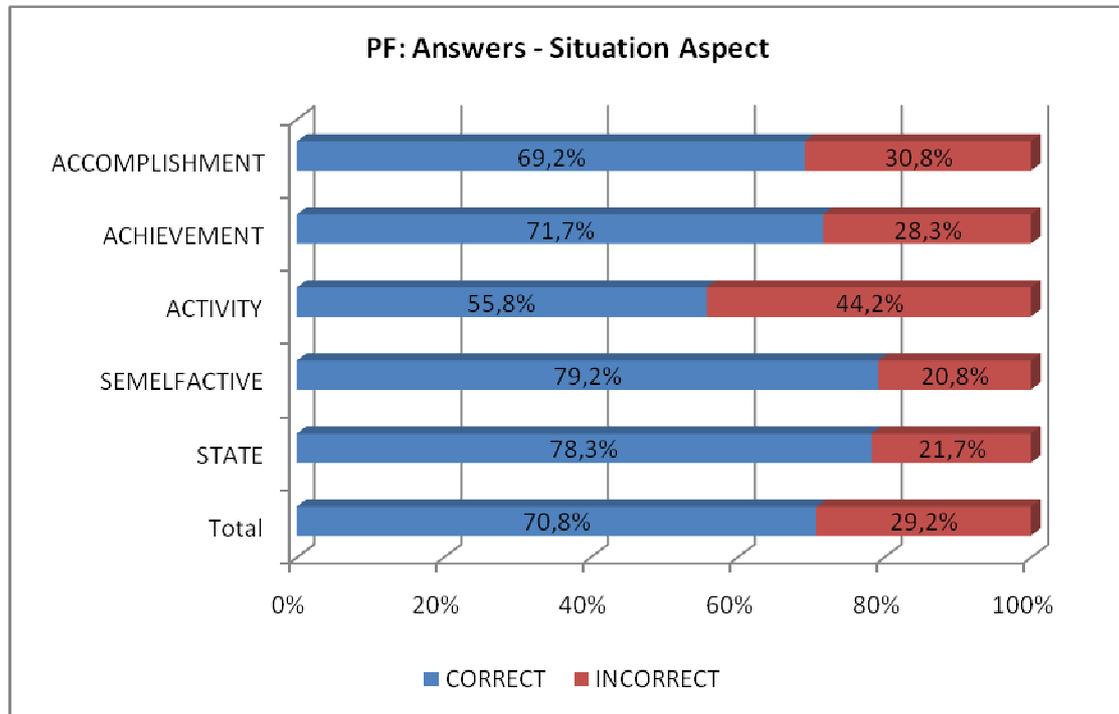
⁴⁴ The breakdown of the interaction of situation aspect and the perfective/imperfective distinction across the ages is in Appendix 6.10.1. (p.260) and 6.10.2. (p.266).

There was a significant association between Situation Aspect and whether or not children answered correctly for the Imperfective (Chi-square=45.54, $p=0.001$).

We can see that in total the children produced 438 correct answers, the aspectual marking on the verb being the imperfective (73.0%). In the breakdown of situation aspect where the aspectual value of the verb is the imperfective, the percentage of correct responses for Accomplishments was 75.8% (91 correct responses), for Achievements down to 55% (66 correct responses), for Activity 64,2% (77 correct responses), for Semelfactives 90% (108 correct responses) and for States 80% (96 correct answers).

Looking at these results, one realizes that the children performed badly when achievements had the Imperfective as their aspectual marking. Achievements are telic and punctual in nature; these properties may be difficult to process with the imperfective marking on the verb and it turned out to be quite difficult for the children.

5.3.5.2. The intersection of the Perfective and Situation Aspect



Graph 11: The findings on the interaction of the Imperfective and Situation Aspect.

The relevant statistical analysis is in Appendix 6.9., p.258.

There was a significant association between Situation Aspect and whether or not children answered correctly when the verbs carried the perfective aspectual marking (Chi-square=20.57, p=0.001).

We can see that in total the children produced 425 correct answers the verb being perfective (70.8%). A breakdown of those revealed that children answered correctly for Accomplishments at 69.2% (83 correct answers). With regards to Achievements, their performance was at 71.75 (86 correct responses), whereas it went down to 55.8% for Activity (67 correct answers). Finally, the percentage of correct responses

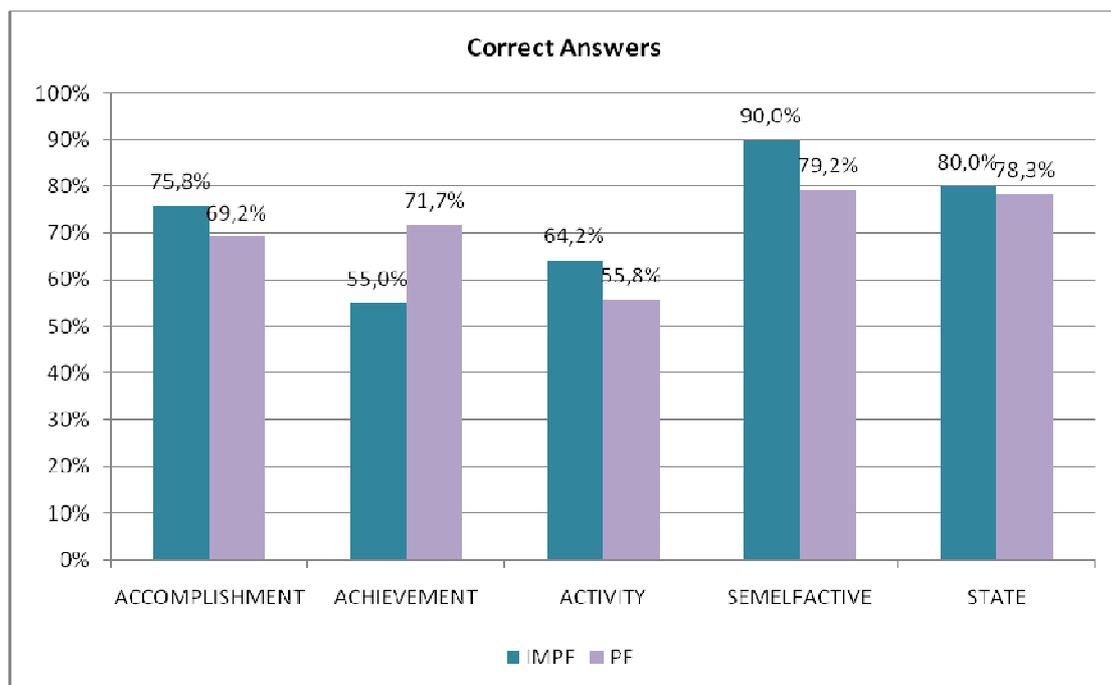
On the 'red and green' story

for Semelfactive was a high 79.2% (95 correct responses) and for State 78.3% (94 correct responses).

The problematic combination has been that of Activity verbs marked for the perfective aspect. The reason for that is that Activity verbs are by definition non-punctual and atelic and the children find it difficult to associate these features with the perfective marker on the verb.

5.3.5.3. The interaction of Viewpoint and Situation Aspect overall

Having considered the interaction of the perfective and the imperfective aspectual marking with each situation aspect category, the graph below brings together all the results.



Graph 12: The interaction of viewpoint and situation aspect – overall findings

The best attested category of Semelfactives is better combined with the imperfective aspectual marking. This is followed by a good performance of states with both viewpoint markings (the imperfective is slightly higher), then accomplishments are better combined with the imperfective and finally achievements are best combined with the perfective as opposed to activities which prefer the imperfective aspectual marking on the verb.

Our findings are similar to the findings that have been reported for the acquisition of aspect in the English language in the sense that, initially, English-speaking children tend to associate the use of the progressive marker *-ing* only with atelic, activity verbs, such as *play, ride, write*, whereas they associate the past perfective marker *-ed* only with telic verbs (accomplishments and achievements), such as *find, fall, break*⁴⁵.

Finally, it should be noted that the strong association of viewpoint and situation aspect weakens over time, and by the age of six eventually children develop adult-like competence in using both the perfective and the imperfective aspectual markers with different situation aspect categories.

All the above findings will be discussed in the light of the acquisition of aspectual features, to which we turn next.

⁴⁵ In a similar fashion, Brown (1973) found that children never overgeneralize the progressive marker *-ing* to stative verbs (i.e. they don't say *knowing* or *wanting*). This was later taken as evidence that the distinction between state and process is innate (Bickerton 1981, 1984; Smith 1991, 1997)

5.3.6. Aspectual features

In this section we will discuss our findings on aspectual features. These, in fact, do not constitute a new set of results, given their predictability based on situation aspect. The results reported in the earlier section, therefore, predict what the results concerning the aspectual features would be.

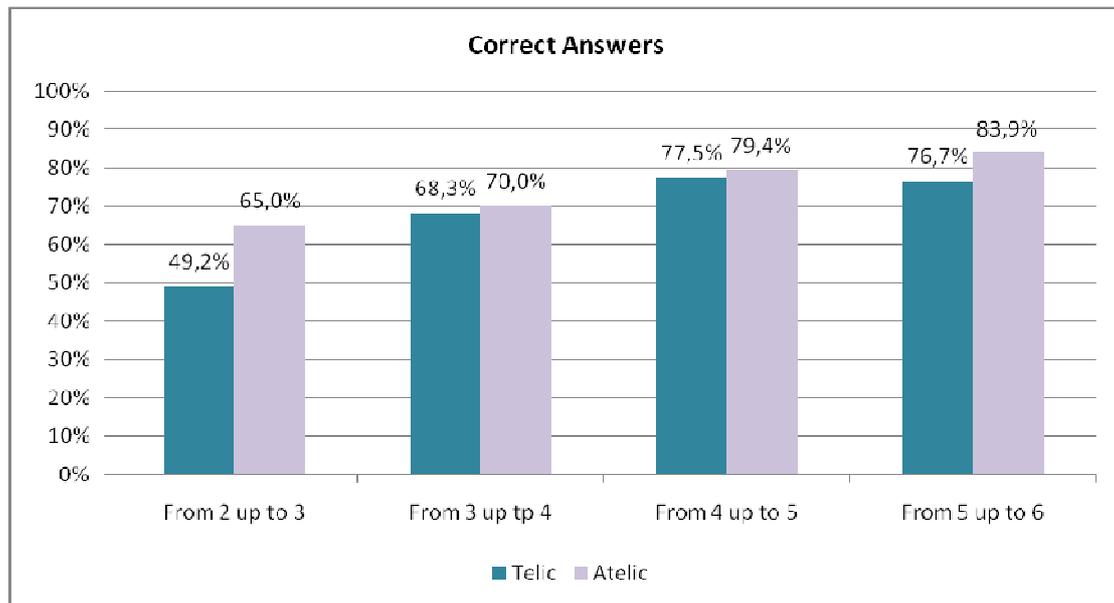
The breakdown of the interaction of situation aspect and the perfective/imperfective distinction across the ages (appendices 6.10.1., p.260, and 6.10.2., p.266) has revealed that at two years of age semelfactives and states are well attested with the imperfective aspectual marking. At the age of three, accomplishments are also well combined with the imperfective and achievements with the perfective.

Semelfactives being atelic and punctual and states being atelic and non-punctual, it is clear that children have these features in their system from as early as the age of two. Accomplishments are telic in nature and are mastered at the age of three. Therefore, at this age, the children have competence of the telic – atelic distinction. The acquisition process, then, will further involve setting the strength of the aspectual features.

5.3.6.1. Aspectual Features Set 1: [+/- telic]

Situation aspect then determines telicity. In this light, graph 13⁴⁶ depicts the results on the acquisition of the aspectual feature of telicity.

⁴⁶ The relevant statistical analyses are in Appendices 6.11., p.272, and 6.12., p.274, to this chapter.



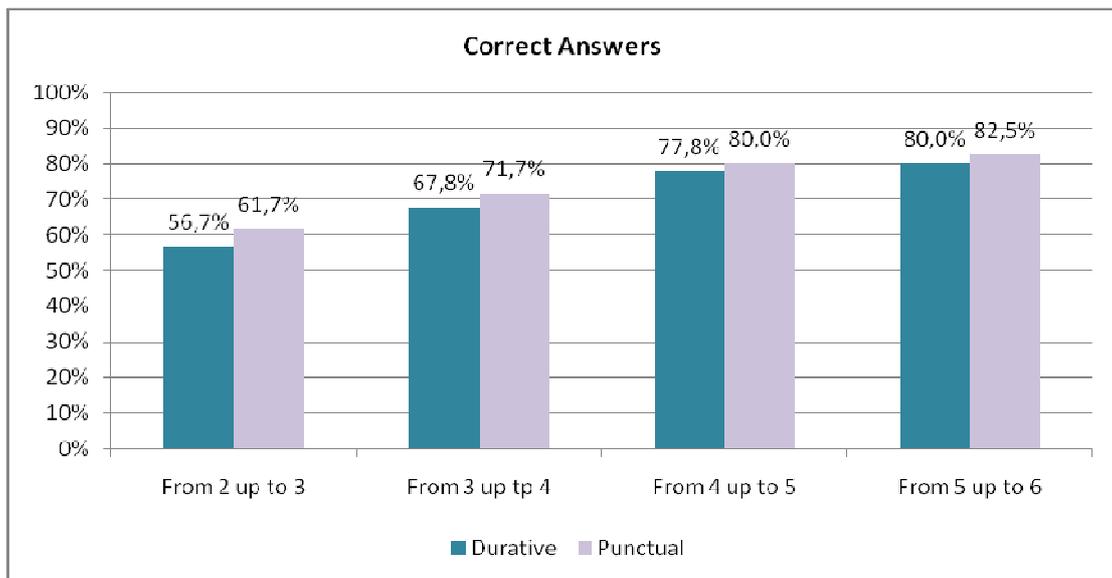
Graph 13: The findings on the acquisition [+/- telic] across the Ages.

As expected, atelic events are better attested throughout the ages. As we can see in the graph, at two years of age atelic events (65%) are employed much better than telic ones (49,2%). At three years, both of them are employed better and the difference between them is smaller (telic 68,3% and atelic 70%). Children's perception and acquisition of the aspectual feature of telicity further improves at four and at five atelicity is mastered 83,9% (versus telicity 76,7%).

5.3.6.2. Aspectual Features Set 2: [+/-punctual]

With respect to the findings on the aspectual feature of punctuality, these are presented in graph 14⁴⁷.

⁴⁷ The relevant statistical analyses are in Appendices 6.13., p.276, and 6.14., p.278, to this chapter.



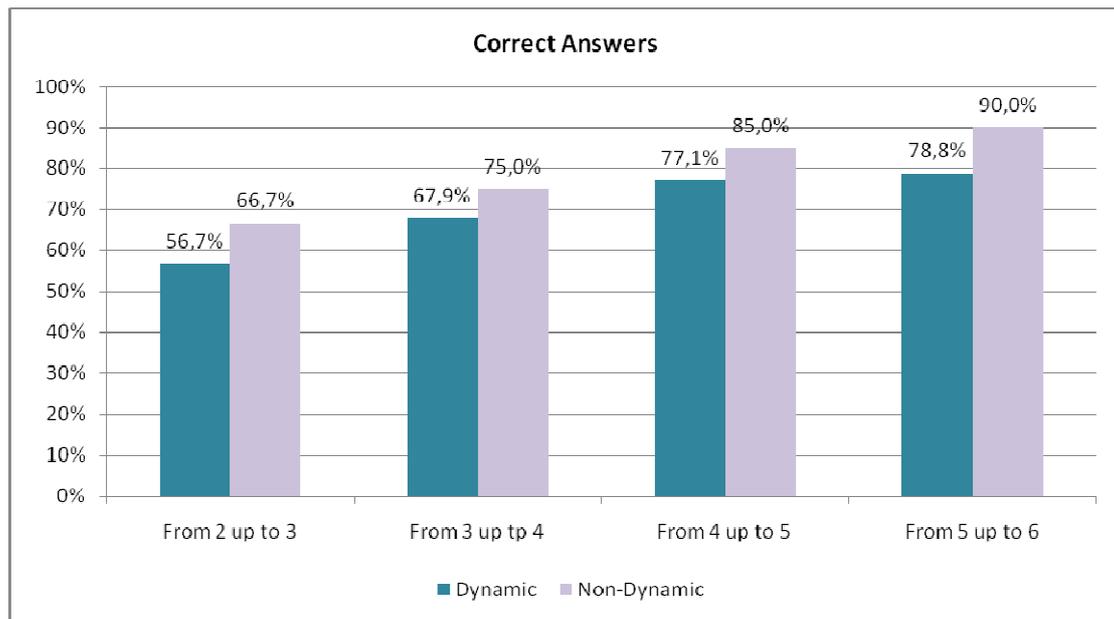
Graph 14: The findings on the acquisition [+/-punctual].

As the reader can see from the graph above, it is clear that the aspectual feature of punctuality develops evenly across the ages and punctual events are always better employed and understood by the children than non-punctual events, the difference between the two being small though.

5.3.6.3. Aspectual Features Set 3: [+/-dynamic]

Upon examination of dynamic and non-dynamic events, non-dynamic ones (states that is) were found to be better employed across the ages. Children have early knowledge of the stativity / eventivity contrast. Their performance is presented in graph 15⁴⁸ below:

⁴⁸ The relevant statistical analyses are in Appendices 6.15., p.281, and 6.16., p.283, to this chapter.



Graph 15: The findings on the acquisition of the aspectual feature [+/-dynamic] across the ages.

We will now turn to a different approach to our results, which also stems from the Vendlerian classification of events; in this sense, it will complement our analysis so far.

5.3.7. On event structure acquisition in MG

Our results on the acquisition of viewpoint and situation aspect have shown that children acquire semelfactives and states first and achievements and accomplishments and activities follow later on. The question is why they master different situation type classes of verbs earlier or later? So far, we have provided an explanation in terms of the acquisition of the aspectual features [+/-punctual], [+/-telic] and [+/- dynamic].

Let us now look at another analysis which predicts a different set of natural classes. The benefit from such an analysis is that we can further investigate the acquisition of event structure by little children. This has been our motivation in exploring this analysis.

In order to draw some conclusions about the acquisition of event structure by children, we will map the results of the statistical analysis for situation aspect onto Cormack and Smith's (1999) analysis of event types.

Cormack and Smith (1999) claim that 'an event itself must be decomposed in order to account for the properties of 'event composition' (p.275). They based their event decomposition on the event structure proposed by Moens and Steedman (1988), in order to account for aspectual properties of English and the extraction of features from a Vendlerian classification of events, which is the operation that we have already applied to our data. We will follow their analysis to account for the aspectual properties in MG as well.

In the table below is Cormack and Smith's (1999) analysis of event types. They have PROCESSES and CULMINATED PROCESSES and they note that these extend over time. Their instantaneous events include POINTS and CULMINATIONS. Finally there are STATES. So, their events are categorized using two binary features: [atomic/extended] and [+/- consequent state].

	EVENTS		STATES
	Atomic	Extended	
+ consequent state	CULMINATION	CULMINATED PROCESS	
- consequent state	POINT	PROCESS	

Table: Cormack & Smith's (1999) analysis of event types.

Let us bring our results to mind: At two years children have mastered semelfactives and states. And at three years accomplishments and achievements are well acquired. If we then map this information onto the table above, we will get the following picture: at two years children have acquired what Moens calls 'point' and 'state'. This arrangement partly licenses the natural class [atomic]. Also, it implies that by two years, they have not yet acquired the distinction between [+ consequent state] and [- consequent state]; they have only acquired [-consequent state]. At three years they have acquired 'culminated process' and 'culminated point', pointing to the acquisition of the natural class [+consequent state] and also to mastery of atomic events (the acquisition of 'point' at the age of two together with the acquisition of culminated 'process' at the age of three license the natural class [atomic]).

Furthermore, regarding event structure, following Cormack and Smith's analysis, only Culminations and Culminated Processes have internal structure assigned to them,

whereas Points and Processes are not intrinsically structured as they are not extended in time. States 'cannot be temporally structured, since they hold by definition over all sub-intervals of the interval for which they hold' (p. 275). In this way there are now three categories of eventuality: Process/Point, State, and Culmination/Culminated Process.

Based on the above, we may say that our children acquire event structure gradually. They have not yet acquired it at two years of age, as our results have shown that they have acquired only Points and States. At the age of three though, the situation is completely different and children are shown to have acquired event structure, because they have acquired both 'culminated process' and 'culminated point', which have internal structure assigned to them. So, with respect to the three categories of eventuality, it turns out that at the age of two, children acquire the category of State, and indicate a partial acquisition of the category of Process/Point, because they have only mastered 'Point' at that age. At the age of three they master the category of Culmination/Culminated Process and ultimately acquire event structure. Complete mastery of the system is expected at around the age of six.

5.4. Conclusions

In recapitulation, we have explored how situation and viewpoint aspect are acquired and how they interact in children's grammars. Furthermore, we have looked into the acquisition of event structure by our little children and we have concluded that in mastering situation aspect, they also come to acquire event structure quite early at the age of three.

Chapter 6

ON “THE ALIENS” EXPERIMENT

6.1. Introduction

This chapter gives a detailed presentation of the experiment we conducted at “Nautilus” nursery school, at Patras in Greece. Our study focused on the acquisition of verbal aspect by Greek children. Our aim has been to investigate the following:

- a – Are the children able to correctly associate the properties of viewpoint aspect with those of aspectual adverbials? Is their performance situation aspect related?

- b – The means children employ upon reproduction of the adult stimulus to form their utterances towards a correct association of viewpoint aspect and aspectual adverbials.

- c - The positioning of aspectual adverbials in early grammars.

6.2. The experimental method

6.2.1. Aims of the experiment

Taking into consideration that aspect interacts with aspectual adverbials, aspectual adverbials being sensitive to the perfective - imperfective distinction⁴⁹, the following idea triggered our experiment: if children can associate the properties of viewpoint aspect with those of aspectual adverbials, then this is an indication of them mastering the semantics of aspect. So we looked at the acquisition of aspect from this perspective.

Then we wanted to see if children's responses to our stimuli would be situation aspect related or not.

Finally, having employed aspectual adverbials in our experiment, we exploited them further. We looked at the following: What is the position that aspectual adverbials are base-generated at in children grammars? How do children handle it when there is more than one aspectual adverbial in the clause? What happens with the position aspectual adverbials have in children's grammar when other types of adverbials co-occur in the clause being uttered?

⁴⁹ Giannakidou 2003 discusses the interaction between the present perfect and UNTIL adverbials in Greek and English. She shows how the semantics of the present perfect match or do not match with those of UNTIL adverbials and also that the aspectual information of the perfect participle has to match the one of the adverbial.

So, in this chapter we will discuss all the above together with all our findings. But first we introduce methodological issues and describe and discuss our experiment.

6.2.2. Method

The experimental task that was employed in the present study was an elicited imitation one. The children were asked to perform a sentence repetition task. Below is an overview of this experimental method.

6.2.2.1. Elicited imitation task

Following Chomsky (1964), "the child's ability to repeat sentences...etc. might provide evidence as to the underlying system that he is using"; it is under this assumption that a sentence repetition task can be employed to investigate children's grammars.

Some capacity for imitation appears to be innate (Meltzoff and Moore 1985). At the same time, it is not the case that anything can be imitated at any time in the child's development. "Imitation of the new, complex behaviour appears to wait until the child mind has developed the "cognitive structure" required for generation of the behaviour" (Lust et al, 1996: 56). Imitation is not just a passive copy but a "reconstruction of the stimulus" (Lust et al, 1996: 56). Similarly, in the area of

language development, imitation is not just a passive copy, rather a reflection of cognitive competence. It has been found that in order for a child to imitate a structure, "the structure must apparently be part of the child's grammatical competence, for example, as evidenced in the child's natural speech" (Lust et al, 1996: 56).

It is in the light of this that the following is to be understood: If a child can successfully repeat an adult's utterance, where aspect, tense or mood are of a certain value, then it can be claimed that the child has the relevant form in its verbal system. This has been the hypothesis on which our elicited imitation task has been based; that is, elicited imitation can reveal the child's representation of an adult sentence, including possible differences from the adult representation.

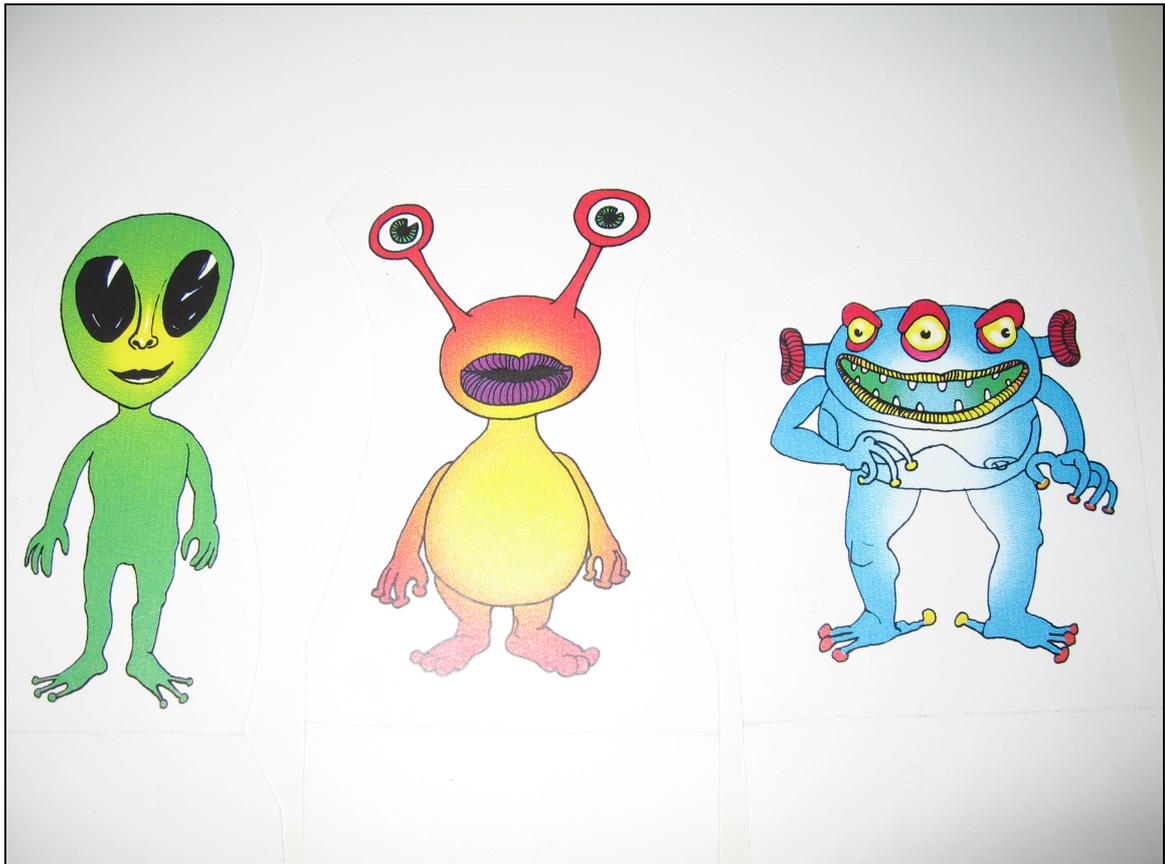
6.2.2.2. The participants

The experimenter had already met the children before and a friendly relationship had been established, so the children were more than happy to carry out any task. An independent sample of subjects⁵⁰ was chosen from three different age groups: The first group comprised ten children, aged three to four; they will be called three-year-olds from now on. The second group had ten children, aged four to five, which will be our four-year-olds. And the third group comprised ten subjects, aged five to six; these will be our five-year-olds.

⁵⁰ The subjects can be found in Appendix 1 to chapter 6, p.285.

6.2.2.3. Materials - Procedure

The subjects first went through a training session, where the task they would have to perform was explained to them. In order to elicit their imitations they were introduced to three aliens (pop-up cards). After being asked about their impressions of them and what they looked like (some of the children thought of one alien as a frog and of another as a snail with eyes on its ears and of the other as a funny human being with three eyes!), they were told that these little aliens do not know how to speak and that they really want to learn Greek. So, our task (the experimenter's and the child's) would be to teach them the language. They were told that they would have to be “teacher helpers”, so they would have to tell the “teacher” whether some utterances were good to teach the little aliens or not.



*Picture 1: The three little aliens*⁵¹

Then, a practice session followed, where the subjects would try helping the experimenter to teach the aliens. After they had understood what they were expected to do, the experimenter would proceed to the actual elicited imitation task. The experimenter would introduce the stimuli sentence and would then ask the children to repeat the utterance they had just been given, to repeat it in the way they would say it to teach the little aliens.

The sentences were not repeated more than once to the children and there was no intervening material in-between stimulus and response. The children were advised

⁵¹ We wish to thank Lee Davies for providing us the three little aliens.

that they could change the sentence if they thought it was not correct. The same instructions were used in the presentation of the test to all children.

The children were introduced to thirty stimuli sentences⁵²: twenty of those were grammatical and ten were ungrammatical⁵³. With respect to the grammatical stimuli, these included four sentences for each situation aspect type: in two of those the verb was marked for the imperfective aspect and in two the verb was marked for the perfective. To account for the grammaticality of these sentences, the following needs to be explained: an aspectual adverbial was always present, and its combination with the aspectual marking of the verb had to be an acceptable one, in order for the sentence to be grammatical. With regards to the ungrammatical stimulus, on the other hand, there were two sentences per situation type, one with the verb marked for the imperfective and one with the verb marked for the perfective: the combination of the aspectual marking on the verb and the aspectual adverbial was such that the sentence could not sustain its grammaticality. The child then had to imitate the sentence, by producing its version of it. There were also sentences with more than one aspectual adverbial, in which case they would either both favour the same aspectual value on the verb or one would favour the perfective and the other the imperfective aspect on the verb. Even in these cases of additional complexity the child had to perform an

⁵² The set of stimuli sentences presented to the children is in appendix 2 to chapter 6, p.286.

⁵³ It has come to our attention that it is considered controversial in the literature to present children with ungrammatical sentences; it is for that reason that two thirds of the stimulus sentences are grammatical and one third ungrammatical. Also, in the results section the results emerging from the grammatical stimulus will be analysed separately from those emerging from the ungrammatical stimulus. We will only present these results (emerging from the ungrammatical sentences) in our discussion of the interaction of aspectual adverbials and viewpoint aspect, because they have been found to support the findings of the 'red and green story' experiment about the acquisition of viewpoint aspect.

elicited imitation task. It should be mentioned here that elicited imitation has been criticized because it involves much complexity, in order to manipulate the syntactic factors being tested and to control those that are not being tested. It is claimed that too many factors need to be taken into account when designing the stimuli sentences, such as their length and complexity.

Furthermore, in a pilot study, it had been noticed that during their elicited imitation task the subjects had the tendency to place the aspectual adverbial close to the verb, especially at a position immediately after the verb. That happened irrespective of the position the aspectual adverbial was placed in the input. For this reason we also presented the children with sentences where the aspectual adverbial was distanced from the verb. The aspectual adverbial was placed in other positions, and we had arguments and/or adjuncts in between the verb and the aspectual adverbial. We wished to examine how the children would react to this.

Our task then resulted in the collection of production data. The same procedure was followed with each one of the subjects. We also needed to keep the child interested and concentrated on the task, which turned out to be quite easy as the children found the task stimulating. Finally, no matter what the subject's response, he or she was praised or rewarded with a sticker.

6.3. *The results*

6.3.1. *Children's responses to the stimuli sentences*

After the experiment, the data was transcribed and analysed. The children's responses in the sentence repetition task were evaluated. Each response was evaluated a) on the basis of its grammaticality and b) on the grounds of whether successful imitation of the sentence was elicited⁵⁴. We coded responses as being grammatical or ungrammatical. With respect to grammaticality then, we judged as "grammatical and faithful to the input" those responses in which the children produced correct combinations regarding the aspectual adverbial and the aspectual value on the verb, alongside successful imitation of the input. We judged as "grammatical but unfaithful to the input" those responses which were grammatical and where the children would correctly combine viewpoint aspect and aspectual adverbials, but would fail successful imitation of the input. Finally, those utterances where the combination of the aspectual adverbial with the perfective or the imperfective aspect on the verb was not appropriate were characterized as "ungrammatical".

Consider the following responses:

1a) O Baggelakis fternistike dio fores.

The- Baggelakis sneezed (PF) twice.

Baggelakis sneezed twice. (stimulus sentence)

⁵⁴ Recall that this was termed an 'elicited imitation task' where the child was asked to 'repeat' the sentence she was presented with.

1b) O Baggelakis fternistike dio fores.

The- Baggelakis sneezed (PF) twice.

Baggelakis sneezed twice. (child's response)

The child's response in 1b was considered as grammatical and faithful to the input presented to the child.

On the other hand, the child's response in 2b below was grammatical, but not faithful to the input:

2a) Sinithos eftiahne ena spitaki apo touvlakia se liyi ora.

Usually (she) was making (IMPF) a small house of bricks in little time.

She would make a small house of bricks in little time. (stimulus sentence)

2b) Eftihos pou eftiakse ena spitaki me ta touvlakia.

Fortunately that (she) made (PF) a small house with the bricks.

Fortunately she made a small house with the bricks. (child's response)

If we examine 2b closely, we will realize that it is a different proposition altogether. Viewpoint aspect has changed from imperfective to perfective, the aspectual adverbial 'se liyi ora' (in little time) has been omitted and the aspectual adverbial 'sinithos' has been changed to 'eftihos' (fortunately, thankfully). The clause is grammatical but it is very different to the input the child was presented with. Our task being an elicited

imitation task, the target type of response is ultimately that in 1b, however we cannot treat 2b as ungrammatical, because it is not. An example of an ungrammatical response is set out below:

3a) Htes kolibousa sti thalassa yia polli ora.

Yesterday (I) was swimming (IMPF) in the sea for a long time.

Yesterday I was swimming in the sea for a long time. (stimulus sentence)

3b) *Kolibiso oli ti mera.

Swim (PF) (I) all day long.

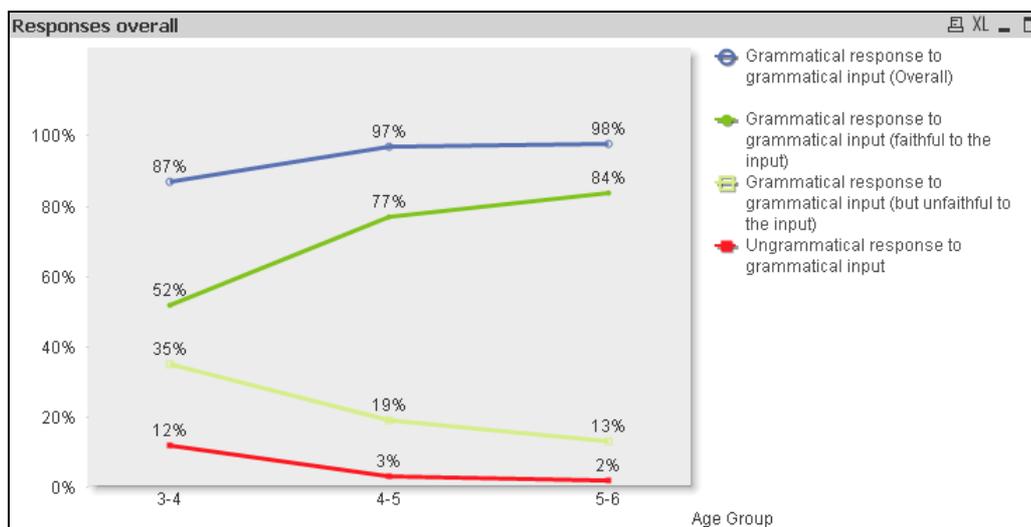
I to swim all day long. (child's response)

The verb in (3b) is changed to an incomplete future tense, a verb form without a particle⁵⁵, along with a change of the aspectual marking from imperfective to perfective, which cannot combine with the aspectual adverbial, resulting in an ungrammatical clause.

The children's responses to the grammatical stimuli sentences were looked at. Graph 1 provides an overview. The grammatical and the ungrammatical responses to

⁵⁵ In early child Greek verb forms without a particle are frequently used (Katis 1984, Stephany 1997, Tsimpli 1992, 1996, Varlokosta et al 1998). Varlokosta et al. argue that this form corresponds to root infinitives found in early data from languages like German, Dutch, French, etc. Greek children then in their early stages of linguistic development produce forms not appropriately marked for tense and agreement features, thus exhibiting a developmental pattern not unlike the one found in other languages. (Tsimpli 2005) Hyams 2002, however, argues against this analysis; she calls these verb forms bare perfectives and in her analysis she proposes that the bare infinitive used by young children falls out of general principles of grammar that implicate high functional structure. She also extends an earlier proposal (Hyams 2001a,b) that takes the semantic values of particular morphosyntactic heads as a significant factor determining their acquisition and distribution in early grammar.

grammatical input were examined. The table displays information on (a) the overall grammatical responses of the subjects that include faithful and unfaithful to the input grammatical responses, then the breakdown of grammatical responses to (b) grammatical responses faithful to the input and to (c) grammatical responses unfaithful to the input and (d) ungrammatical responses. Our focus being on the interaction of aspectual adverbials and viewpoint aspect marking in children's grammars, we categorize (c) above as a target response, despite their failure in terms of the nature of the elicited imitation task. It is important that children, upon reproduction of a grammatical stimulus, produce grammatical sentences themselves, maintain a grammatical combination of aspect on the verb and aspectual adverbial, this being an indication of their ability to associate the properties of aspectual marking on the verb with the properties of the aspectual adverbials and, therefore, of them beginning to acquire the semantics of aspect.



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Age Group	3-4	4-5	5-6
Input/stimulus sentences :	200 100%	200 100%	200 100%
Grammatical stimulus sentences	200 100%	200 100%	200 100%
Child's grammatical response to grammatical input	175 87.5%	194 97%	196 98%
Child's grammatical response to grammatical input (faithful to the input)	105 52.5%	155 77.5%	169 84.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	70 35%	39 19.5%	27 13.5%
Child's ungrammatical response to grammatical input	25 12.5%	6 3%	4 2%

Graph 1: children's responses⁵⁶ to grammatical stimulus

If we look at *the decrease* in the frequency over age at which a grammatical stimulus was changed to an ungrammatical one and at *the increase* in the frequency at which a grammatical stimulus unfaithful to the input is changed to a grammatical stimulus faithful to the input during this repetition task, this actually indicates that the children are acquiring the semantics of aspect. The percentages of children's grammatical responses overall are quite high throughout all age groups. Additionally, the older the subjects the higher the figures of grammatical responses are. The decrease in the production of ungrammatical clauses given a grammatical input is significant at the age of four.

⁵⁶ Appendix 3 to chapter 6 (p. 289) presents each child's responses separately.

If we examine the results of grammatical responses that are faithful to the input versus the results of grammatical responses that are unfaithful to the input, then we get a clearer picture of the interaction of aspectual adverbials and viewpoint aspect across the ages. At the age of three, children produce grammatical sentences that are faithful to the input at 52.5% versus 35% of grammatical sentences unfaithful to the input and 12% of ungrammatical sentences. This percentage rises significantly at the age of four at 77.5%, followed by a decrease in the percentage of unfaithful to the input sentences at 19.5% and in the percentage of ungrammatical sentences at 3%. Finally, at the age of five the percentage of grammatical responses is very high, 84.5%, with the grammatical but unfaithful to the input percentage falling to 13.5% and the ungrammatical sentences' percentage being only 2%.

Our results have shown that our young three-year-old subjects produce grammatical sentences, but the nature of the task they are performing is not a passive imitation of the stimulus. This is to be proved by a detailed presentation of the type and the number of changes children performed within their responses. This will be the subject of another section in this chapter.

Our results have further indicated a radical progress in the patterns of the acquisition of aspect and aspectual adverbials at the age of four. The percentage of the grammatical and faithful to the input responses is very high at that age, and the children are found to be able to correctly associate aspectual adverbials with verbal aspect, irrespective of the type of adverbial or the complexity of the sentence.

When looking at the acquisition of the semantics of aspect in this fashion, however, that is, through the combination of verbal aspect with aspectual adverbials, we need to consider the following: in order for a child to be able to make the correct associations between the aspectual marking on a verb and the aspectual features associated with an aspectual adverbial, the child needs to have acquired verbal aspect and aspectual adverbials to a certain degree to be able to associate them correctly. So, as our 'red and green' experiment has shown, it is the case that children acquire grammatical aspect and its semantics earlier, and this experiment hinges upon the acquisition of aspectual adverbials. In fact, at the age of three children have acquired grammatical aspect and only partly have they acquired the aspectual adverbials and the relevant semantics: that is why we can elicit grammatical combinations of viewpoint aspect and aspectual adverbials, but not all of them; upon their elicited imitations, children perform within a restricted limit of their cognitive and linguistic potential. It is then at the age of four that children exhibit a better mastery of the system and the target interaction of aspect and aspectual adverbials. They improve further at the age of five, as they have achieved an almost complete mastery of the system of aspectual adverbials.

A more general point with respect to estimates of the age at which children acquire a given syntactic and semantic function; more specifically, with respect to their acquisition of aspect, there are clear discrepancies between conclusions drawn based on data collected using different experimental methods. Comprehension, imitation

and/or production tasks can lead to slightly different outcomes, even the same type of task could lead to different results. For instance, we may collect the children's productive speech from either spontaneous interactions or from experimentally-elicited conditions. Upon spontaneous production, "children can function within the limit of their cognitive and linguistic potential: they can perform as they wish, avoiding linguistic structures or lexical items for which they are not ready. In contrast, in elicited situations, ...they have to perform as required by the task, which often goes beyond their competence" (Li 2000: 45).

It is for this reason also that our thesis has aimed at the collection of both comprehension and production data in MG, so that our results will provide a precise account on the process of the acquisition of aspect in MG.

Let us now take a closer look at how the employment of aspectual adverbials in the stimuli sentences affected children's aspectual choices on the verb marking.

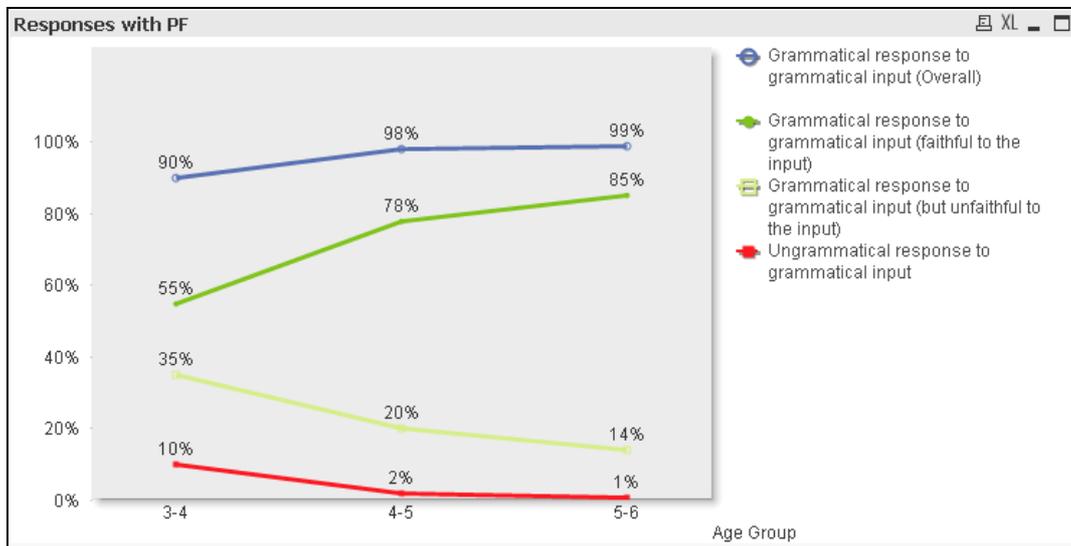
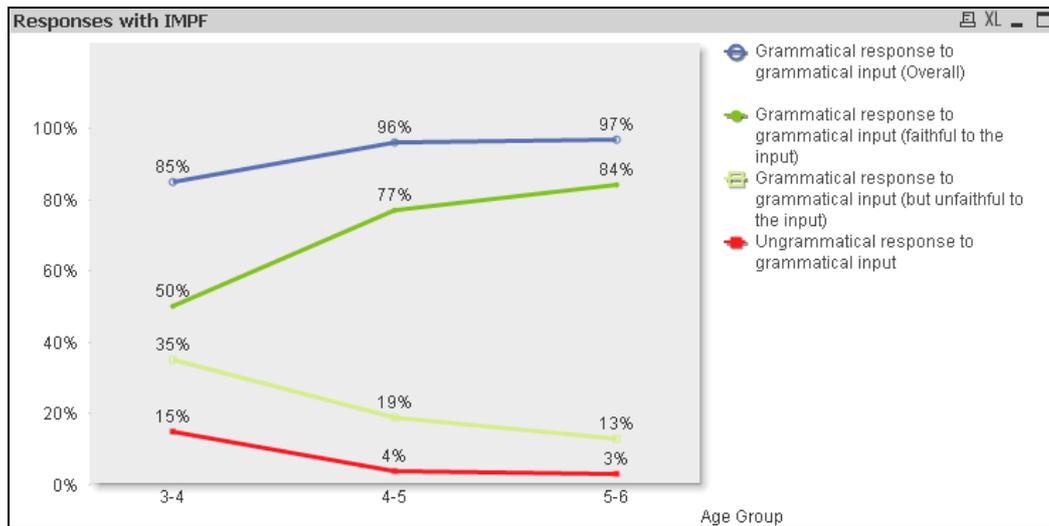
6.3.2. How aspectual adverbials affect aspectual marking on the verb

We looked at the children's performance when marking the verb for viewpoint aspect. We looked at their grammatical and their ungrammatical responses. The two graphs⁵⁷ below present the subjects' responses to grammatical input with respect to the

⁵⁷ The tables that relate to the graphs presented in this section are to be found in appendix 4 to chapter 6, p.292.

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perfective-imperfective distinction. The first one shows their performance for verbs marked for the imperfective, whereas the second one shows the children's performance with verbs carrying the perfective aspectual marking.



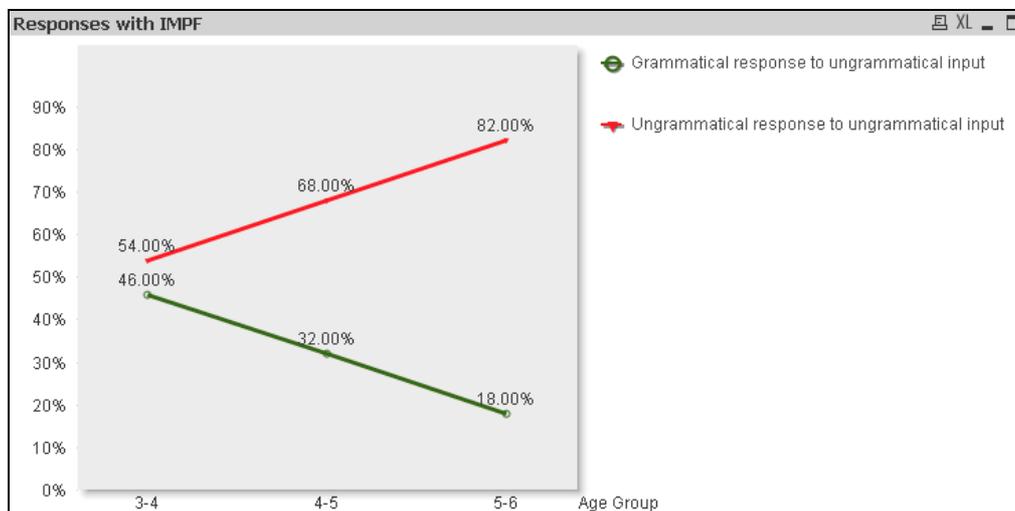
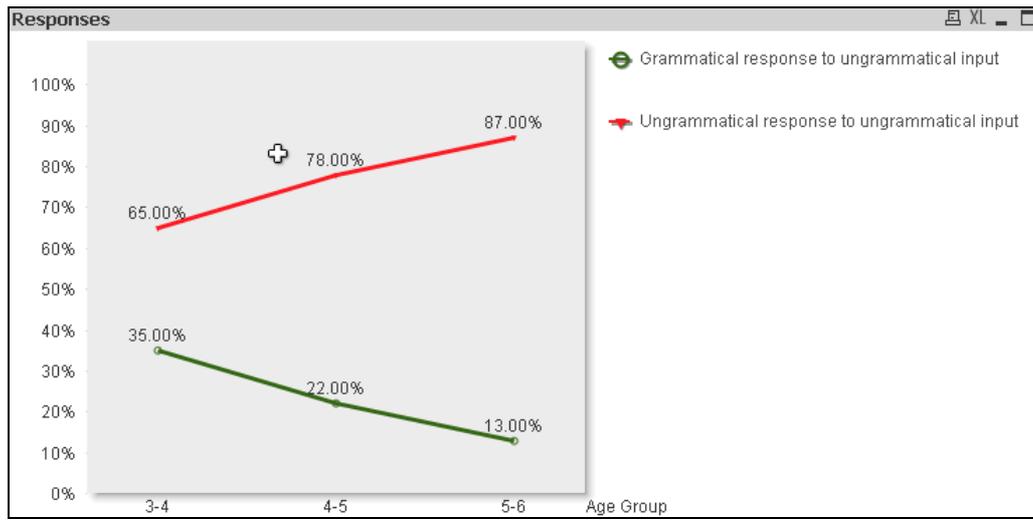
Graphs 2 and 3: Children's responses to grammatical stimulus with reference to the perfective-imperfective distinction

Looking at the graphs above, one notes that with respect to the children's grammatical responses overall and their breakdown into those grammatical but faithful or unfaithful to the input, children are performing slightly better with the perfective aspectual marking rather than with the imperfective. The difference is only marginal and the percentages are very similar, but if we are to compare this to the findings of the 'red and green story' experiment, where it was clearly shown that the imperfective is acquired better than the perfective across the ages, we should accommodate the results.

How can we then explain these new findings? Obviously, the aspectual adverbials play a key-role in these circumstances. Given our findings (in the previous chapter) that the aspectual features are acquired quite early, at the age of three, and the fact that our aspectual adverbials carry these features, we can conclude that the presence of aspectual adverbials in the stimuli sentences affected the children's performance and guided them towards a more correct, almost equal, employment of the perfective and the imperfective, upon elicited imitation of grammatical stimulus.

However, upon examination of the children's responses to ungrammatical stimulus, the findings of the 'red and green story' experiment with respect to the acquisition of viewpoint aspect are further strengthened in this experiment. There were many instances where the children would correct the ungrammatical stimulus they were exposed to. They employed different mechanisms to achieve that, which will be

analysed later on in this chapter. If we look at graphs⁵⁸ 4 and 5 below, it becomes obvious that when children correct ungrammatical input, their corrections with the verb marked for the imperfective are much more than the ones when the verb is marked for the perfective.



Graphs 4 and 5: Children's grammatical responses to ungrammatical input with particular reference to the perfective – imperfective distinction.

⁵⁸ The tables that relate to the graphs presented in this section are to be found in appendix 5 to chapter 6, p.293.

Our 'correction' data indicate that children were sensitive to some aspectual features of the adverbials and grammatical aspect. Overall, they made fewer mistakes with the verb marked for the imperfective than for the perfective, and this aligns with our findings for better employment of the imperfective. We can again see how aspectual adverbials acted as "guides" towards a better use of the aspectual marking on the verb, and imperfective in particular.

What is striking, however, when looking at the graphs with the corrections upon reproduction of ungrammatical stimulus is the fact that as they get older, children do in fact make fewer corrections and this is true irrespective of the aspectual marking on the verb. How can we explain this? At the age of three, children manage to correctly associate some aspectual adverbials with viewpoint aspectual marking. They have eliminated the aspectual adverbials they cannot yet employ from their elicited imitations yielding grammatical sentences. At the age of four and later at the age of five, they have gained mastery of more aspectual adverbials, but they do not seem to be able to handle them in their system; the more the aspectual adverbials, the more the mistakes they make, this pointing to them not mastering well the semantics associated with them. The less the omissions of aspectual adverbials, the more complicated the task is for them and they are able to reproduce the ungrammatical stimulus presented to them, but they cannot cope with its complexity well enough to correct it.

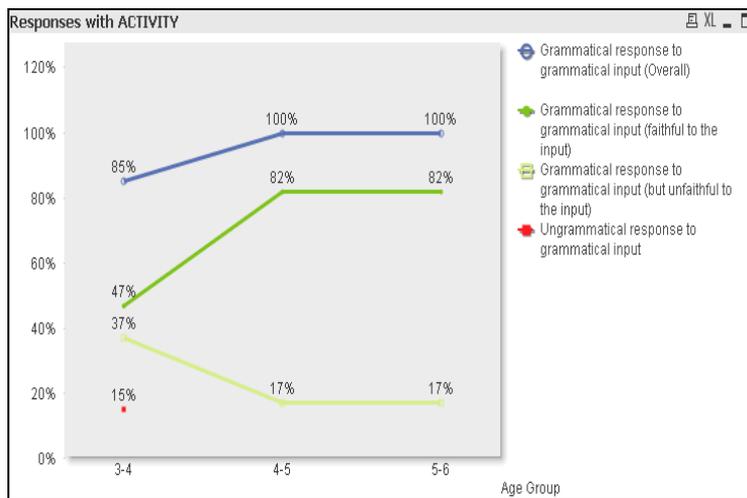
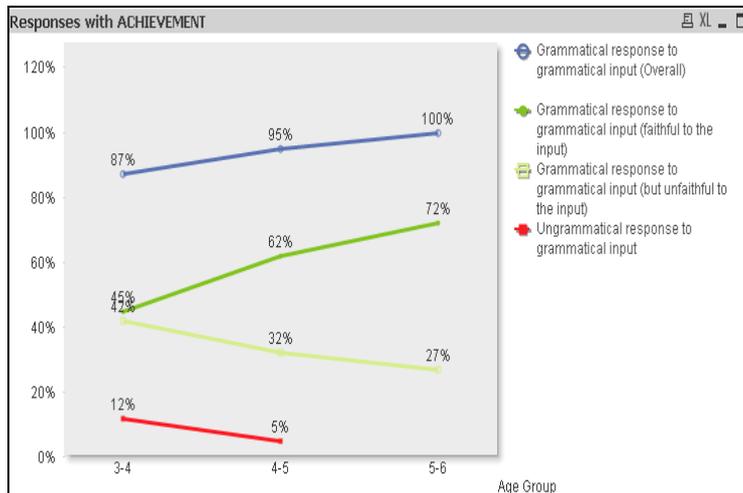
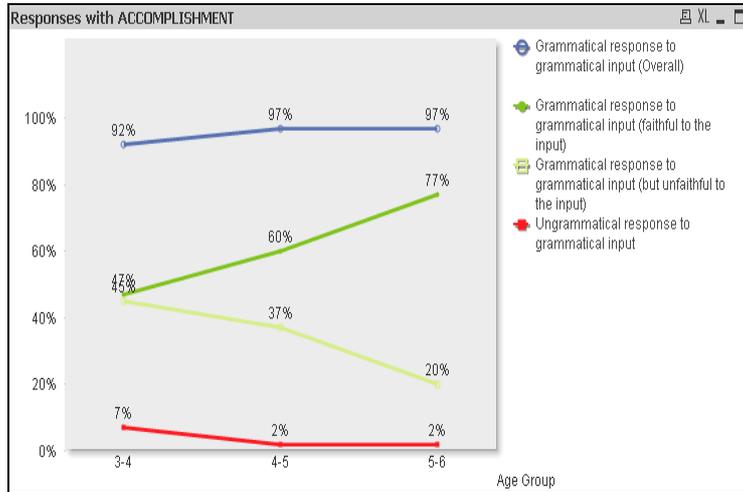
In recapitulation, it should be pointed out that it is important that children, when reproducing a grammatical stimulus, produce grammatical sentences themselves, maintaining a grammatical combination of aspect on the verb and aspectual adverbial. It is however even more important when the subjects are given an ungrammatical stimulus and upon reproduction they correct it; this is an indication of their ability to associate the properties of aspectual marking on the verb with the properties of the aspectual adverbials and, therefore, of them beginning to acquire the semantics of aspect. Our children did indeed correct some ungrammatical stimuli sentences presented to them. Clearly their ability to do so indicated that they understood the semantics of aspect and of the aspectual adverbials to an extent, to further be able to associate them correctly, overriding the conflict between different aspectual values. Finally, their treatment of grammatical and ungrammatical stimuli was in fact viewpoint aspect biased.

6.3.3. On situation aspect

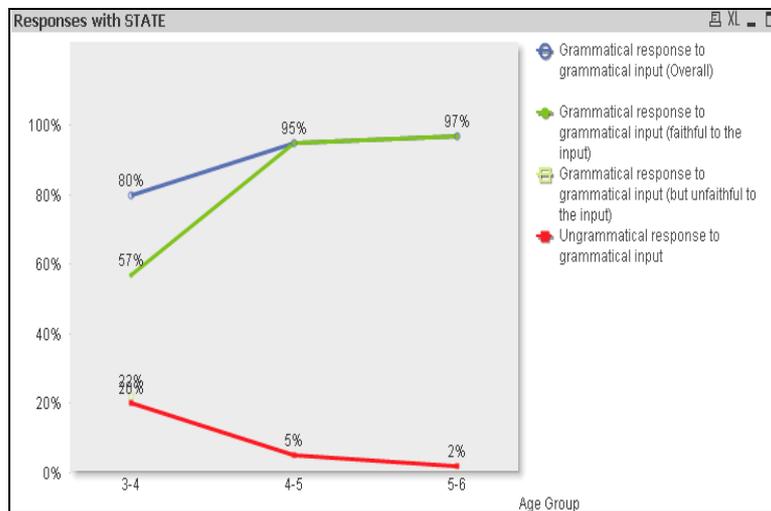
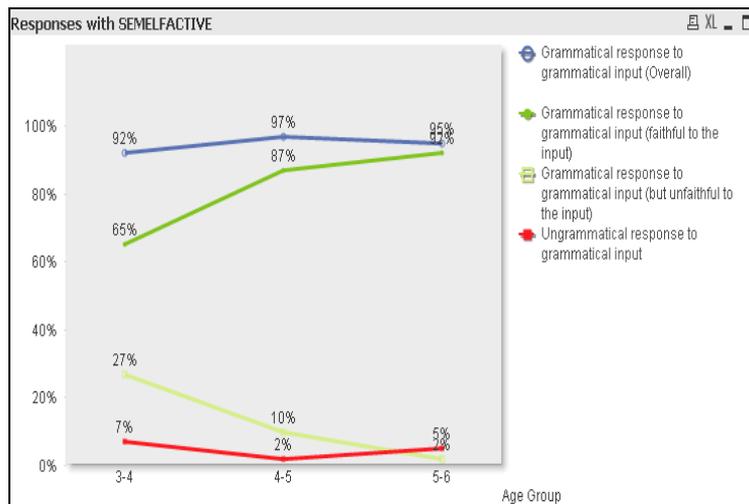
Our data has indicated that children are sensitive to the perfective- imperfective distinction upon elicited imitation. The question now is: what can be said about situation aspect? Do the children perhaps produce more grammatical sentences with certain verb types but fail with others?

Let us examine the following graphs, which show the children's performance in all five situation aspect types.

On the 'aliens'



On the 'aliens'



Graphs 6,7,8,9,10⁵⁹: Children's responses to grammatical input with particular reference to situation aspect types.

Our findings are in line with the findings of the 'red and green' experiment. At the age of three, children exhibit high percentages of grammatical responses faithful to the input, the target that is, with semelfactives at 65% and states at 57%. At the same age, their performance with respect to accomplishments is 47%, with respect to activities at 47% and with respect to achievements is 45%. At the age of four, the

⁵⁹ The relevant information for these graphs is in the Appendix 6 to this chapter (p.294).

children show better employment of semelfactives and states plus the category of activities. At the age of five, their performance is very good at all different situation aspect types, accomplishments and achievements being the least strong at 77% and 72% respectively.

It turns out that with the exception of activities that had been found statistically non-significant in our 'aliens' experiment and thus do not allow us to make a reliable comparison, the other situation types are found to be mastered in the same order in both experiments. In a fashion similar to our results for viewpoint aspect, again age four seems to be the cut-off point towards the development of an adult like grammar, because after four, sentences with a verb of any situation type are beginning to be grammatical and faithful to the input and as the children get older, they perform even better.

6.4. Towards a grammatical response in a child's own way

In achieving mastery of the adult like language and mastering the aspectual system, there are stages where children employ different methods depending on their knowledge at the time. They have been found to employ these methods upon elicited imitation, in two instances: they produce a grammatical sentence which is not faithful to the grammatical input they have been exposed to, due to their inability to produce a grammatical response that is also faithful to the input; or at exposure to an ungrammatical stimulus, they employ these methods to correct it and elicit

grammatical and, therefore, unfaithful to the input responses. We will then proceed to a presentation of the type and number of changes children performed within each type of response.

The methods were looked at and are summarized as follows:

6.4.1. Omissions of adverbials

The children would omit one or more adverbials, as in (4b) producing a grammatical sentence, which however is not the target one, as it is not faithful to the input:

4a) I Sonia epeze kathe mera oli mera.

The- Sonia was playing (IMPF) every day all day.

Sonia was playing all day every day. (stimulus sentence)

4b) I Sonia epeze oli mera.

The-Sonia was playing (IMPF) all day.

Sonia was playing all day. (child's response)

or

when given an ungrammatical stimulus, they would omit an adverbial, thereby making the utterance grammatical, as in (5b) below:

5a) * To koritsaki zoyrafizi ena louloudaki amesos se deka lepta.

The little-girl is drawing (IMPF) a flower immediately in ten minutes.

The little girl is drawing a flower immediately in ten minutes.

(stimulus sentence)

5b) To koritsaki zoyrafizi ena louloudaki se deka lepta.

The little-girl is drawing (IMPF) a flower in ten minutes.

The little girl is drawing a flower in ten minutes.

(child's response)

or they would omit both adverbials yielding a grammatical clause, as in (6b) below, which further involves a change in the voice of the verb from active to passive:

6a) *To koritsaki htenizi ta mallia tis amesos se mia ora.

The little-girl is brushing (IMPF) the hair her immediately in one hour.

The little girl is brushing her hair immediately in one hour. (stimulus sentence)

6b) To koritsaki htenizete.

The little-girl is brushing herself (IMPF –passive).

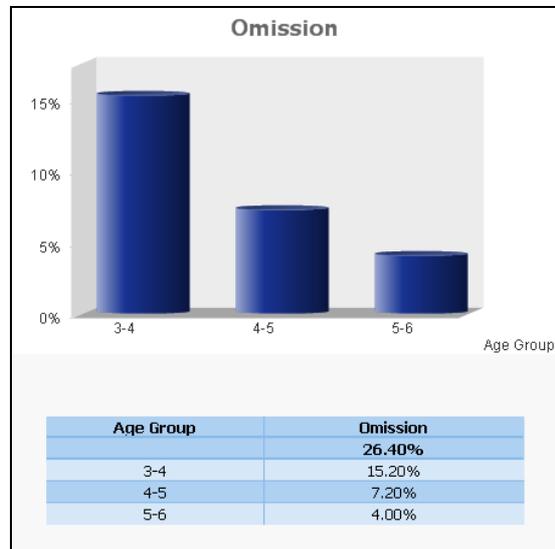
The little girl is brushing her hair.

(child's response)

It should be noted here that the omissions of the aspectual adverbials do not seem to correlate with the length of the stimulus utterance.

Having identified the children's omissions, we went on to examine the extent to which this method was employed. Overall, in their elicited imitations, children

omitted 26.4% of their aspectual adverbials. The younger the subjects, the higher the percentage of omissions, as exhibited in graph 11 below:



Graph 11: The percentages of children's omissions overall and per age group.

6.4.2. Substitutions of adverbials

The successful substitution of one adverbial with another of the same type, resulting in a grammatical utterance carrying the same aspectual interpretation, may be an indication that the children actually understood the meaning of the adverbial of the stimulus sentence.

So, the children either substitute the adverbial with another of the same class:

7a) Eftiaksa kastro stin ammo se deka lepta.

Made (PF) castle on the sand in ten minutes.

I made a castle on the sand in ten minutes. (stimulus sentence)

7b) Eftiaksa stin ammo kastro se liyi ora.

Made (PF) on the sand castle in little time.

I made a castle on the sand in little time. (child's response)

We have noticed that there have been instances where a child omits a specific adverbial in a clause and in another clause where the same adverbial is present, upon elicited imitation, the child substitutes it for another one. This is taken to be indicative of the fact that the child may not understand this particular adverbial and has certainly not mastered it yet.

It should be pointed out that a strong preference for the adverbial "kathe mera" (every day) was noticed in the elicited imitation speech of our subjects. It could be that it is a highly preferred adverbial both because it frequently appears in the input children receive and/or because it is a noun phrase (and noun phrases are mastered before adverbs - syntax related preference) or it could be an accidental preference. If this is the correct explanation, it predicts that other NP adverbs should occur too. In fact, in the present set of data other NP adverbs occur in the same fashion.

Occasionally, an adverbial is substituted with another of a different class (e.g. a durative completive adverbial is substituted with a frequency adverbial, or even a frequency adverbial was substituted with a temporal one).

Consider the following:

8a) I Sofia anevike stin korifi tou vounou se misi ora.

The-Sofia climbed (PF) up on top of the mountain in half an hour.

Sofia climbed up on top of the mountain in half an hour. (stimulus sentence)

8b) * I Sofia anevike kathe mera epano sto vouno.

The-Sofia climbed (PF) every day up on the mountain.

Sofia climbed up on the mountain every day. (child's response)

Our child is replacing the durative completive adverbial “se misi ora” (in half an hour) with the frequency one *kathe mera* (every day), retaining the same aspect on the verb. The combination results in an ungrammatical clause.

However, another child “successfully” substitutes the frequency adverbial “*sinehia*” (all the time) with a non-aspectual one, the temporal “*ehtes*” (yesterday), and yet the clause he produces maintains the same aspectual value and interpretation only that everything is now happening in the past, as he is changing the verb to past tense, employing the same aspect, IMPF:

9a) O vatrakos trayoudai sinehia.

The little-frog is singing (IMPF) continuously.

The little frog is singing all the time. (stimulus sentence)

9b) O vatrahakos trayoudaye ehtes.

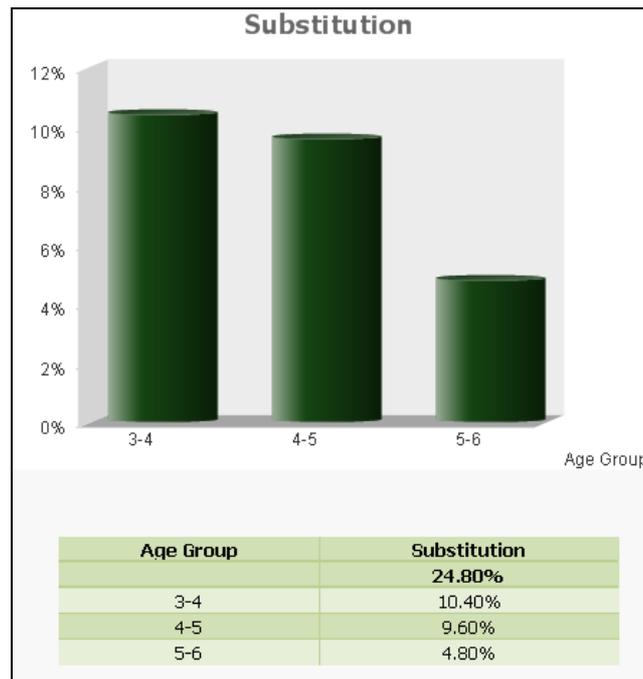
The little-frog was singing (IMPF) yesterday.

The little frog was singing yesterday. (child's response)

To me, this suggests that he comprehends the aspectual interpretation of the clause as a whole and upon his repetition he produces a clause that has the same aspectual value, only that he puts the whole event in the past. This is even more interesting, because when children talk about past events, most of the times they present them as something complete, they use the perfective aspect on the verb and they do not emphasize internal properties of the events like duration or repetition. This performance shows how he has begun to have full mastery of the aspectual (and tense) system.

Having investigated the patterns of children's substitutions of aspectual adverbials, we then calculated the percentages of the aspectual adverbial substitution. Overall, 24.8% of aspectual adverbials were substituted upon reproduction of the stimuli sentences; 10.4% of those were carried out by the three-year-olds, 9.6% by our four-year-olds and, finally, 4.8% by our five-year-olds. These figures are presented in graph 12 below:

On the 'aliens'



Graph 12: The percentages of children's substitutions overall and per age group.

Finally, in attempting to reason for adverbial substitution, the following needs to be explained: adverbs define their own aspectual choice, perhaps by default, but this can be in conflict with the choice determined by the rest of the sentence with the result that there is a clash in need of resolution. By means of substitution then, children may arrive at an aspectual interpretation of an adverb in this way, even if they only partly understand it.

6.4.3. Changing the aspectual marking of the verb

Finally, upon repetition of the adult stimulus utterance, children, especially the older ones, sometimes employ a different method towards achievement of the target response. They change the aspectual marking of the verb, as exemplified in 10b below:

10a) *Sinithos eftiahne ena spitaki apo touvlakia se liyi ora.*

Usually was making (IMPF) a small house of bricks in little time.

Usually he would make a small house of bricks in little time. (stimulus sentence)

10b) *Eutihos pou eftiakse ena spitaki me ta touvlakia.*

Fortunately that made (PF) a little house with the bricks.

Fortunately he made a little house with the bricks. (child's response)

Finally, sometimes the children produced their own version of what they had been told. 11b) below is a striking example:

11a) *Sinithos eftiahne ena spitaki apo touvlakia se liyi ora.*

Usually she was making (IMPF) a small house of bricks in little time.

Usually she was making a small house of bricks in little time. (stimulus sentence)

11b) Telio-s-ame se liyi ora to spitaki ke pezoume sinehia.

We finished (PF) the small house in little time and we play (IMPF) all the time.

We finished making the small house in little time and we play all the time.

(child's response)

The child was given the grammatical utterance (11a) to repeat in her sentence repetition task. The stimulus utterance had the verb in the imperfective form and two adverbials, a frequency one ("sinithos"- usually) and a durative completive one ("se liyi ora"- in little time, in a while), the former normally combining with imperfective and the latter with perfective aspect. Upon her repetition task she picked up the meaning of the clause given to her and she produced two clauses: 1] teliosame se ligi ora to spitaki (we finished (PF) (making) the little house in little time) and 2] pezoume sinehia (we play (IMPF) all the time). In clause [1] she uses the perfective, which forms a grammatical combination with the durative completive adverbial and in her clause [2] she uses the imperfective and she substitutes the frequency adverbial "sinithos" (usually) with another frequency adverbial "sinehia" (all the time, continuously). The clauses she produces are an indication of her acquisition of the semantics of aspect and is to be contrasted to a very poor performance of our youngest child below, to give the reader a hint of the range of responses elicited in our task.

Furthermore, there have been instances where no verb at all was present; our youngest subject's performance seems to be more of a passive imitation task sometimes, where the verb is not present. Some of his responses are like the one below:

12a) O babas anavi to fos kathe vradi.

The- daddy turns on (IMPF) the light every night.

Daddy turns on the light every night. (stimulus sentence)

12b) *kathe vradi o babas.

Every night the-daddy.

Every night daddy. (child's response)

At first sight, it seems as if his imitation should be discounted entirely as a source of evidence of child competence, since it could be thought to be the product of his mimicry abilities and thus represent the repetition of a phonological string to which he may assign no grammatical description. This "perfect" imitation may be taken to indicate that his ability to comprehend and produce utterances employing forms that would reflect the correct semantics of aspect has not yet developed. However, even this "perfect" imitation, even the child's ability to repeat the stimulus utterance in the exact form given to him, is suggestive of the fact that the child is in fact in a position to partly reconstruct the stimulus he has been exposed to.

However, he also corrected stimulus sentence upon production:

13a) * To pedaki diavase sinithos ena paramithi.

The little child read (PF) usually a story.

The little child read usually a story. (stimulus sentence)

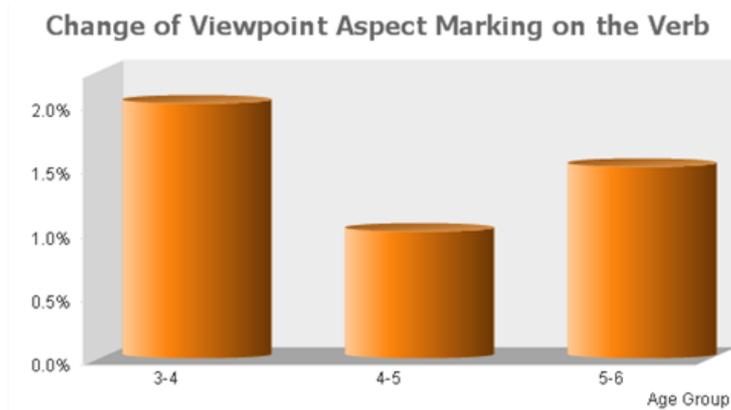
13b) Diavase ena paramithi.

Read (PF) a story.

He read a story. (child's response)

So, even our youngest subject gave some evidence of having begun to master the aspectual system.

Having investigated the patterns of children's treatment of the verbal forms upon elicited imitation, we calculated the percentages of the aspectual marking change. The occurrence of those was quite rare in our data. Overall, only 5% of the verbs that occurred in children's responses across the ages were found to exhibit a change in their aspectual marking; 2% of those occurred in the responses of the three-year-olds, only 1% was related to our four-year-olds and, finally, 2% was related to our five-year-olds. These figures are presented in graph 13 below:



Age Group	Change of Viewpoint Aspect Marking of the Verb
3-4	2%
4-5	1%
5-6	2%

Graph 13: The percentages of children’s change of aspectual marking per age group.

In recapitulation, the “imperfect” imitations of adult speech, namely the omissions, the substitutions, the change of viewpoint aspect on the verb, the rephrasing of stimuli sentences, produced by the subjects are much more significant, as they can plausibly be taken to be genuine exemplars of their own speech; in attempting to repeat an adult utterance, they produced a counterpart of the adult utterance. So, they were not simply blindly repeating unprocessed bound-sequences, but rather were “processing heard speech according to their own inner structure”(Slobin 1979). But if imitative speech is indeed processed through the child's grammar, it can clearly provide us with a valuable source of evidence about the nature of the child's competence.

Finally, it is significant that of all the different alternative ways children employed towards a target response, namely the omission of an aspectual adverbial, the substitution of an aspectual adverbial with another one of the same or of a different aspectual class and the change of the aspectual marking on the verb, most frequently they would change omit the/or an aspectual adverbial. In other instances, almost as frequently, they substituted the aspectual adverbial of the clause. Not being able to associate verbal aspect with the appropriate aspectual adverbial, they would omit the later. This finding clearly suggests that the children firstly come to master the morphological paradigm for the verb (the marking of the verb for the perfective and the imperfective) and then they acquire the semantics of verbal aspect, whereas adverbials and the acquisition of their aspectual properties are to follow later on.

6.5. On the adverbials

The children's responses during their sentence imitation task were looked at in terms of the position the aspectual adverbial was placed in upon reproduction of the stimulus.

The tendency of the subjects to place the aspectual adverbial in a position adjacent to the verb, regardless of its position in the stimulus sentence, was striking. In fact, it turned out that should they move the aspectual adverbial, they would mostly move it to that position. That could suggest that in their grammar the children have only this

position for the adverbial, or that in fact there is a stage where the highly preferred position for the adverbial is the post-verbal one:

Consider the following:

14a) I Maria etroye ena payoto kathe mera.

The-Maria was eating (IMPF) one ice cream every day.

Maria was eating an ice-cream every day. (stimulus sentence)

14b) I Maria etroye kathe mera ena payoto.

The-Maria was eating (IMPF) every day one ice-cream.

Maria was eating every day one ice-cream. (child's response)

And also:

15a) O babas anavi to fos kathe vradi.

The-daddy turns on (IMPF) the light every night.

Daddy turns on the light every night. (stimulus sentence)

15b) O babas anavi kathe vradi to fos.

The-daddy turns on (IMPF) every night the light.

Daddy turns on the light every night. (child's response)

The data above support the idea that the preferred position for the adverbial at this stage is the post-verbal one. There are instances, however, where in the sentence repetition task the adverbial is retained in a position other than the post-verbal one.

6.5.1. Children's positioning of the aspectual adverbial in the clause

The children's responses to grammatical stimulus during their sentence imitation task were looked at in terms of the positioning of the aspectual adverbial upon reproduction of the stimulus:

- clause initially
- immediately after the verb
- after the VP complement
- clause finally

Graph 14a below presents the positioning of aspectual adverbials in the grammatical stimulus, per age group, whereas graph 14b presents the positioning of aspectual adverbials in children's responses upon elicited imitation. This graph also shows the number of adverbial omissions.

A) Adverbials in Stimuli Sentences per Age Group	Age Group	3-4	4-5	5-6
Clause Initially		30	30	30
Immediately after the Verb		50	50	50
After the VP Complement		100	100	100
Clause Finally		70	70	70
Total		250	250	250

B) Adverbials in the Response Sentences per Age Group	Age Group	3-4	4-5	5-6
Clause Initially		22	18	24
Immediately after the Verb		69	63	60
After the VP Complement		72	93	97
Clause Finally		47	55	59
Omission		40	21	10
Total		250	250	250

Graphs 14a and b: The positioning of aspectual adverbials a) in grammatical stimulus sentences and b) in children's utterances.

As the number of aspectual adverbials per different position in the clause was not balanced, we will be able to discuss these findings in terms of the movements and the omissions the children performed in their clauses. In fact, the data showed that children's preferred position for the adverbials is post-verbally, right next to the verb. We will show this by means of examination of the changes involved in children's utterances per different position of aspectual adverbial. Let us examine graph 15 below:

On the 'aliens'

Responses to Clause Initial adverbials in stimuli sentences	Age Group	3-4	4-5	5-6
Clause Initial		15	18	24
Immediately after the Verb		-	1	3
Omission		15	11	3
Total		30	30	30
Responses to Immediately after the Verb adverbials in stimuli sentences	Age Group	3-4	4-5	5-6
Clause Initial		2	-	-
Immediately after the Verb		44	50	50
Clause Final		1	-	-
Omission		3	-	-
Total		50	50	50
Responses to After the VP Complement adverbials in stimuli sentences	Age Group	3-4	4-5	5-6
Clause Initial		2	-	-
Immediately after the Verb		13	6	4
After the VP Complement		68	92	95
Clause Final		4	-	-
Omission		13	2	1
Total		100	100	100
Responses to Clause Final adverbials in stimuli sentences	Age Group	3-4	4-5	5-6
Clause Initial		3	0	0
Immediately after the Verb		12	6	3
After the VP Complement		4	1	2
Clause Final		42	55	59
Omission		9	8	6
Total		70	70	70

Graph 15: Children's positioning & movements of aspectual adverbials per type of position.

Graph 15 shows the positioning of aspectual adverbials in the clauses the children uttered upon reproduction of the stimuli utterances. It presents the positioning of the aspectual adverbials (in the subjects' responses to grammatical stimulus): - clause initially -immediately after the verb - after the VP complement, or – clause finally.

With respect to the aspectual adverbials that were in a clause initial position, at three years of age 15 (50%) are omitted and 15 (50%) remain as in the stimulus sentence. At four years of age, the omissions are down to 11 (36.6%), 18 (60%) remain in their initial position and 1 (3.3%) moves to a position immediately after the verb. Finally, at 5 years of age, only 3 (10%) adverbials are omitted and 3 (10%) are moved to a position immediately after the verb, whereas the rest 24 (80%) remain in their clause initial position, as in the stimuli sentences.

With respect to the aspectual adverbials that were in a position immediately after the verb in the stimulus sentence, at 3 years of age 44 (88%) are positioned as in the stimulus sentence, 3 (6%) are omitted, 2 (4%) move to clause initial position and 1 (2%) to a clause final position. At the age of 4 and 5 though, there are no omissions or movements observed for aspectual adverbials that occur in a position immediately after the verb.

In an analysis of the aspectual adverbials that occurred after the VP complement in the stimuli sentences, 3-year-olds omitted 13 (13%) in their responses, kept 68 (%) in their original position, and moved 2 (2%) to clause initial position, 13 (13%) to a

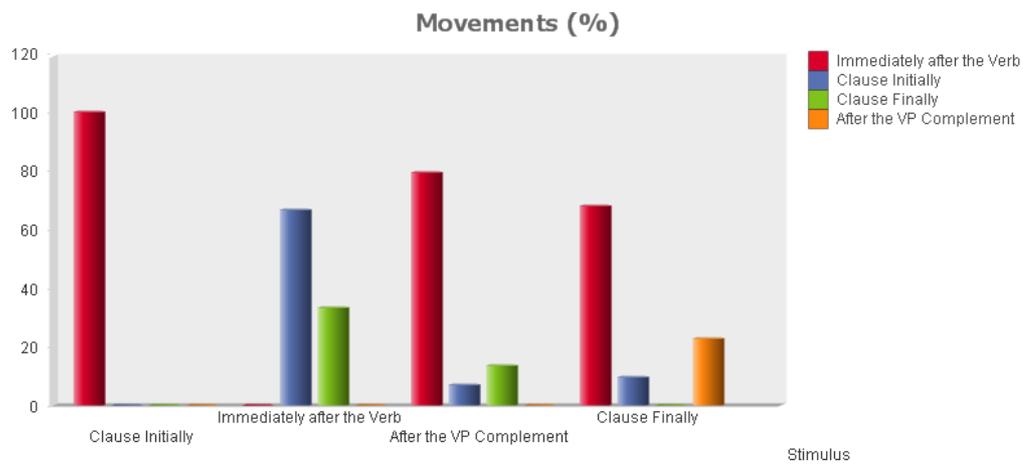
position immediately after the verb and 4 (4%) to clause final position. 4-year-olds omitted only 2 (2%) of these aspectual adverbials, retaining 92 (92%) in their original position and moving 6 (6%) immediately after the verb. Finally, 5 year olds, in a similar fashion to 4 year olds, omitted only 1 (1%) of these aspectual adverbials, retained 94 (95%) in their original position and moved 4 (4%) to a position immediately after the verb.

Finally, with respect to aspectual adverbials occurring in a clause final position, 3-year-olds omitted 9 (12.8%), retained 42 (60%) in their original position and moved 3 (4.2%) to clause initial position, 4 (5.7%) after the VP complement and 12 (17.1%) after the verb. 4-year-olds omitted 8 (11.4%) clause final aspectual adverbials, kept 55 (78.5%) in their original position and moved 6 (8.5%) after the verb and 1 (14.2%) after the VP complement. Finally, 5-year-olds omitted 6 (8.5%) aspectual adverbials, retained 59 (84.2%) to their clause final position and moved 2 (2.8%) after the VP complement and 3 (4.2%) immediately after the verb.

The results have shown that the children do maintain aspectual adverbials to the position they had been placed at in the stimuli sentences; these instances are more the older the children become. On the other hand, should the children move an aspectual adverbial upon reproduction of the stimulus, their tendency to move the aspectual adverbial to a position adjacent to the verb is striking. But why is that so? Could it be that children associate the aspectual adverbial directly with the aspectual value of the

verb and express this strong relation by placing the aspectual adverbial right next to the verb?

We examined the movements of aspectual adverbials upon elicited imitation per different position of aspectual adverbial overall and per age group. The overall findings are presented in graph 16⁶⁰ below.



Stimulus	Immediately after the Verb	Clause Initially	Clause Finally	After the VP Complement
Clause Initially	100.00	0.00	0.00	0.00
Immediately after the Verb	0.00	66.60	33.30	0.00
After the VP Complement	79.31	6.90	13.79	0.00
Clause Finally	67.74	9.68	0.00	22.58

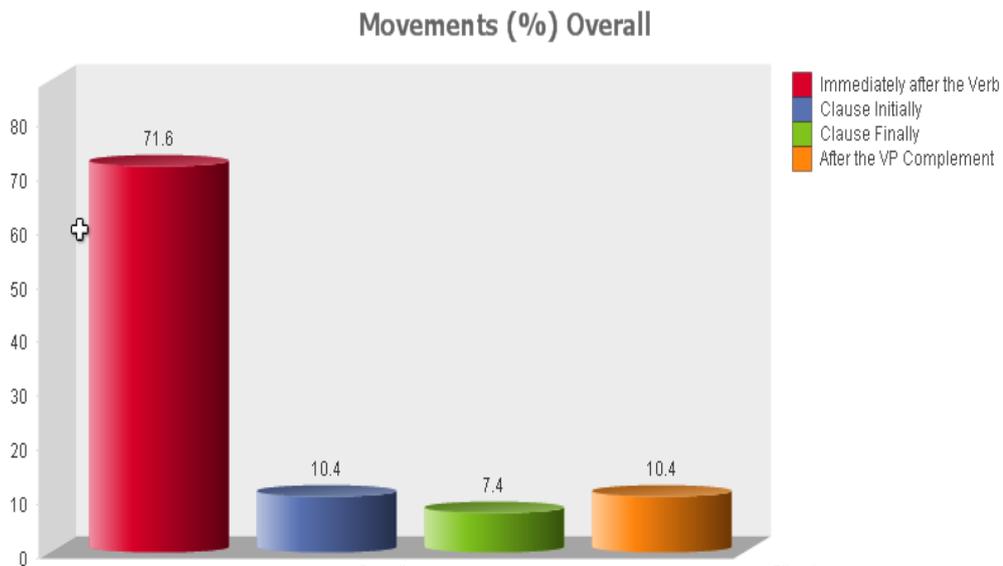
Graph 16: Movements of aspectual adverbials per position of occurrence overall.

⁶⁰ The relevant graphs per age group are to be found in appendix 7 to this chapter (p.297).

The percentages indicating the number of times that an aspectual adverbial had actually been moved to a position immediately after the verb, from a position elsewhere in the stimulus clause, were significantly high. On the contrary, the percentages indicating the number of times that a child was moving an aspectual adverbial from a position adjacent to the verb to a position further from it were low and these cases were only found at the age of three; at the age of four or five our subjects would not perform such a move at all.

Looking at the children's reproduction utterances, it is striking that if a movement of an aspectual adverbial occurred it would mostly be to the position after the verb, no matter where it originated. Clause initial aspectual adverbials, should they move, they moved only to this position (100%). Aspectual adverbials moving from a position after the VP complement would end up right next to the verb at 79,31% and clause final aspectual adverbials would move to the same position at 67,74%. Movements of aspectual adverbials to the other positions in the clause were very few and mostly occurred at the age of three. These findings suggest that already from the beginning when children try to associate the semantics of verbal aspect with the semantic properties of aspectual adverbials, they are aware of the interaction (and interrelation) between the two. That's why they attempt to put them close to each other, even if they are not able to fully associate their semantic properties just yet.

Finally, graph 17 presents the overall percentages of aspectual adverbial movement irrespective of their position:



Graph 17: Movements of aspectual adverbials overall.

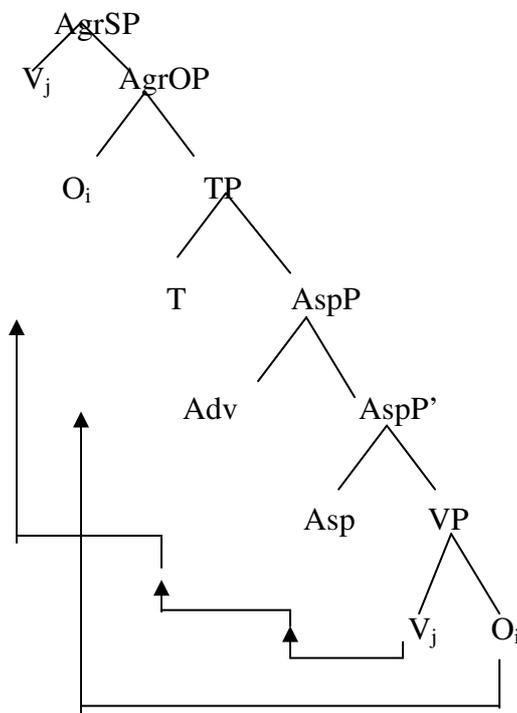
The children then, seem to have a preferred position for the aspectual adverbial, they place it right next to the verb (71,6% of movement instances). To further explain this preference, a close look needs to be taken at the position where adults base-generate aspectual adverbials. Furthermore, it must be pointed out that the children's positioning of the aspectual adverbial immediately after the verb provides evidence for our adoption of Cinque's analysis where, as already outlined in the relevant theoretical chapter, the V has moved to the left of ADV.

6.5.2. On aspectual adverbials

Following Alexiadou (1994) and Cinque (1999), we have claimed that aspectual adverbials are generated in the specifier position of the AspP in MG and are licensed

under feature matching, i.e. agreement with the relevant head features. Recall that the adverb should be a specifier of a head in order to be formally licensed. And that its features match those of the respective head. Adverbs being licensed as specifiers of functional projections, aspectual adverbials are taken to be universally on a left branch. So, in the case of an overt order where the V precedes the adverb, the verb has moved past the adverb. In addition, the adverb is generated in this position, i.e. the licensing configuration is not reached via movement.

The following diagram could be the representation of an overt order where the verb and its complement precede the adverb:



The tree diagram above could be the representation for a sentence like “Etroye payota

sinehia” (he was eating ice-cream all the time). Aspectual adverbials are on the left branch and they are on the specifier position of AspP. In order to get a sequence like “Etroye payota sinehia”, the verb moves up the tree, first being checked for aspect, then for tense and other features and it moves leftward to CP, leaving its trace behind. The object “payota” also has to move leftward leaving its trace behind, in order to get the overt order. AspP is placed lower in the tree and before TP, to be consistent with the principle of “aspect before tense” hypothesis. This linguistic principle, according to Woisetschlaeger (1976) and Bybee (1985) (in Li 2000) specifies that grammatical aspect markers are generally positioned closer to the verb stem than are the tense markers in the world’s languages.

The question is how this tree-diagram relates to the children’s placement of the aspectual adverbial to a position immediately following the verb. If you look at the tree diagram, before any movement of the verb and the object takes place, the word order is: Adv-V-Obj. Now, we assume that the child can acquire V-to-I movement on the basis of the presence of rich agreement in Greek, (without recourse to word order). In the early stages of acquisition he or she will have V-Adv-O as the basic word order, with the aspectual adverbial in a position immediately following the verb. This is what occurred in our data. The adult stage is reached after object movement is acquired, yielding V-O-Adv order, as well as various focus-related movements that derive the observed word order freedom.

6.6. Conclusions

In conclusion, it has been shown that the way children combine aspectual adverbials with verbs marked for viewpoint aspect can provide insights into their acquisition of the semantics of aspect. We have examined children's comprehension of the semantics of perfective vs imperfective viewpoint aspect and their ability to successfully combine aspectual adverbials with verbs set for the perfective or imperfective value. We have found that aspectual adverbials acted as “guides” towards a better use of the aspectual marking on the verb, and perfective in particular, although the children are performing only slightly better with the perfective aspectual marking rather than with the imperfective. This has been looked at in connection with situation aspect, where the findings align with those of the ‘red and green story’ experiment, as well as in terms of the means children employ towards a target response upon reconstruction of a grammatical input: a) the omission of the aspectual adverbial, b) the changing of the aspectual marking on the verb, or c) the substitution of one aspectual adverbial with another one in a clause. Regarding the positioning of aspectual adverbials in children’s grammars, it has been found that upon movement of an aspectual adverbial they indicate strong preference of the position immediately after the verb.

Chapter 7

CONCLUSIONS

7.1. Introduction

In this final chapter, we will summarize the main findings of our thesis and we will draw some final tentative conclusions. We will raise the issue of explaining the acquisition of aspect in terms of natural classes of features. We will also consider the implications of our findings for the continuity hypothesis.

7.2. Summary of results

This thesis has investigated the acquisition of aspect in Modern Greek. The morphology, syntax and semantics of aspect have been presented and discussed. Our motivation has been the following fact: in MG the verb comes necessarily marked for aspect, so aspect appears quite early in children's utterances. Our hypothesis has been that the semantics associated with the morphological marking of aspect on the verb is acquired gradually by the children and that it takes time for the morphology-to-semantics mapping to be established. This hypothesis has indeed been verified by the findings of our experiments.

Conclusions

We carried out two experiments at a nursery school in Greece to look at viewpoint and situation aspect and their interaction in children's grammars. We employed two different experimental methods, a sentence-picture matching task and an elicited imitation task to investigate patterns in the acquisition of viewpoint aspect by the children and how these were affected by situation aspect and aspectual adverbials across the ages.

7.2.1. The 'red and green story'

The first experiment was the “red and green story” experiment. The children were engaged in performing a matching task between a stimulus sentence and the correct one of two picture stories. Our data collection was followed by an analysis and deep statistical analysis.

Our findings are very enlightening with respect to the acquisition of aspect in MG. We investigated patterns in the acquisition of viewpoint aspect by the children and how these were affected by situation aspect across the ages. We found that children first acquire the imperfective best, at two years of age.

Furthermore, our statistical analysis has actually shown that viewpoint and situation aspect are interrelated, as the child is acquiring its grammar. Let us explain how. At

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age two, semelfactives and states with imperfective and achievements with perfective are best acquired. At three years, imperfective appears in combination with accomplishments as well. The percentages then improve at the age of four, only to reach the maximum performance at five, where the whole system, including the perfective and the imperfective viewpoint aspect with verbs of all situation types, has been mastered. The strong association between viewpoint and situation aspect weakens over time, and by the age of six children are expected to develop adult-like competence in using both the perfective and the imperfective aspectual markers with different situation aspect categories.

We also analysed our data statistically in terms of C. Smith's aspectual features.

With respect to the telic – atelic distinction, as anticipated and predicted by our situation aspect results, we found the following: At two years of age atelic events with the verb marked for the imperfective are best acquired. Children's perception and acquisition of the aspectual feature of telicity further improves at three and four, and at five atelicity is mastered at 83,9% (versus telicity 76,7%).

With respect to the aspectual feature of punctuality (+/- punctual), it develops evenly across the ages. Punctual events are always better employed and understood by the children than non-punctual events, the difference between the two being small though.

7.2.2. The ‘aliens’

The second experiment, the ‘aliens’ experiment was an elicited imitation task. Given that aspect interacts with aspectual adverbials, aspectual adverbials being sensitive to the perfective - imperfective distinction, the idea that triggered our experiment was that if children could associate the properties of viewpoint aspect with those of aspectual adverbials, then this would be an indication of them mastering the semantics of aspect.

Our results have shown that the way children combine aspectual adverbials with verbs marked for viewpoint aspect provides insights into their acquisition of the semantics of aspect. With respect to the children’s grammatical responses overall, children are performing marginally better with the perfective aspectual marking rather than with the imperfective. This finding is surprising in terms of our findings in the ‘red and green story’, where we found that imperfective is acquired better than perfective across the ages. The role of the aspectual adverbials is very significant in the interpretation of these results. The good employment of the perfective and the imperfective viewpoint aspect is ‘guided’ by the aspectual adverbials present in the stimuli sentences. We have provided explanations for our findings in terms of the mastery of the aspectual features by the children.

These findings have also been looked at in terms of the means children employ towards production of the adult target, namely the omissions of the aspectual

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adverbial, the changing of the aspectual marking on the verb and the substitution of one aspectual adverbial for another.

Furthermore, we have looked at the positioning of aspectual adverbials in children's grammars, and we have found that should they move them upon reproduction of the stimulus, they place them in immediately post-verbal position. This is explained in the light of Cinque's theory of adverbs, which treats them as specifiers of functional projections. Cinque restricts specifiers to one per head, maintaining a hierarchical order for both functional heads and specifiers. Additionally, his account does indeed capture the correlation between affixes and adverbs, by means of the fact that the hierarchical order of functional heads and the respective order of adverbs mirror the order of any affix that expresses the same feature. His theory can further account for the occurrence of more than one aspectual adverbial in a clause and suggests that each one of them would have to specify a separate aspectual head. In such cases where more than one aspectual adverbial interacts, Cinque's account is to be combined with Moens and Steedman's aspectual coercion, to get the desired aspectual interpretation of a clause in MG.

7.3. Beyond the experiments

In this section we would like to revisit the results of the 'red and green story' experiment. Our results on the acquisition of viewpoint and situation aspect have shown that children acquire semelfactives and states first, and accomplishments,

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achievements and activities follow later on. The crucial question then is why they master different situation type classes of verbs earlier or later? We have suggested that the explanation resides in the acquisition of the natural classes of aspectual features of [+/-telic], [+/- punctual] and [+/-dynamic].

This is verified if we follow another analysis that predicts a different set of natural classes. It is Cormack and Smith's (1999) analysis of Moens and Steedman's event structure, which is Vendlerian in orientation, and which employs two different sets of binary features: [+/- extended] and [+/- consequent state]. The benefit from such an analysis is that we can further investigate the acquisition of event structure by little children. This has been our motivation in exploring this analysis. Following this analysis, at two years children have acquired what Moens calls 'point' and 'state'; this arrangement partly licenses the natural class [atomic]. Also, it implies that by two years, they have not yet acquired the distinction between [+ consequent state] and [- consequent state]; they have only acquired [-consequent state]. At three years they have acquired 'culminated process' and 'culminated point', this pointing to the acquisition of the natural class [+consequent state] and also to mastery of atomic events.

Based on the above, we may say that our children gradually acquire event structure. They have not yet acquired it at two years of age, as our results have shown that they have acquired Points and States. At the age of three though, the situation is completely different and children are shown to have acquired event structure, because

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they have acquired both 'culminated process' and 'culminated point', which have internal structure assigned to them.

So, our findings on situation aspect can indeed be accounted for in terms of the acquisition of the natural classes of aspectual features under both accounts, C. Smith's aspectual features and in the light of Cormack and Smith's (1999) event structure. The findings from the 'aliens' experiments on the way children combine aspect with aspectual adverbials, are also to be explained in terms of the match between the aspectual features carried by the verb and the aspectual features carried by the aspectual adverbials.

If we are to interpret our findings in terms of the Principles and Parameters framework, it is the Parameter of Aspect that children are fixing. Children acquire the perfective and the imperfective viewpoint aspect and also come to acquire the natural classes of the aspectual features towards mastery of situation aspect. Their performance in viewpoint and situation aspect should be treated as parametric choices as well as the sequence in the fixing of those, which has already been presented and discussed in detail.

The question concerning the acquisition of the natural classes of features is: why are they acquired in this particular order? Why should the child acquire [+punctual] better and prior to [+durative]?

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This is a difficult issue altogether and it has been beyond the scope of this thesis, and the answer to the question may lie in the conceptual complexity of the features⁶¹. Not all the features are equally easy to perceive: An [+atelic] event is less complex than a [+telic], in that it encodes no endpoint, so it might be simpler for the child to understand. But how is a [+punctual] event easier than a [+durative] event?

This issue remains to be investigated and elaborated. Yet another crucial question may be addressed. How does UG facilitate the process of the acquisition of natural classes of aspectual features? Also, what is the role of UG in the way we perceive and understand events?

We would further wish to note that the acquisition of aspect, which has been the focus of this thesis, also falls under our personal perception of the world and the events around us. So, in the red and green story experiment, when presenting the picture stories to the children and asking them to associate a stimulus sentence with one of the two picture stories, we had certain expectations of them, even though aspect is about an individual's viewpoint on the internal temporal constituency of an event. Despite the subjectivity of the individual's perception of the event depicted by each one of the picture stories and despite the subjectivity in making judgements and carrying out the picture- sentence matching task, which in fact entitles each and every person to a personal understanding and evaluation and judgement of events, the young

⁶¹ For interesting discussion on concepts see Landau & Gleitman 1985.

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learners seem to conform to the adult perception of all the previously mentioned contrasts.

So, the acquisition of natural classes of aspectual features in fact relies on a conceptual base and on the complexity of this base.

However, if the acquisition of aspect is to be looked at in terms of the acquisition of the natural classes of features, as the results of our experiments have indicated, and this in turn is linked to children's sensitivity to conceptual complexity, it is relatively easy for children to acquire the ambient aspectual features and hence the aspectual system as a whole.

The acquisition of aspect is concept-based. Given our cartographic outlook on syntax, aspect cannot be characterised solely as a morphological feature on the verb, but as the manifestation of a functional category, best viewed in a continuity framework.

7.4. On the continuity hypothesis

In this section, we will consider the implications of our findings for the continuity hypothesis.

Our results have presented evidence that the acquisition of aspect starts early and that aspect is then acquired gradually. This is made clear by the fact that children have

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been found initially to associate certain situation types with viewpoint aspect only; these initial associations weaken over age, as the children move to the adult-like competence of aspect.

So, in advocating the continuity hypothesis, I think I would like to go along with the possibility that Clahsen & Penke, (among others: Meisel & Muller, Gawlitzek-Maiwald, Tracy and Fritzenschaft) have suggested. That is, some kind of functional projection exists, though incompletely specified. Developments within that phrase structure then trigger the construction of a further layer of functional projections, or a metamorphosis in the features already existing.

For MG, the acquisition of the natural classes of the aspectual features, that we have already discussed, involves setting the strength of the features of the pre-existing functional category of aspect. In this sense we are arguing for a ‘maturational continuity hypothesis’; this is meant to capture the argument for the continuity hypothesis with a maturational development to the full mastery of the aspectual system.

7.5. Epilogue

In conclusion, under minimalist assumptions, innate and learned aspects of grammar come together in the acquisition of aspect. The importance of the language input is not to be underestimated; the aspectual features are innate, as are the concepts underlying them (cf. Fodor, 1975); then comes the language input; children analyse the language input for regularities and patterns in effecting a mapping between the morphological and the semantic components of aspect in order to gain full mastery of the aspectual system.

Appendices

CHAPTER 5: THE “RED AND GREEN STORY” EXPERIMENT

Appendix 1 - The subjects (4 age groups)

Age groups	Names	Date of Birth	Age on the day of recording
2-year-olds	Christina	25/4/07	2,8,15
	Danai	11/3/07	2,9,29
	Marianna	20/2/07	2,10,20
	Christos	26/4/07	2,8,14
	Andreas	22/1/07	2,11,18
	Eva	1/7/07	2,6,9
	Anastasis	11/8/07	2,4,29
	Filippos	5/5/07	2,8,5
	Ninetta	13/8/07	2,4,27
	Alexandra	24/1/07	2,11,16
3-year-olds	Fei	8/3/06	3,10,2
	ChristinaA.	3/3/06	3,10,7
	Vasilis	19/1/06	3,11,21
	Yioryos	12/1/06	3,11,18
	Christina L.	31/1/06	3,11,10

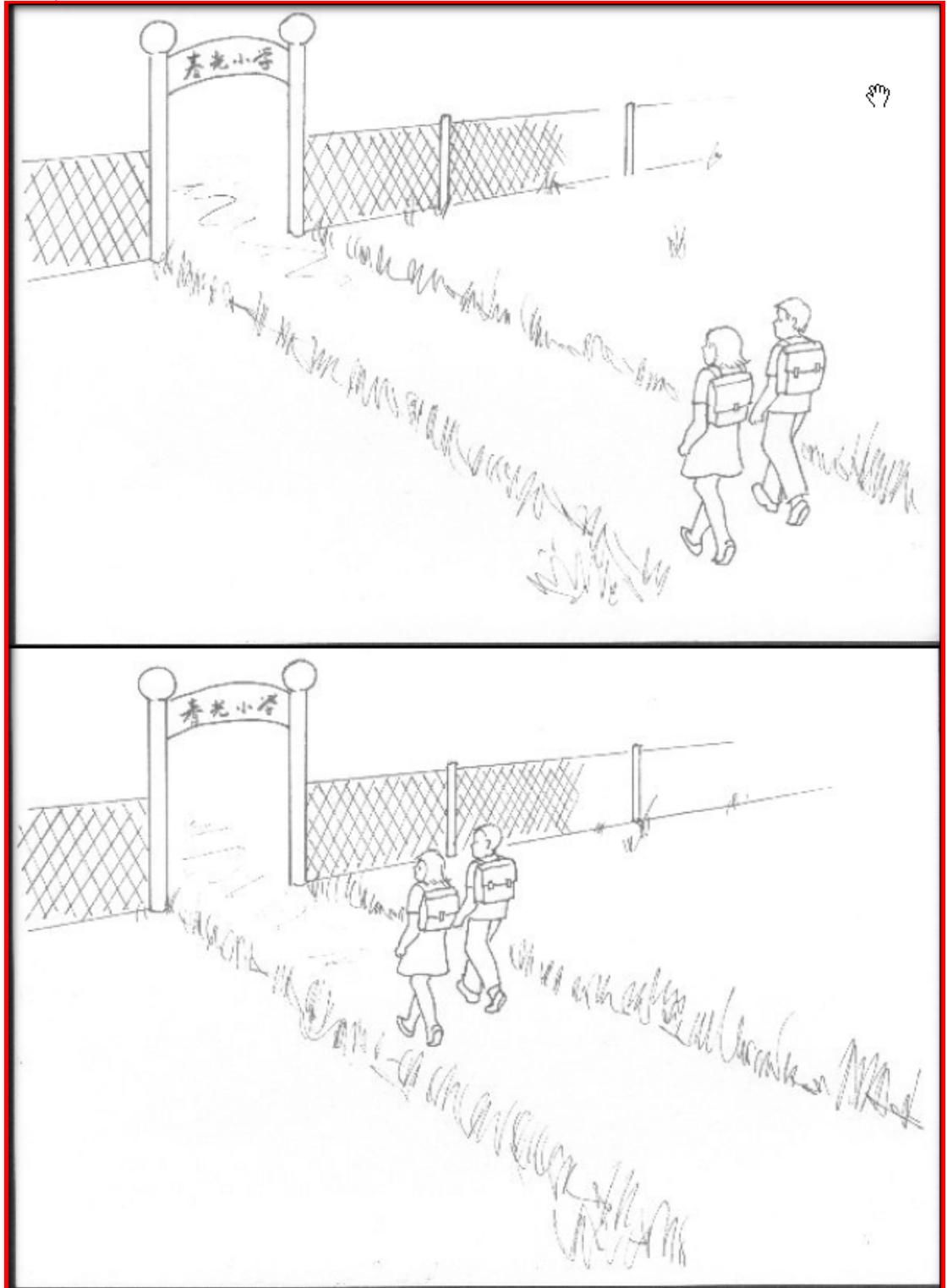
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	Andrianna	19/8/06	3,4,21
	Spiros	25/10/06	3,2,15
	Filippa	29/5/06	3,7,11
	Yioryos	18/7/06	3,5,22
	Christina T.	16/10/06	3,2,24
4-year-olds	Konstantinos	10/7/05	4,6
	Elena	22/3/05	4,9,18
	Arianna	24/7/05	4,5,16
	Evdokia	5/5/05	4,8,5
	Elvira	22/4/05	4,8,18
	Yiannis	8/2/05	4,11,2
	Theano	14/6/05	4,6,26
	Alexandros	22/3/05	4,9,18
	Maria	2/2/05	4,11,8
	Mirto	9/5/05	4,8,1
5-year-olds	Katerina	16/2/04	5,10,24
	Nefeli	27/1/04	5,11,13
	Mayia	12/5/04	5,7,28
	Meliti	2/6/04	5,8,8
	Dionisis	4/11/04	5,2,6
	Yioryos	25/5/04	5,7,15
	Xrisa	30/10/04	5,2,10
	Aggelos	16/11/04	5,1,24
	Petros	16/6/04	5,6,24
	Nikolas	12/10/04	5,2,28

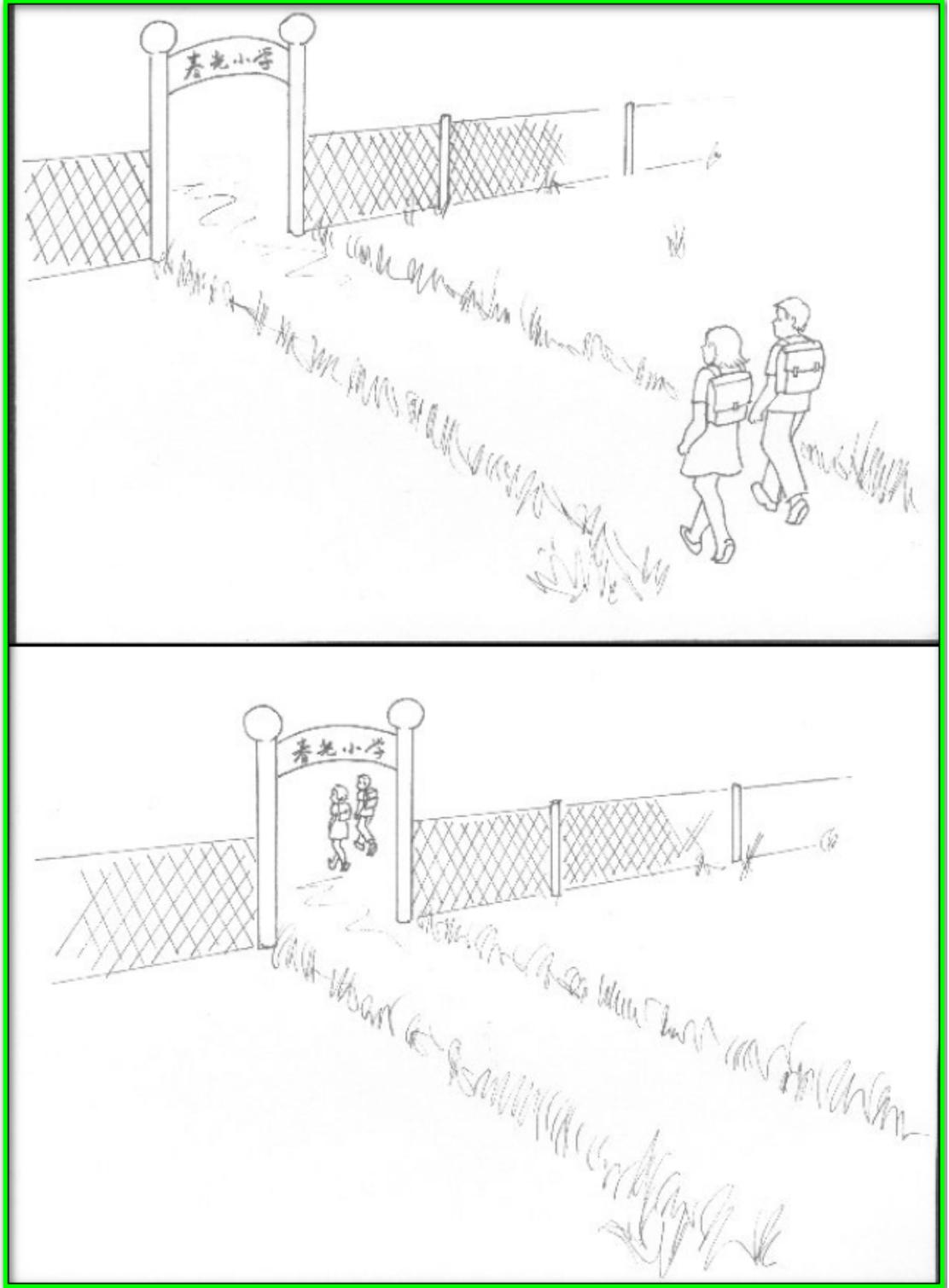
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Appendix 2 – A set of picture stories

The red story



The green story



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Appendix 3 - The stimulus sentences

id	Stimulus sentences	Matching picture story (The red or the green story)	Viewpoint Aspect	Situation Aspect	Aspectual Features Set 1	Aspectua l Features Set 2	Aspectua l Features Set 3
1	To koritsaki zoyrafizi ena louloudaki The little girl is drawing a flower.	Red	IMPF	Accomplishment	Telic	Durative	Dynamic
2	To koritsaki zoyrafise mia zoyrafia. The little girl drew a picture.	Green	PF	Accomplishment	Telic	Durative	Dynamic
3	Ta pedakia piyan sto sholio. The children went to school.	Green	PF	Accomplishment	Telic	Durative	Dynamic
4	Ta pedia pigenoun sto sholio. The children are going to school.	Red	IMPF	Activity	Atelic	Durative	Dynamic
5	O babas aneveni ena ena ta skalopatia. Dad is going up the stairs one by one.	Red	IMPF	Achievement	Telic	Punctual	Dynamic
6	O batrahoulis briskete stin akri tis limnoulas. The little frog is standing on the side of the lake.	Red	IMPF	State	Atelic	Durative	Non-Dynamic
7	O batrahoulis horopidise apo noufaro se noufaro. The little frog jumped from waterlily to waterlily.	Green	PF	Semelfactive	Atelic	Puctual	Dynamic

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8	O kirios ipie yala. The man drank milk.	Green	PF	Activity	Atelic	Durative	Dynamic
9	To koritsaki kouvalise nero. The little girl carried water.	Green	PF	Activity	Atelic	Durative	Dynamic
10	To koritsaki stekete dipla sto kouvadaki. The little girl is standing next to the bucket.	Red	IMPF	State	Atelic	Durative	Non-Dynamic
11	To pedaki kolibai. The little child is swimming.	Red	IMPF	Activity	Atelic	Durative	Dynamic
12	To pedaki kerdise ton ayona. The little child won the race.	Green	PF	Accomplishment	Telic	Durative	Dynamic
13	O pappous diavase istories apo to vivlio. Grandpa read stories from the book.	Green	PF	Activity	Atelic	Durative	Dynamic
14	To pedaki ftiahni kati me ta touvlakia tou. The child is making something with his toy-bricks.	Red	IMPF	Accomplishment	Telic	Durative	Dynamic
15	To pedaki eftiakse ena spitaki me ta touvlakia tou. The child made a house with his toy-bricks.	Green	PF	Achievement	Telic	Punctual	Dynamic
16	O babas ine pano stin karekla. Dad is on the chair.	Red	IMPF	State	Atelic	Durative	Non-Dynamic

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17	O kirios kremase ton pinaka ston tixo. The gentleman hung the painting on the wall.	Green	PF	Achievement	Telic	Punctual	Dynamic
18	O tixos itan pia omorfa diakosmimenos. The wall was then beautifully decorated.	Green	PF	State	Atelic	Durative	Non-Dynamic
19	O ayrotis klotsai to yourounaki. The farmer is kicking the little pig.	Red	IMPF	Semelfactive	Atelic	Punctual	Dynamic
20	To yourounaki itan tromaymeno. The little pig was scared.	Green	PF	State	Atelic	Durative	Non-Dynamic
21	To koritsaki dithike. The little girl got dressed.	Green	PF	Achievement	Telic	Punctual	Dynamic
22	To koritsaki bazi (forai) ta rouha tou. The little girl is putting on her clothes.	Red	IMPF	Accomplishment	Telic	Durative	Dynamic
23	O kirios perni mia efimerida yia na diavasi. The gentleman is getting a newspaper to read.	Red	IMPF	Achievement	Telic	Punctual	Dynamic
24	O babas patai ton diakopti. Daddy pushes the switch.	Red	IMPF	Semelfactive	Atelic	Punctual	Dynamic
25	O babas svini to fos. My dad turns the light off.	Red	IMPF	Achievement	Telic	Punctual	Dynamic
26	To fos itan klisto.	Green	PF	State	Atelic	Durative	Non-Dynamic

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	The light was off.						
27	To potiri pefiti. The glass is falling.	Red	IMPF	Semelfactive	Atelic	Punctual	Dynamic
28	O athlitis trehi. The athlete is running.	Red	IMPF	Activity	Atelic	Durative	Dynamic
29	O pithikos ektelese toubes ston aera. The monkey turned somersaults in the air.	Green	PF	Semelfactive	Atelic	Puctual	Dynamic
30	To pedaki fternistike. ksana ke ksana. The little child sneezed again and again.	Green	PF	Semelfactive	Atelic	Puctual	Dynamic

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Appendix 4: The Aspectual Features

Aspectual Features Set 1	N
	1200
Telic	480
Atelic	720

Aspectual Features Set 2	N
	1200
Punctual	480
Durative	720

Aspectual Features Set 3	N
	1200
Dynamic	960
Non-Dynamic	240

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Appendix 5: The children's selection of story in the sentence-picture matching task.

The shading indicates the subjects' incorrect choices.

	Stimulus Sentences	To koritsaki zografizi ena louloudaki The little girl is painting a flower.	To koritsaki zoyrafise mia zoyrafia. The little girl drew a picture.	Ta pedakia piyan sto sholio. The children went to school.	Ta pedia pigenoun sto sholio. The children are going to school.	O babas aneveni ena ena ta skalopatia	O vatraxoulis vriskete stin akri tis limnoulas.	O vatraxoulis xoropidise apo noufaro se noufaro. The little frog jumped from waterlily to waterlily.	O kirios ipie yala. The man drank milk.	To koritsaki kouvalise nero. The little girl carried water.	To koritsaki stekete dipla sto kouvadaki. The little girl is standing next to the bucket.
Names	Correct matching story	red	green	green	red	red	red	green	green	green	red
Katerina-5		red	green	green	red	red	green	green	red	green	red
Nefeli-5		red	green	green	red	red	red	green	red	green	red
Magia-5		green	green	red	green	red	red	green	red	green	red
Meliti-5		red	green	red	red	green	red	green	red	green	red
Dionisis-5		red	red	green	red	red	red	green	red	green	red
Yioryos-5		red	green	green	green	red	red	green	green	green	red
Xrisa-5		green	red	green	red	red	green	green	green	green	red
Aggelos-5		red	green	green	red	red	green	green	red	green	red
Petros-5		red	green	green	red	red	red	green	green	green	red
Nikolas-5		red	red	green	green	green	red	green	green	green	red
Konstantinos -4		red	green	green	green	red	green	green	red	green	red
Alexandros-4		red	green	green	green	red	green	green	green	green	red
Arianna-4		green	green	green	green	red	green	green	red	green	red
Yiannis-4		green	green	green	red	red	green	green	green	green	red
Elbira-4		red	green	green	red	green	green	green	green	green	red
Elena-4		red	green	green	red	red	green	green	red	green	red

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Evdokia-4	red	green	green	red	red	green	green	green	green	red
Theano-4	red	green	green	green	red	red	red	green	green	red
Maria-4	red	green	green	red	red	red	green	green	green	red
Mirto-4	red	green	green	green	green	red	green	green	green	red
Andrianna-3	green	red	red	green	red	green	red	red	green	green
Vasilis-3	red	green	green	red	green	red	green	red	green	red
Yioryos A.-3	red	red	green	red	green	red	green	green	red	red
Yioryos B.-3	green	green	green	red	green	green	green	green	green	red
Spiros -3	green	red	green	red						
Fei -3	red	green	red	green	red	red	green	red	green	red
Filippa -3	red	green	red	red	red	green	green	red	green	green
Christina A.-3	red	green	green	red	green	green	red	green	green	red
Christina T.-3	red	green	red	green	green	red	red	green	green	red
Christina L.-3	red	red	green	green	red	red	green	green	green	red
Danai -2	green	green	green	red	green	red	green	green	red	red
Christina -2	red	green	red	red	red	red	green	red	green	red
Marianna -2	red	red	red	red	red	red	green	red	red	red
Christos -2	red	red	green	green	green	green	green	red	green	green
Andreas -2	green	red	green	red	red	red	green	red	red	green
Eva -2	green	green	red	red	green	red	green	red	green	red
Anastasis -2	red	green	green	red	green	red	red	red	green	red
Filippos -2	red	red	green	green	green	green	green	red	green	green
Ninetta -2	red	green	red	red	red	red	green	red	red	red
Alexandra -2	red	red	red	red	red	red	green	green	red	red

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	Stimulus Sentence	To pedaki kolibai. The child is swimming.	To pedaki kerdise ton agona. The little child won the race.	O pappous diabase istories apo to vivlio. Grandpa read stories from the book.	To pedaki ftiaxni kati me ta touvlakia tou. The child is making something with his toy-bricks.	To pedaki eftiakse ena spitaki me ta touvlakia tou. The child made a house with his toy-bricks.	O babas ine pano stin karekla. Dad is on the chair.	O kirios kremase ton pinaka ston tixo. The gentleman hung the painting on the wall.	O tixos itan pia omorfa diakosmime nos. The wall was then beautifully decorated.	O agrotis klotsai to yourounaki. The farmer is kicking the little pig.	To yourounaki itan tromagmeno. The little pig was scared.
Names	Correct matching story	red	green	green	red	green	red	green	green	red	green
Katerina -5		red	green	green	red	green	red	green	green	red	green
Nefeli -5		red	green	red	red	green	red	green	red	red	green
Mayia -5		red	green	red	green	green	red	green	green	red	green
Meliti -5		red	green	red	red	red	red	red	green	red	green
Dionisis -5		red	green	red	red	green	red	red	green	red	green
Yioryos -5		red	green	green	red	green	red	green	green	red	green
Xrisa -5		red	green	red	green	red	red	red	green	red	green
Aggelos -5		red	green	green	red	green	red	green	red	red	red
Petros -5		red	green	green	green	green	red	green	green	red	green
Nikolas -5		green	green	red	red	green	red	red	green	red	green
Konstantinos -4		red	green	red	red	green	red	green	green	red	green
Alexandros -4		green	red	green	red	green	red	red	green	red	green
Arianna -4		green	green	red	red	green	red	green	green	red	green
Yiannis -4		red	red	red	red	green	red	green	red	red	green
Elvira -4		red	green	red	red	green	red	green	green	red	green
Elena -4		red	green	red	red	green	red	red	green	red	red
Evdokia -4		green	red	red	red	green	red	red	green	red	green
Theano -4		green	green	green	red	green	red	green	green	red	green

Appendices

Maria -4	red	red	green	red	green	red	green	green	red	green
Mirto -4	red	green	green	red	green	red	green	green	red	green
Andrianna -3	green	red	red	red	red	red	green	green	red	red
Vasilis -3	red	green	red	red	green	red	green	green	red	green
Yioryos A. -3	red	green	green	red	green	red	green	green	red	green
Yioryos B. -3	red	red	red	red	green	red	green	green	red	red
Spiros -3	green	red	red	red	green	red	red	green	red	red
Fei -3	green	red	red	red	green	green	red	red	red	red
Filippa -3	green	green	green	red	green	red	red	green	red	red
Christina A. -3	red	green	green	red	green	red	green	green	green	red
Christina T. -3	red	red	green	red	green	green	red	green	green	green
Christina L.-3	green	green	red	red	green	red	green	green	red	green
Danai -2	red	red	green	red	green	red	green	green	red	red
Christina -2	green	green	red	red	Green	red	green	green	red	red
Marianna -2	red	red	green	red	Green	green	red	red	red	red
Christos -2	red	red	red	green	Green	red	red	red	red	green
Andreas -2	red	red	red	green	Green	red	red	red	red	green
Eva -2	green	red	red	red	Green	red	green	red	red	green
Anastasios -2	green	green	green	green	Red	red	red	red	red	red
Filippos -2	red	green	red	green	Green	red	red	red	green	green
Ninetta -2	green	green	green	red	Red	red	red	green	green	red
Alexandra -2	red	green	red	red	Green	red	red	green	red	green

Appendices

	Stimulus Sentence	To koritsaki dithike. The little girl got dressed.	To koritsaki vazi ta rouxa tou. The little girl is putting on her clothes.	O kirios perni mia efimerida yia na diavasi. The gentleman is getting a newspaper to read.	O babas patai ton diakopti. Daddy pushes the switch.	O babas svini to fos. My dad turns the light off.	To fos itan klisto. The light was off.	To potiri pefti. The glass is falling.	O athlitis trexi. The athlete is running.	O pithikos ektelese toubes ston aera. The monkey turned somersaults in the air.	To pedaki fternistike. ksana ke ksana. The little child sneezed again and again.
Names	Correct matching story	green	red	red	red	Red	green	red	red	green	green
Katerina -5		green	red	green	red	Red	green	red	green	green	green
Nefeli-5		green	red	red	red	Red	green	red	green	green	green
Mayia -5		red	red	red	red	Red	green	red	red	green	green
Meliti-5		red	red	green	red	Green	green	red	red	green	green
Dionusis -5		red	red	red	red	Red	green	red	red	green	green
Yioryos -5		green	red	red	red	Red	green	red	red	green	green
Xrisa -5		green	red	green	red	Red	green	red	red	red	green
Aggelos -5		green	red	red	red	Red	green	green	red	red	green
Petros -5		red	red	green	red	Red	green	red	green	green	green
Nikolas -5		green	red	green	red	Red	green	red	green	green	green
Konstantinos -4		green	red	green	red	Red	green	red	green	red	green
Alexandros -4		red	red	green	red	Red	green	red	red	green	red
Arianna -4		red	green	green	red	Green	green	red	green	green	green
Yiannis -4		green	red	green	red	Green	green	red	red	green	green
Elvira -4		green	red	green	red	Green	green	red	red	red	green
Elena -4		green	red	red	red	Red	green	red	red	red	green
Evdokia -4		red	red	green	red	Red	green	red	green	green	green
Theano -4		green	red	green	red	Red	green	red	green	green	green
Maria -4		green	red	green	red	Red	green	red	red	green	green

Appendices

Mirto -4	green	green	red	red	Red	green	red	green	green	green
Andrianna -3	red	red	green	red	Green	green	red	red	green	red
Vasilis -3	green	green	red	red	Green	green	red	red	red	green
Yioryos A. -3	green	red	green	red	Red	green	red	green	red	green
Yioryos B. -3	green	red	red	red	Green	green	red	green	red	green
Spiros -3	green	red	red	red	Green	green	red	red	green	red
Fei -3	green	red	green	red	Red	green	red	red	green	red
Filippa -3	green	red	red	red	Green	green	red	red	green	green
Christina A. -3	green	red	green	red	red	green	red	red	green	green
Christina T.-3	green	red	red	green	red	green	green	red	green	green
Christina L.-3	green	green	red	red	red	green	red	green	green	green
Danai -2	red	green	green	red	red	green	green	green	red	red
Christina -2	green	green	green	red	green	green	green	green	green	red
Marianna -2	red	red	green	red	green	green	red	red	green	green
Christos -2	green	green	green	red	green	green	red	red	green	green
Andreas -2	green	green	red	red	red	green	red	red	green	green
Eva -2	green	red	green	red	green	red	green	red	red	green
Anastasios -2	red	green	green	green	green	red	green	green	red	red
Filippos -2	green	green	green	red	red	green	red	red	green	green
Ninetta -2	green	green	red	red	green	red	red	red	red	green
Alexandra -2	green	green	green	red	red	green	red	red	green	green

Appendix 6: The statistics

6.1. Viewpoint Aspect: IMPF

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = IMPF

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count % within Age	56 37,3%	94 62,7%	150 100,0%
	From 3 up to 4	Count % within Age	43 28,7%	107 71,3%	150 100,0%
	From 4 up to 5	Count % within Age	38 25,3%	112 74,7%	150 100,0%
	From 5 up to 6	Count % within Age	25 16,7%	125 83,3%	150 100,0%
Total		Count % within Age	162 27,0%	438 73,0%	600 100,0%

a. Viewpoint Aspect = IMPF

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,675 ^a	3	,001
Likelihood Ratio	16,998	3	,001
Linear-by-Linear Association	16,215	1	,000
N of Valid Cases	600		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 40,50.

b. Viewpoint Aspect = IMPF

6.2. Viewpoint Aspect: PF

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = PF

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	68	82	150
		% within Age	45,3%	54,7%	100,0%
	From 3 up to 4	Count	49	101	150
		% within Age	32,7%	67,3%	100,0%
Age	From 4 up to 5	Count	26	124	150
		% within Age	17,3%	82,7%	100,0%
Age	From 5 up to 6	Count	32	118	150
		% within Age	21,3%	78,7%	100,0%
Total		Count	175	425	600
		% within Age	29,2%	70,8%	100,0%

a. Viewpoint Aspect = PF

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34,487 ^a	3	,000
Likelihood Ratio	34,350	3	,000
Linear-by-Linear Association	27,642	1	,000
N of Valid Cases	600		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 43,75.

b. Viewpoint Aspect = PF

6.3. Situation Aspect: ACCOMPLISHMENT

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Situation Aspect = ACCOMPLISHMENT

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count % within Age	30 50,0%	30 50,0%	60 100,0%
	From 3 up tp 4	Count % within Age	18 30,0%	42 70,0%	60 100,0%
	From 4 up to 5	Count % within Age	8 13,3%	52 86,7%	60 100,0%
	From 5 up to 6	Count % within Age	10 16,7%	50 83,3%	60 100,0%
Total		Count % within Age	66 27,5%	174 72,5%	240 100,0%

a. Situation Aspect = ACCOMPLISHMENT

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24,995 ^a	3	,000
Likelihood Ratio	24,651	3	,000
Linear-by-Linear Association	20,395	1	,000
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 16,50.

b. Situation Aspect = ACCOMPLISHMENT

6.4. Situation Aspect: ACHIEVEMENT

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Situation Aspect = ACHIEVEMENT

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count % within Age	31 51,7%	29 48,3%	60 100,0 %
	From 3 up tp 4	Count % within Age	20 33,3%	40 66,7%	60 100,0 %
	From 4 up to 5	Count % within Age	19 31,7%	41 68,3%	60 100,0 %
	From 5 up to 6	Count % within Age	18 30,0%	42 70,0%	60 100,0 %
Total		Count % within Age	88 36,7%	152 63,3%	240 100,0 %

a. Situation Aspect = ACHIEVEMENT

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,895 ^a	3	,048
Likelihood Ratio	7,720	3	,052
Linear-by-Linear Association	5,718	1	,017
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 22,00.

b. Situation Aspect = ACHIEVEMENT

6.5. Situation Aspect: ACTIVITY

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Situation Aspect = ACTIVITY

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	28	32	60
		% within Age	46,7%	53,3%	100,0%
	From 3 up to 4	Count	25	35	60
		% within Age	41,7%	58,3%	100,0%
Age	From 4 up to 5	Count	23	37	60
		% within Age	38,3%	61,7%	100,0%
Age	From 5 up to 6	Count	20	40	60
		% within Age	33,3%	66,7%	100,0%
Total		Count	96	144	240
		% within Age	40,0%	60,0%	100,0%
		% within Age			%

a. Situation Aspect = ACTIVITY

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2,361 ^a	3	,501
Likelihood Ratio	2,369	3	,499
Linear-by-Linear Association	2,337	1	,126
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 24,00.

b. Situation Aspect = ACTIVITY

6.6. Situation Aspect: SEMELFACTIVE

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Situation Aspect = SEMELFACTIVE

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count % within Age	15 25,0%	45 75,0%	60 100,0%
	From 3 up tp 4	Count % within Age	14 23,3%	46 76,7%	60 100,0%
	From 4 up to 5	Count % within Age	5 8,3%	55 91,7%	60 100,0%
	From 5 up to 6	Count % within Age	3 5,0%	57 95,0%	60 100,0%
Total		Count % within Age	37 15,4%	203 84,6%	240 100,0%

a. Situation Aspect = SEMELFACTIVE

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14,411 ^a	3	,002
Likelihood Ratio	15,422	3	,001
Linear-by-Linear Association	12,887	1	,000
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 9,25.

b. Situation Aspect = SEMELFACTIVE

6.7. Situation Aspect: STATE

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Situation Aspect = STATE

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count % within Age	20 33,3%	40 66,7%	60 100,0%
	From 3 up to 4	Count % within Age	15 25,0%	45 75,0%	60 100,0%
	From 4 up to 5	Count % within Age	9 15,0%	51 85,0%	60 100,0%
	From 5 up to 6	Count % within Age	6 10,0%	54 90,0%	60 100,0%
Total		Count % within Age	50 20,8%	190 79,2%	240 100,0%

a. Situation Aspect = STATE

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,823 ^a	3	,008
Likelihood Ratio	12,038	3	,007
Linear-by-Linear Association	11,593	1	,001
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 12,50.

b. Situation Aspect = STATE

6.8. IMPF –Situation Aspect

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Situation Aspect * Answers	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = IMPF

Situation Aspect * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Situation Aspect	ACCOMPLISHM ENT	Count % within Situation Aspect	29 24,2%	91 75,8%	120 100,0 %
	ACHIEVEMENT	Count % within Situation Aspect	54 45,0%	66 55,0%	120 100,0 %
	ACTIVITY	Count % within Situation Aspect	43 35,8%	77 64,2%	120 100,0 %
	SEMELFACTIVE	Count % within Situation Aspect	12 10,0%	108 90,0%	120 100,0 %
	STATE	Count % within Situation Aspect	24 20,0%	96 80,0%	120 100,0 %
Total	Count % within Situation Aspect	162 27,0%	438 73,0%	600 100,0 %	

a. Viewpoint Aspect = IMPF

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45,544 ^a	4	,000
Likelihood Ratio	47,334	4	,000
Linear-by-Linear Association	11,413	1	,001
N of Valid Cases	600		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 32,40.

b. Viewpoint Aspect = IMPF

6.9. PF – Situation Aspect

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Situation Aspect * Answers	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = PF

Situation Aspect * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Situation Aspect	ACCOMPLISHM ENT	Count % within Situation Aspect	37 30,8%	83 69,2%	120 100,0 %
	ACHIEVEMENT	Count % within Situation Aspect	34 28,3%	86 71,7%	120 100,0 %
	ACTIVITY	Count % within Situation Aspect	53 44,2%	67 55,8%	120 100,0 %
	SEMELFACTIVE	Count % within Situation Aspect	25 20,8%	95 79,2%	120 100,0 %
	STATE	Count % within Situation Aspect	26 21,7%	94 78,3%	120 100,0 %
Total	Count % within Situation Aspect	175 29,2%	425 70,8%	600 100,0 %	

a. Viewpoint Aspect = PF

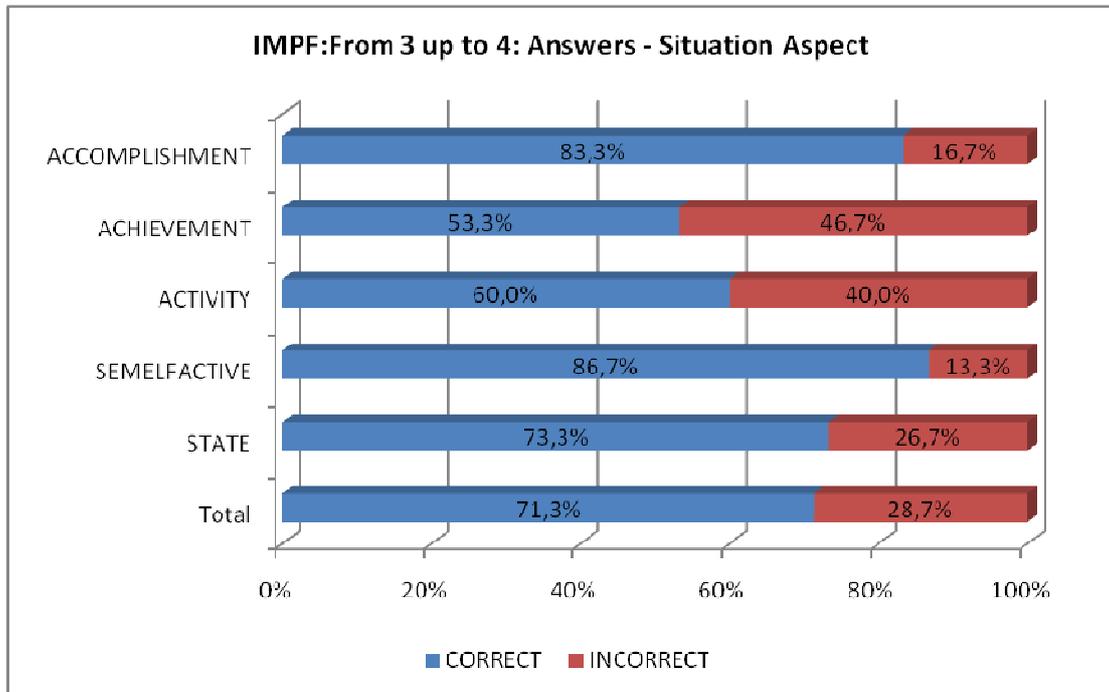
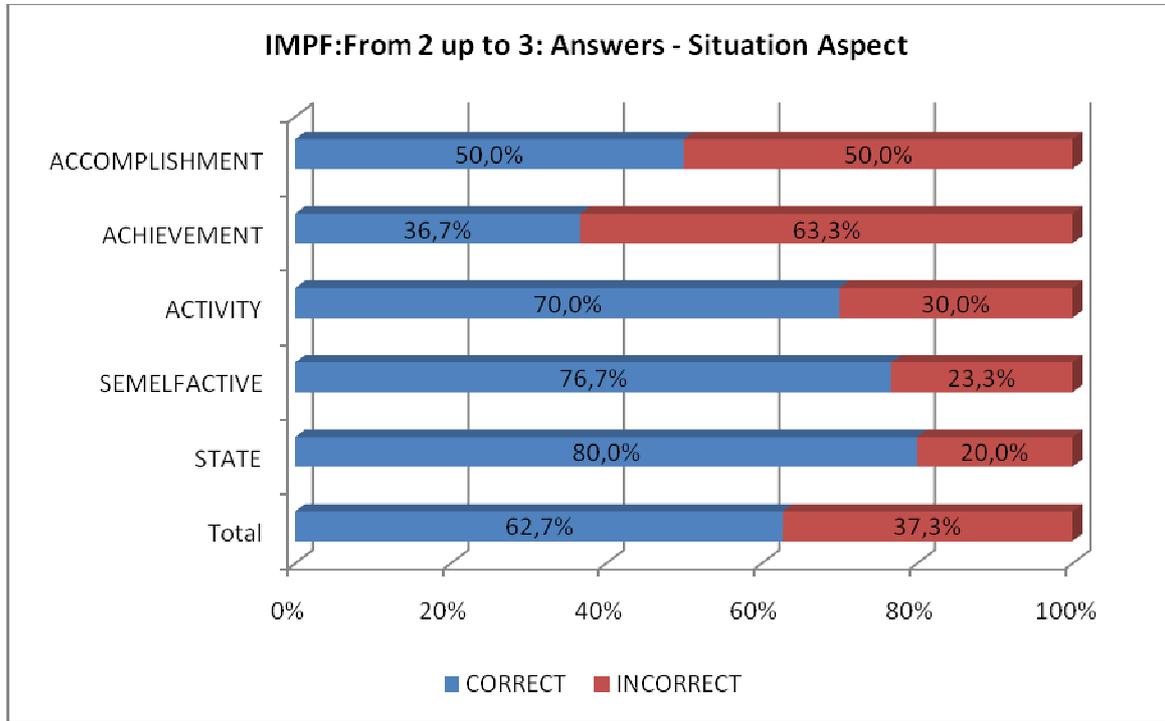
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20,571 ^a	4	,000
Likelihood Ratio	20,071	4	,000
Linear-by-Linear Association	3,870	1	,049
N of Valid Cases	600		

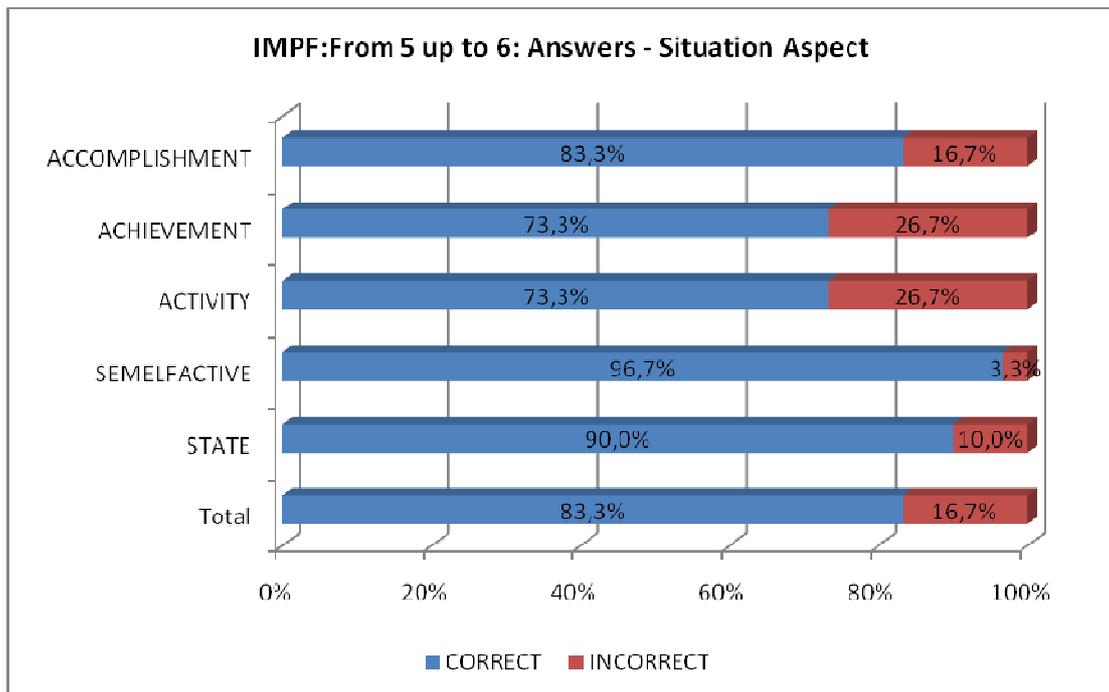
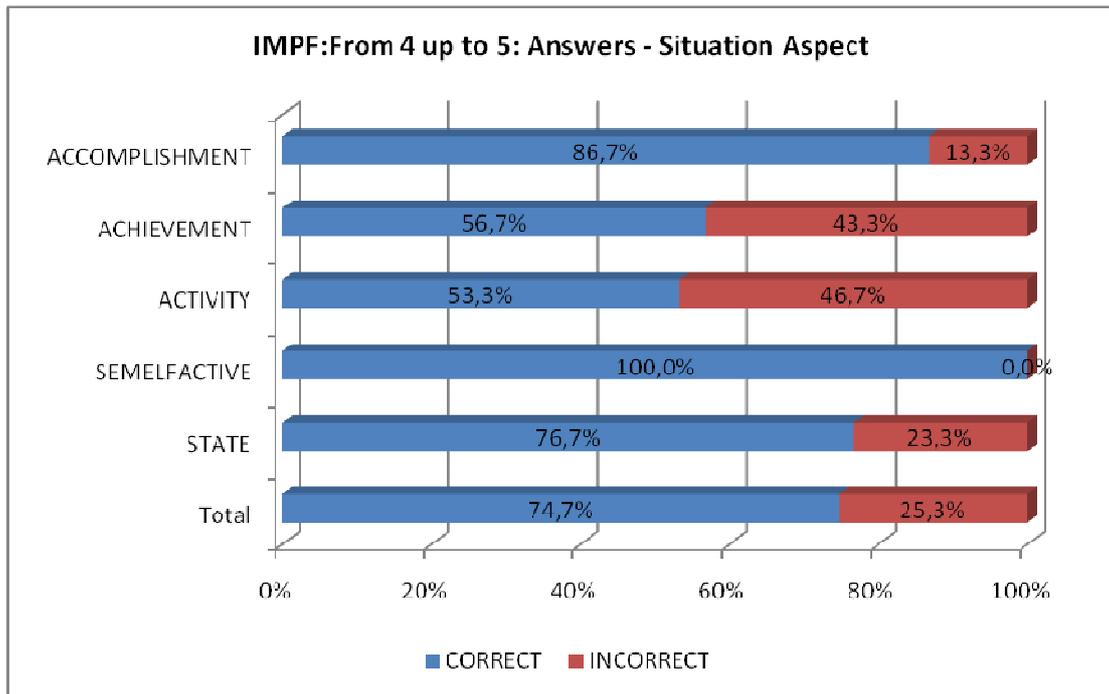
a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 35,00.

b. Viewpoint Aspect = PF

6.10.1. The interaction of situation aspect and the imperfective across the ages



Appendices



Appendices

The statistics

Viewpoint Aspect = IMPF

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Situation Aspect * Answers * Age	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = IMPF

Situation Aspect * Answers * Age Crosstabulation^a

Age				Answers		Total
				INCORRECT	CORRECT	
From 2 up to 3	Situation Aspect	ACCOMPLISHMENT	Count	15	15	30
			% within Situation Aspect	50,0%	50,0%	100,0 %
		ACHIEVEMENT	Count	19	11	30
			% within Situation Aspect	63,3%	36,7%	100,0 %
		ACTIVITY	Count	9	21	30
			% within Situation Aspect	30,0%	70,0%	100,0 %
		SEMELFACTIVE	Count	7	23	30
			% within Situation Aspect	23,3%	76,7%	100,0 %
		STATE	Count	6	24	30
			% within Situation Aspect	20,0%	80,0%	100,0 %
		Total	Count	56	94	150
			% within Situation Aspect	37,3%	62,7%	100,0 %
From 3 up tp	Situation	ACCOMPLISHMENT	Count	5	25	30

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4	Aspect		% within Situation	16,7%	83,3%	100,0
			Aspect			%
	ACHIEVEMENT		Count	14	16	30
			% within Situation	46,7%	53,3%	100,0
			Aspect			%
	ACTIVITY		Count	12	18	30
			% within Situation	40,0%	60,0%	100,0
			Aspect			%
	SEMELFACTIVE		Count	4	26	30
			% within Situation	13,3%	86,7%	100,0
		Aspect			%	
STATE		Count	8	22	30	
		% within Situation	26,7%	73,3%	100,0	
		Aspect			%	
Total		Count	43	107	150	
		% within Situation	28,7%	71,3%	100,0	
		Aspect			%	
From 4 up to 5	Situation	ACCOMPLISHMENT	Count	4	26	30
			% within Situation	13,3%	86,7%	100,0
			Aspect			%
	ACHIEVEMENT		Count	13	17	30
			% within Situation	43,3%	56,7%	100,0
			Aspect			%
	ACTIVITY		Count	14	16	30
			% within Situation	46,7%	53,3%	100,0
			Aspect			%
	SEMELFACTIVE		Count	0	30	30
		% within Situation	,0%	100,0%	100,0	
		Aspect			%	
STATE		Count	7	23	30	
		% within Situation	23,3%	76,7%	100,0	
		Aspect			%	
Total		Count	38	112	150	
		% within Situation	25,3%	74,7%	100,0	
		Aspect			%	
From 5 up to 6	Situation	ACCOMPLISHMENT	Count	5	25	30
			% within Situation	16,7%	83,3%	100,0
			Aspect			%

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ACHIEVEMENT	Count	8	22	30
	% within Situation	26,7%	73,3%	100,0
	Aspect			%
ACTIVITY	Count	8	22	30
	% within Situation	26,7%	73,3%	100,0
	Aspect			%
SEMELFACTIVE	Count	1	29	30
	% within Situation	3,3%	96,7%	100,0
	Aspect			%
STATE	Count	3	27	30
	% within Situation	10,0%	90,0%	100,0
	Aspect			%
Total	Count	25	125	150
	% within Situation	16,7%	83,3%	100,0
	Aspect			%

a. Viewpoint Aspect = IMPF

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Chi-Square Tests^e

Age		Value	df	Asymp. Sig. (2-sided)
From 2 up to 3	Pearson Chi-Square	17,781 ^a	4	,001
	Likelihood Ratio	17,921	4	,001
	Linear-by-Linear Association	12,737	1	,000
	N of Valid Cases	150		
From 3 up to 4	Pearson Chi-Square	12,258 ^b	4	,016
	Likelihood Ratio	12,517	4	,014
	Linear-by-Linear Association	,259	1	,611
	N of Valid Cases	150		
From 4 up to 5	Pearson Chi-Square	24,883 ^c	4	,000
	Likelihood Ratio	31,124	4	,000
	Linear-by-Linear Association	,858	1	,354
	N of Valid Cases	150		
From 5 up to 6	Pearson Chi-Square	9,120 ^d	4	,058
	Likelihood Ratio	10,271	4	,036
	Linear-by-Linear Association	2,885	1	,089
	N of Valid Cases	150		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11,20.

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8,60.

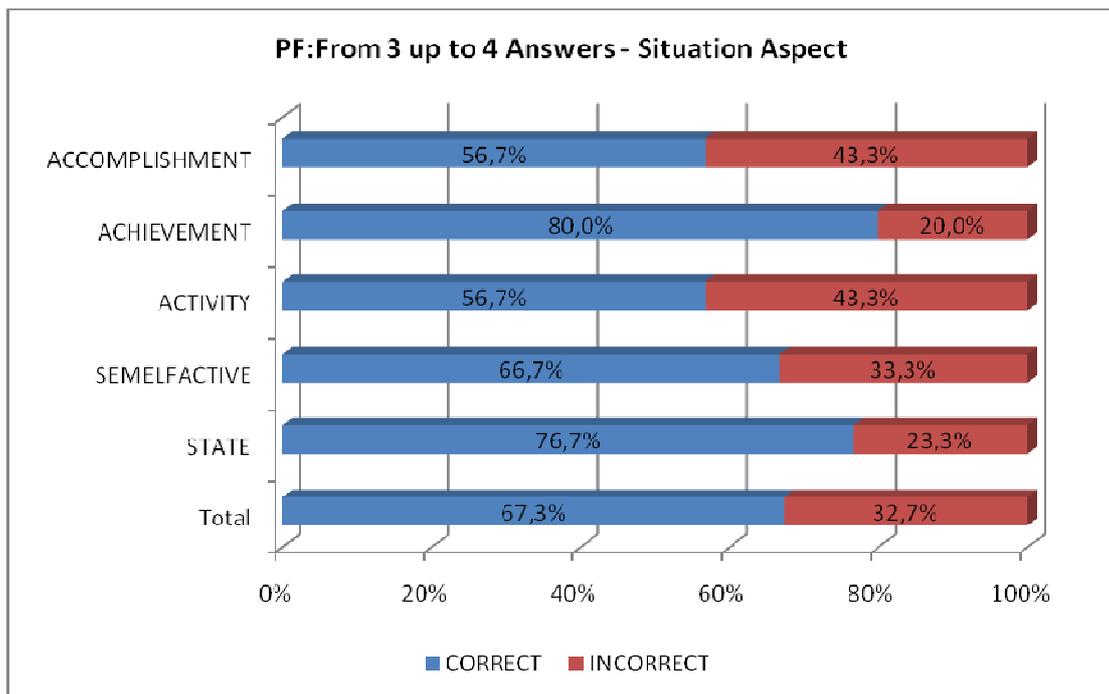
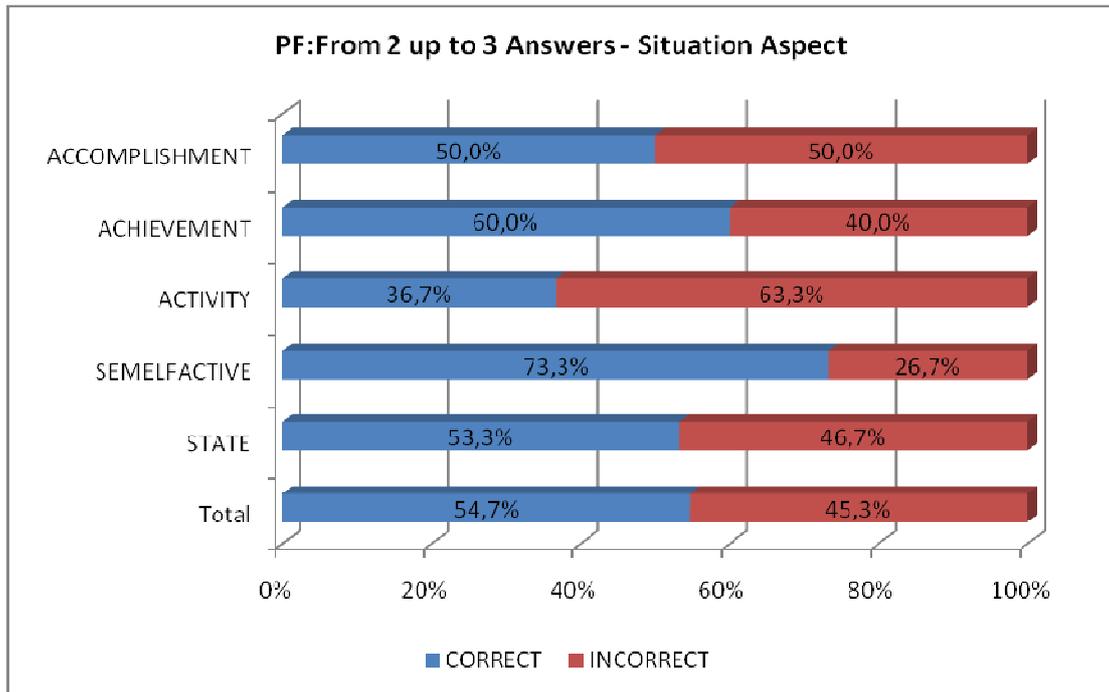
c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7,60.

d. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5,00.

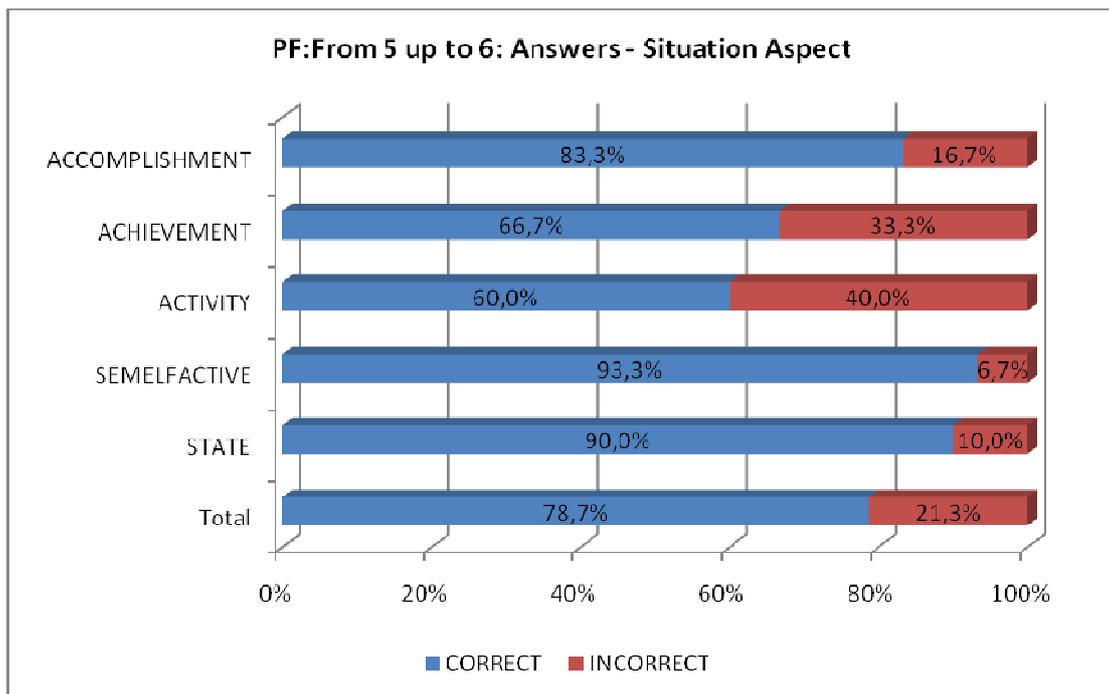
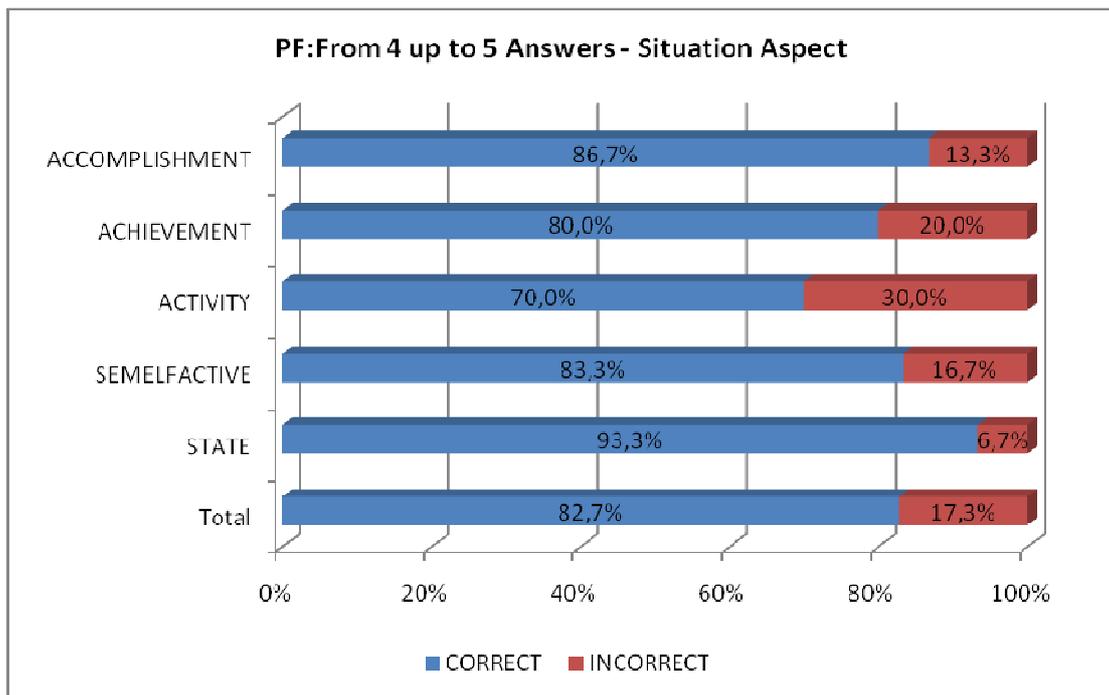
e. Viewpoint Aspect = IMPF

6.10.2. The interaction of situation aspect and the perfective across the ages

Appendices



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The statistics

Viewpoint Aspect = PF

Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Situation Aspect * Answers * Age	600	100,0%	0	,0%	600	100,0%

a. Viewpoint Aspect = PF

Situation Aspect * Answers * Age Crosstabulation^a

Age				Answers		Total
				INCORRECT	CORRECT	
From 2 up to 3	Situation Aspect	ACCOMPLISHMENT	Count	15	15	30
			% within Situation Aspect	50,0%	50,0%	100,0 %
	ACHIEVEMENT	Count	12	18	30	
		% within Situation Aspect	40,0%	60,0%	100,0 %	
	ACTIVITY	Count	19	11	30	
		% within Situation Aspect	63,3%	36,7%	100,0 %	
SEMELFACTIVE	Count	8	22	30		
	% within Situation Aspect	26,7%	73,3%	100,0 %		
STATE	Count	14	16	30		
	% within Situation Aspect	46,7%	53,3%	100,0 %		
Total			Count	68	82	150
			% within Situation Aspect	45,3%	54,7%	100,0 %
From 3 up to 4	Situation Aspect	ACCOMPLISHMENT	Count	13	17	30
			% within Situation Aspect	43,3%	56,7%	100,0 %
			Aspect			

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		ACHIEVEMENT	Count	6	24	30	
			% within Situation	20,0%	80,0%	100,0	
			Aspect			%	
		ACTIVITY	Count	13	17	30	
			% within Situation	43,3%	56,7%	100,0	
			Aspect			%	
		SEMELFACTIVE	Count	10	20	30	
			% within Situation	33,3%	66,7%	100,0	
			Aspect			%	
		STATE	Count	7	23	30	
			% within Situation	23,3%	76,7%	100,0	
			Aspect			%	
	Total		Count	49	101	150	
			% within Situation	32,7%	67,3%	100,0	
			Aspect			%	
From 4 up to 5	Situation	ACCOMPLISHMENT	Count	4	26	30	
			% within Situation	13,3%	86,7%	100,0	
				Aspect			%
	Aspect	ACHIEVEMENT	Count	6	24	30	
			% within Situation	20,0%	80,0%	100,0	
				Aspect			%
	Aspect	ACTIVITY	Count	9	21	30	
			% within Situation	30,0%	70,0%	100,0	
				Aspect			%
	Aspect	SEMELFACTIVE	Count	5	25	30	
		% within Situation	16,7%	83,3%	100,0		
			Aspect			%	
Aspect	STATE	Count	2	28	30		
		% within Situation	6,7%	93,3%	100,0		
			Aspect			%	
	Total		Count	26	124	150	
			% within Situation	17,3%	82,7%	100,0	
			Aspect			%	
From 5 up to 6	Situation	ACCOMPLISHMENT	Count	5	25	30	
			% within Situation	16,7%	83,3%	100,0	
				Aspect			%
	Aspect	ACHIEVEMENT	Count	10	20	30	

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	% within Situation Aspect	33,3%	66,7%	100,0%
ACTIVITY	Count	12	18	30
	% within Situation Aspect	40,0%	60,0%	100,0%
SEMELFACTIVE	Count	2	28	30
	% within Situation Aspect	6,7%	93,3%	100,0%
STATE	Count	3	27	30
	% within Situation Aspect	10,0%	90,0%	100,0%
Total	Count	32	118	150
	% within Situation Aspect	21,3%	78,7%	100,0%

a. Viewpoint Aspect = PF

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Chi-Square Tests^e

Age		Value	df	Asymp. Sig. (2-sided)
From 2 up to 3	Pearson Chi-Square	8,770 ^a	4	,067
	Likelihood Ratio	8,986	4	,061
	Linear-by-Linear Association	,481	1	,488
	N of Valid Cases	150		
From 3 up to 4	Pearson Chi-Square	6,486 ^b	4	,166
	Likelihood Ratio	6,619	4	,157
	Linear-by-Linear Association	,963	1	,326
	N of Valid Cases	150		
From 4 up to 5	Pearson Chi-Square	6,234 ^c	4	,182
	Likelihood Ratio	6,374	4	,173
	Linear-by-Linear Association	,578	1	,447
	N of Valid Cases	150		
From 5 up to 6	Pearson Chi-Square	15,334 ^d	4	,004
	Likelihood Ratio	15,696	4	,003
	Linear-by-Linear Association	2,841	1	,092
	N of Valid Cases	150		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13,60.

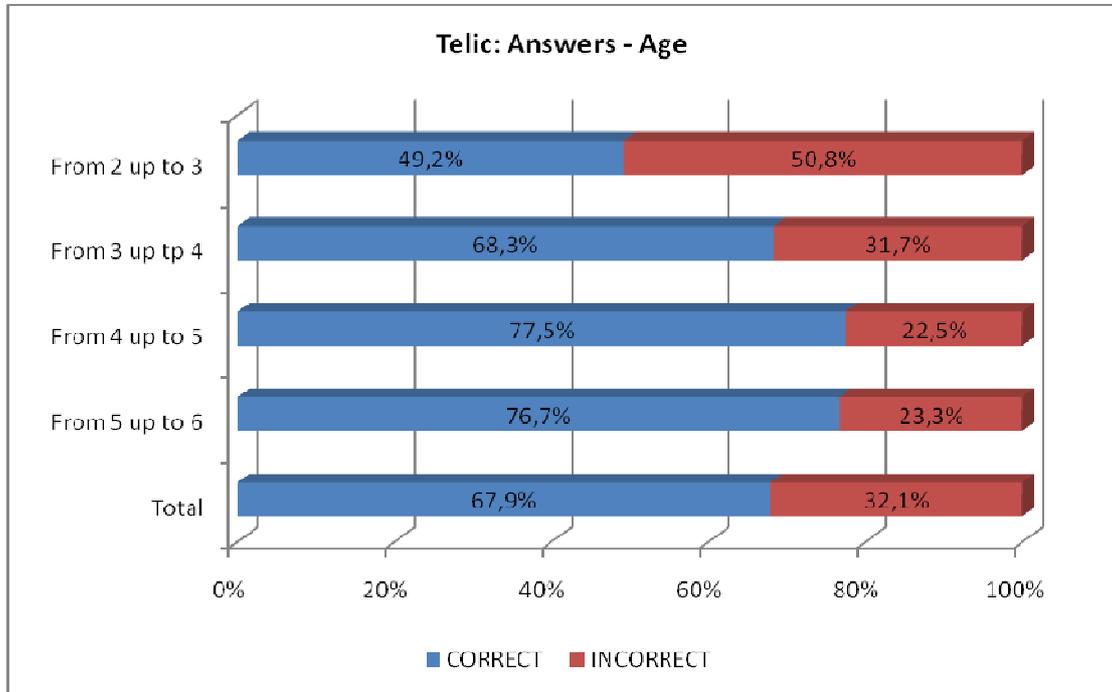
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9,80.

c. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5,20.

d. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6,40.

e. Viewpoint Aspect = PF

6.11. Aspectual Features Set 1: Telic: The findings on the acquisition of telicity.



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	480	100,0%	0	,0%	480	100,0%

a. Aspectual Features Set 1 = Telic

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	61	59	120
		% within Age	50,8%	49,2%	100,0%
	From 3 up to 4	Count	38	82	120
		% within Age	31,7%	68,3%	100,0%
	From 4 up to 5	Count	27	93	120
		% within Age	22,5%	77,5%	100,0%
	From 5 up to 6	Count	28	92	120
		% within Age	23,3%	76,7%	100,0%
Total		Count	154	326	480
		% within Age	32,1%	67,9%	100,0%
		Age			

a. Aspectual Features Set 1 = Telic

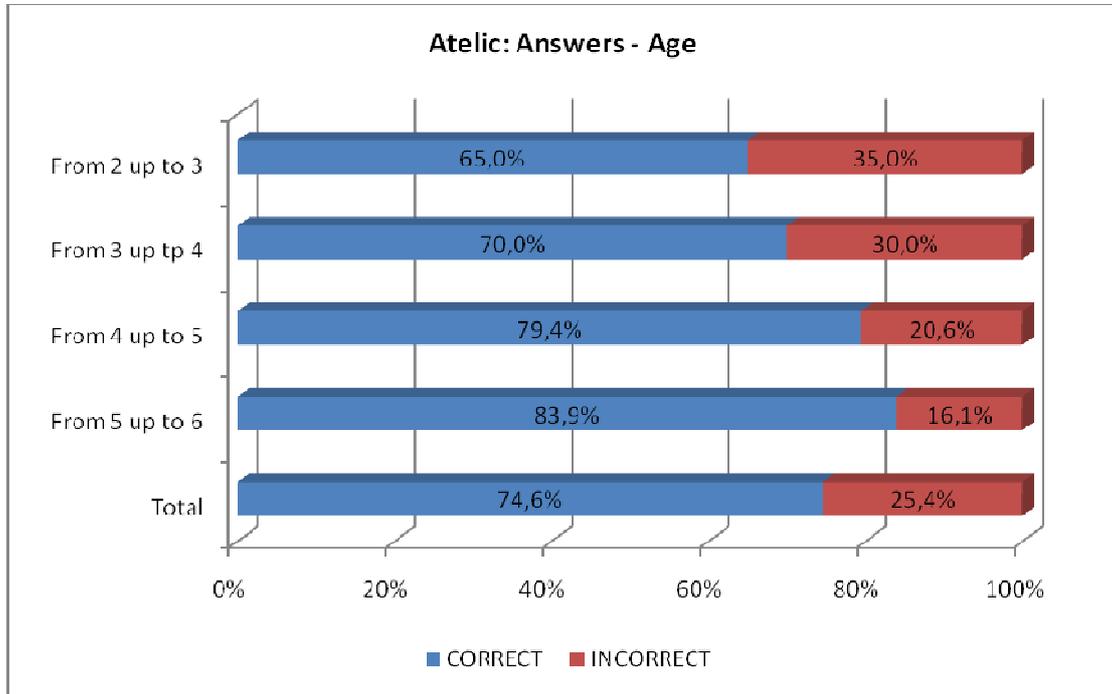
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28,645 ^a	3	,000
Likelihood Ratio	27,890	3	,000
Linear-by-Linear Association	23,089	1	,000
N of Valid Cases	480		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 38,50.

b. Aspectual Features Set 1 = Telic

6.12. Aspectual Features Set 1: Atelic



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	720	100,0%	0	,0%	720	100,0%

a. Aspectual Features Set 1 = Atelic

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	63	117	180
		% within Age	35,0%	65,0%	100,0%
	From 3 up to 4	Count	54	126	180
		% within Age	30,0%	70,0%	100,0%
	From 4 up to 5	Count	37	143	180
		% within Age	20,6%	79,4%	100,0%
	From 5 up to 6	Count	29	151	180
		% within Age	16,1%	83,9%	100,0%
Total		Count	183	537	720
		% within Age	25,4%	74,6%	100,0%
		Age			

a. Aspectual Features Set 1 = Atelic

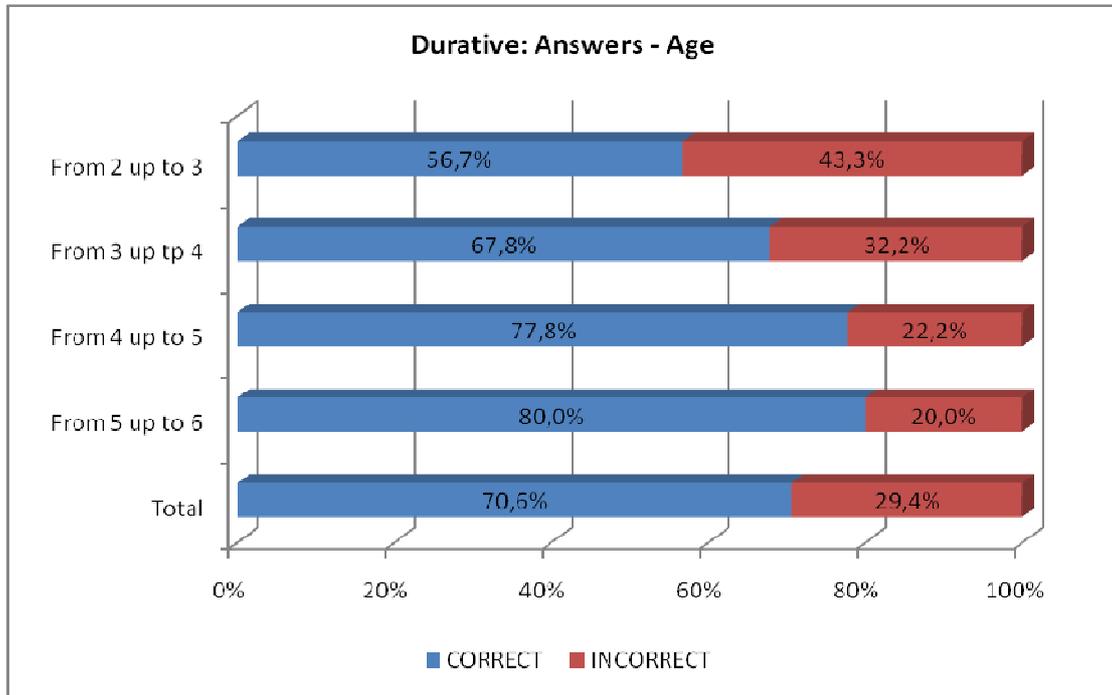
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21,181 ^a	3	,000
Likelihood Ratio	21,470	3	,000
Linear-by-Linear Association	20,722	1	,000
N of Valid Cases	720		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 45,75.

b. Aspectual Features Set 1 = Atelic

6.13. Aspectual Features Set 2: Durative



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age *	720	100,0%	0	,0%	720	100,0%
Answers						

a. Aspectual Features Set 2 = Durative

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	78	102	180
		% within Age	43,3%	56,7%	100,0%
	From 3 up tp 4	Count	58	122	180
		% within Age	32,2%	67,8%	100,0%
	From 4 up to 5	Count	40	140	180
		% within Age	22,2%	77,8%	100,0%
	From 5 up to 6	Count	36	144	180
		% within Age	20,0%	80,0%	100,0%
Total		Count	212	508	720
		% within Age	29,4%	70,6%	100,0%

a. Aspectual Features Set 2 = Durative

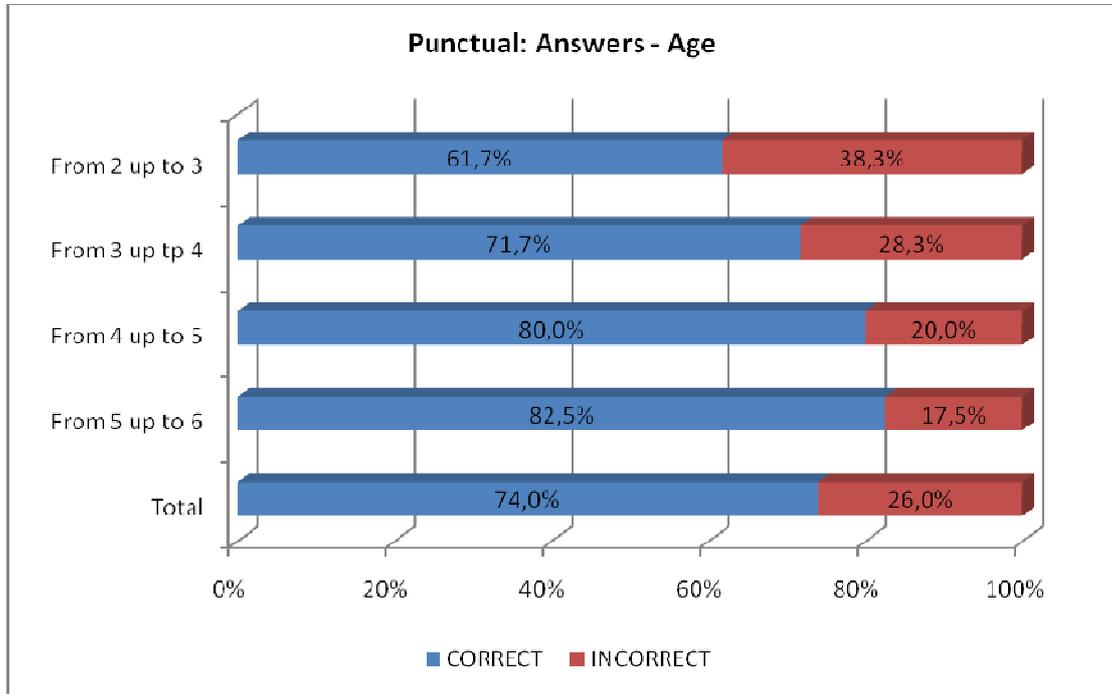
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29,630 ^a	3	,000
Likelihood Ratio	29,326	3	,000
Linear-by-Linear Association	27,688	1	,000
N of Valid Cases	720		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 53,00.

b. Aspectual Features Set 2 = Durative

6.14. Aspectual Features Set 2: Punctual



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age *	480	100,0%	0	,0%	480	100,0%
Answers						

a. Aspectual Features Set 2 = Punctual

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	46	74	120
		% within Age	38,3%	61,7%	100,0%
	From 3 up to 4	Count	34	86	120
		% within Age	28,3%	71,7%	100,0%
Age	From 4 up to 5	Count	24	96	120
		% within Age	20,0%	80,0%	100,0%
Age	From 5 up to 6	Count	21	99	120
		% within Age	17,5%	82,5%	100,0%
Total		Count	125	355	480
		% within Age	26,0%	74,0%	100,0%

a. Aspectual Features Set 2 = Punctual

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,561 ^a	3	,001
Likelihood Ratio	16,343	3	,001
Linear-by-Linear Association	15,598	1	,000
N of Valid Cases	480		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 31,25.

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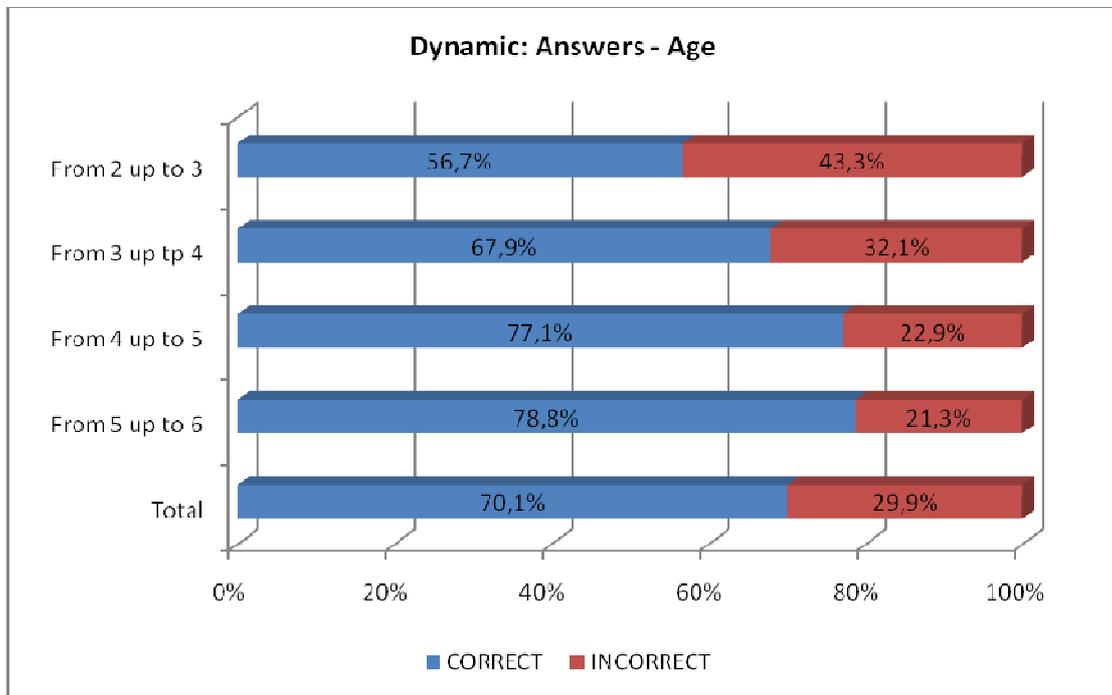
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16,561 ^a	3	,001
Likelihood Ratio	16,343	3	,001
Linear-by-Linear Association	15,598	1	,000
N of Valid Cases	480		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 31,25.

b. Aspectual Features Set 2 = Punctual

6.15. Aspectual Features Set 3: Dynamic



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	960	100,0%	0	,0%	960	100,0%

a. Aspectual Features Set 3 = Dynamic

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	104	136	240
		% within Age	43,3%	56,7%	100,0%
	From 3 up to 4	Count	77	163	240
		% within Age	32,1%	67,9%	100,0%
	From 4 up to 5	Count	55	185	240
		% within Age	22,9%	77,1%	100,0%
	From 5 up to 6	Count	51	189	240
		% within Age	21,3%	78,8%	100,0%
Total		Count	287	673	960
		% within Age	29,9%	70,1%	100,0%

a. Aspectual Features Set 3 = Dynamic

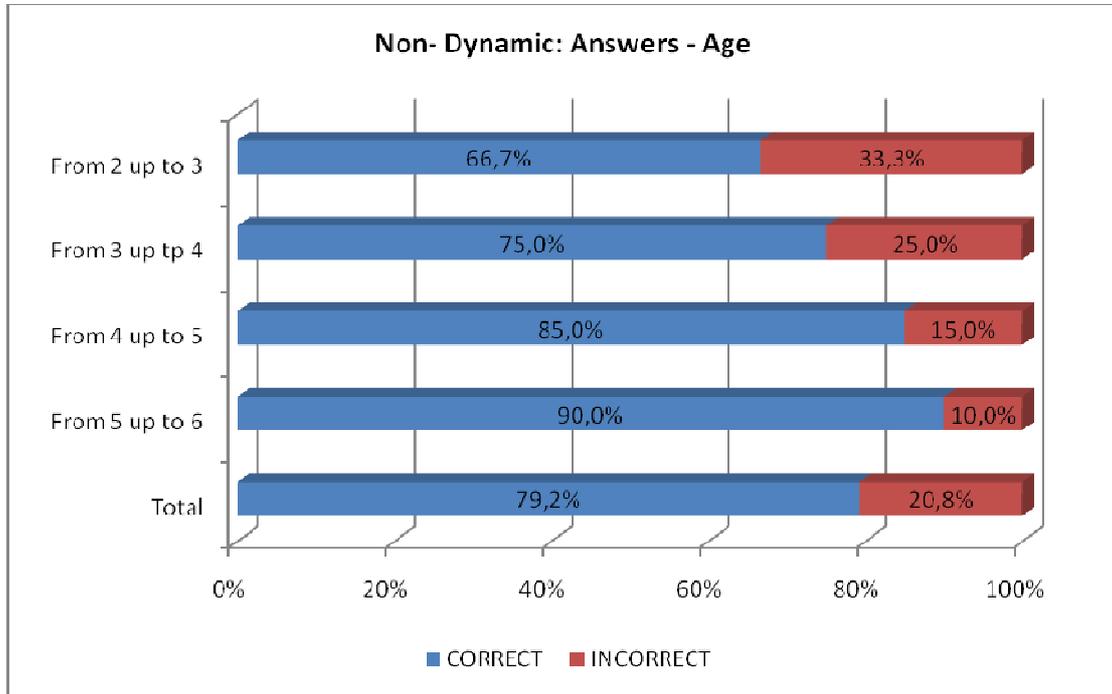
Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35,363 ^a	3	,000
Likelihood Ratio	34,882	3	,000
Linear-by-Linear Association	32,532	1	,000
N of Valid Cases	960		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 71,75.

b. Aspectual Features Set 3 = Dynamic

6.16. Aspectual Features Set 3: Non-Dynamic



Case Processing Summary^a

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Age * Answers	240	100,0%	0	,0%	240	100,0%

a. Aspectual Features Set 3 = Non-Dynamic

Age * Answers Crosstabulation^a

			Answers		Total
			INCORRECT	CORRECT	
Age	From 2 up to 3	Count	20	40	60
		% within Age	33,3%	66,7%	100,0%
	From 3 up to 4	Count	15	45	60
		% within Age	25,0%	75,0%	100,0%
	From 4 up to 5	Count	9	51	60
		% within Age	15,0%	85,0%	100,0%
	From 5 up to 6	Count	6	54	60
		% within Age	10,0%	90,0%	100,0%
Total		Count	50	190	240
		% within Age	20,8%	79,2%	100,0%

a. Aspectual Features Set 3 = Non-Dynamic

Chi-Square Tests^b

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11,823 ^a	3	,008
Likelihood Ratio	12,038	3	,007
Linear-by-Linear Association	11,593	1	,001
N of Valid Cases	240		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 12,50.

b. Aspectual Features Set 3 = Non-Dynamic

CHAPTER 6: “THE ALIENS” EXPERIMENT

Appendix 1: The subjects

Table showing the ages of the children at the day of the recordings

Age groups	Names	Date of Birth	Age on the day of recording	
3-year-olds	Fei	8/3/06	3,10,2	
	Christina A.	3/3/06	3,10,7	
	Nikolas	21/3/06	3,9,19	
	Yioryos	12/1/06	3,11,18	
	Christina L.	31/1/06	3,11,10	
	Natalia	10/2/06	3,11	
	Nikolas P.	11/3/06	3,9,29	
	Sofia	11/7/06	3,5,29	
	Yioryos	18/7/06	3,5,22	
	Christina T.	16/10/06	3,2,24	
	4-year-olds	Evyenia	14/7/05	4,6,5
		Elena	22/3/05	4,9,18
		Dimitris	1/9/05	4,4,9
Evdokia		5/5/05	4,8,5	
Fotis		6/7/05	4,6,4	
Leonidas		3/2/05	4,11,7	
Theano		14/6/05	4,6,26	
Olia		1/3/05	4,10,10	
Maria		2/2/05	4,11,8	
Marios		18/4/05	4, 8,22	
5-year-olds		Katerina	16/2/04	5,10,24
	Nefeli	27/1/04	5,11,13	
	Dimitris	3/3/04	5,9,7	
	Yioryos	27/1/04	5,11,13	

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	Dionisis	4/11/04	5,2,6
	Thanos	26/12/04	5,0,14
	Xrisa	30/10/04	5,2,10
	Apostolos	10/5/04	5,8
	Ploutarhos	15/12/04	5,10,25
	Nikolas	12/10/04	5,2,28

Appendix 2: The stimuli sentences

Stimulus sentences	Viewpoint aspect	Situation aspect
1. Htes kolibousa sti thalassa yia polli ora. Yesterday I was swimming in the sea for a long time.	IMPF	Activity
2. I Sonia epeze kathe mera oli mera. Sonia was playing every day all day.	IMPF	Activity
3. To arkoudaki horepse horous oli tin imera. The teddy bear danced dances all day.	PF	Activity
4. To koritsaki kouvalise nero ametrites fores. The little girl carried water innumerable times.	PF	Activity
5. I Maria aneveni ena ena ta skalopatia kathe mera. Mary is going up the stairs one by one every day.	IMPF	Achievement
6. O babas anavi to fos kathe brady. Daddy turns on the light every night.	IMPF	Achievement
7. Stis diakopes h Sofia anevike stin korifi tou vounou se misi ora. During the holiday Sofia climbed up on top of the mountain in half an hour.	PF	Achievement
8. To koritsaki dithike sti stiymi. The little girl got dressed immediately.	PF	Achievement
9. I Maria etroye ena payoto kathe mera. Mary was eating an ice-cream every day.	IMPF	Accomplishment

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10. Sinithos eftiahne ena spitaki apo touvlakia se ligi ora. Usually he would make a house of bricks in little time.	IMPF	Accomplishment
11. Eftiaksa ena kastro stin ammo se deka lepta. I made a castle on the sand in ten minutes.	PF	Accomplishment
12. Ta pedakia piyan sto sholio stis okto to proi. The kids went to school at eight o'clock in the morning.	PF	Accomplishment
13. I yatoula niaourize yia mia ora. The cat was meowing for an hour.	IMPF	Semelfactive
14. I Maria evihe oli ti nihta. Mary was coughing all night.	IMPF	Semelfactive
15. O Baggelakis fternistike dio fores. Vangelis sneezed twice.	PF	Semelfactive
16. To pedaki htipise palamakia ametrites fores. The little child clapped his hands innumerable times.	PF	Semelfactive
17. To pedaki sevete tous yonis tou kathe mera. The little child respects his parents every day.	IMPF	State
18. H Xristina kseri Agglikia edo ke kero. Christina has known English in a long time.	IMPF	State
19. To pedaki itan xaroumeno mia fora. The little child was happy once.	PF	State
20. To fos itan anameno ta mesanihta. The light was on at midnight.	PF	State
21. * O athlitis trehi amesos se ligi ora. The athlete runs immediately in half an hour.	IMPF	Activity
22. *O vatrahos trayoudise trayoudia sinehia. The frog sang songs continuously.	PF	Activity
23. * To koritsaki htenizi ta mallia tis amesos se mia ora. The little girl brushes her hair immediately in an hour.	IMPF	Achievement
24. * Sinithos eftasa sth thalassa kathe mera. Usually I arrived at the sea every day.	PF	Achievement
25. * To koritsaki zoyrafizi ena	IMPF	Accomplishment

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louloudaki amesos se deka lepta. The little girl paints a flower immediately in ten minutes.		
26. * To pedaki diabase sinithos ena paramithi. The little girl read usually a story.	PF	Accomplishment
27. * O batrahoulis horopidai amesos pote. The frog jumps immediately never.	IMPF	Semelfactive
28. * O kirios htipise to koudouni synithos. The man rang the bell usually.	PF	Semelfactive
29. * I Maria ayapai ti mama tis stis okto dio fores. Mary loves her mother at eight twice.	IMPF	State
30. * To podikaki itan haroumeno kathe mera amesos. The mouce was happy every day immediately.	PF	State

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Appendix 3: The children's responses to the stimulus

Age Group	3-4									
Subjects	Nikolas	Giorgos P.	Natalia	Xristina L.	Xristina A.	Faih	Nikolas P.	Xristina T.	Sofia	Giorgos A.
Input/stimulus sentences :	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Grammatical stimulus sentences	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Child's grammatical response to grammatical input	16 80%	20 100%	20 100%	19 95%	20 100%	19 95%	18 90%	18 90%	16 80%	9 45%
Child's grammatical response to grammatical input (faithful to the input)	7 35%	12 60%	14 70%	16 80%	15 75%	13 65%	12 60%	11 55%	4 20%	1 5%
Child's grammatical response to grammatical input (but unfaithful to the input)	9 45%	8 40%	6 30%	3 15%	5 25%	6 30%	6 30%	7 35%	12 60%	8 40%
Child's ungrammatical response to grammatical input	4 20%	0 0%	0 0%	1 5%	0 0%	1 5%	2 10%	2 10%	4 20%	11 55%

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Age Group	4-5									
Subjects	Eugeneia	Maria	Eudokia	Dimitris	Fotis	Elena	Leonidas	Olia	Theano	Marios
Input/stimulus sentences :	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Grammatical stimulus sentences	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Child's grammatical response to grammatical input	18 90%	20 100%	20 100%	19 95%	20 100%	20 100%	19 95%	19 95%	20 100%	19 95%
Child's grammatical response to grammatical input (faithful to the input)	15 75%	18 90%	17 85%	11 55%	13 65%	14 70%	14 70%	18 90%	18 90%	17 85%
Child's grammatical response to grammatical input (but unfaithful to the input)	3 15%	2 10%	3 15%	8 40%	7 35%	6 30%	5 25%	1 5%	2 10%	2 10%
Child's ungrammatical response to grammatical input	2 10%	0 0%	0 0%	1 5%	0 0%	0 0%	1 5%	1 5%	0 0%	1 5%

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Age Group	5-6									
Subjects	Nikolas	Dimitris	Giorgos	Katerina	Thanos	Apostolos	Ploutarxos	Dionushs	Nefelh	Xrusa
Input/stimulus sentences :	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Grammatical stimulus sentences	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%	20 100%
Child's grammatical response to grammatical input	20 100%	20 100%	18 90%	20 100%	19 95%	20 100%	20 100%	19 95%	20 100%	20 100%
Child's grammatical response to grammatical input (faithful to the input)	17 85%	18 90%	13 65%	16 80%	16 80%	20 100%	20 100%	16 80%	17 85%	16 80%
Child's grammatical response to grammatical input (but unfaithful to the input)	3 15%	2 10%	5 25%	4 20%	3 15%	0 0%	0 0%	3 15%	3 15%	4 20%
Child's ungrammatical response to grammatical input	0 0%	0 0%	2 10%	0 0%	1 5%	0 0%	0 0%	1 5%	0 0%	0 0%

Appendices

Appendix 4: The tables that present children's responses with respect to the perfective-imperfective distinction.

Age Group	3-4	4-5	5-6
Input/stimulus sentences : IMPF	100 100%	100 100%	100 100%
Grammatical stimulus sentences	100 100%	100 100%	100 100%
Child's grammatical response to grammatical input	85 85%	96 96%	97 97%
Child's grammatical response to grammatical input (faithful to the input)	50 50%	77 77%	84 84%
Child's grammatical response to grammatical input (but unfaithful to the input)	35 35%	19 19%	13 13%
Child's ungrammatical response to grammatical input	15 15%	4 4%	3 3%

Age Group	3-4	4-5	5-6
Input/stimulus sentences : PF	100 100%	100 100%	100 100%
Grammatical stimulus sentences	100 100%	100 100%	100 100%
Child's grammatical response to grammatical input	90 90%	98 98%	99 99%
Child's grammatical response to grammatical input (faithful to the input)	55 55%	78 78%	85 85%
Child's grammatical response to grammatical input (but unfaithful to the input)	35 35%	20 20%	14 14%
Child's ungrammatical response to grammatical input	10 10%	2 2%	1 1%

Appendices

Appendix 5: The tables that present the children's grammatical responses to ungrammatical stimulus, with reference to the perfective – imperfective distinction.

Age Group	Grammatical response to ungrammatical input	Ungrammatical response to ungrammatical input
	48 32%	102 68%
3-4	23 46%	27 54%
4-5	16 32%	34 68%
5-6	9 18%	41 82%

Age Group	Grammatical response to ungrammatical input	Ungrammatical response to ungrammatical input
	22 14.6%	128 85.3%
3-4	12 24%	38 76%
4-5	6 12%	44 88%
5-6	4 8%	46 92%

Appendices

Appendix 6: The tables show the children's grammatical responses and performance for the situation aspect types across the years.

Age Group	3-4	4-5	5-6
Input/stimulus sentences : ACCOMPLISHMENT	40 100%	40 100%	40 100%
Grammatical stimulus sentences	40 100%	40 100%	40 100%
Child's grammatical response to grammatical input	37 92.5%	39 97.5%	39 97.5%
Child's grammatical response to grammatical input (faithful to the input)	19 47.5%	24 60%	31 77.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	18 45%	15 37.5%	8 20%
Child's ungrammatical response to grammatical input	3 7.5%	1 2.5%	1 2.5%

Appendices

Age Group	3-4	4-5	5-6
Input/stimulus sentences : ACHIEVEMENT	40 100%	40 100%	40 100%
Grammatical stimulus sentences	40 100%	40 100%	40 100%
Child's grammatical response to grammatical input	35 87.5%	38 95%	40 100%
Child's grammatical response to grammatical input (faithful to the input)	18 45%	25 62.5%	29 72.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	17 42.5%	13 32.5%	11 27.5%
Child's ungrammatical response to grammatical input	5 12.5%	2 5%	0 0%

Age Group	3-4	4-5	5-6
Input/stimulus sentences : ACTIVITY	40 100%	40 100%	40 100%
Grammatical stimulus sentences	40 100%	40 100%	40 100%
Child's grammatical response to grammatical input	34 85%	40 100%	40 100%
Child's grammatical response to grammatical input (faithful to the input)	19 47.5%	33 82.5%	33 82.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	15 37.5%	7 17.5%	7 17.5%
Child's ungrammatical response to grammatical input	6 15%	0 0%	0 0%

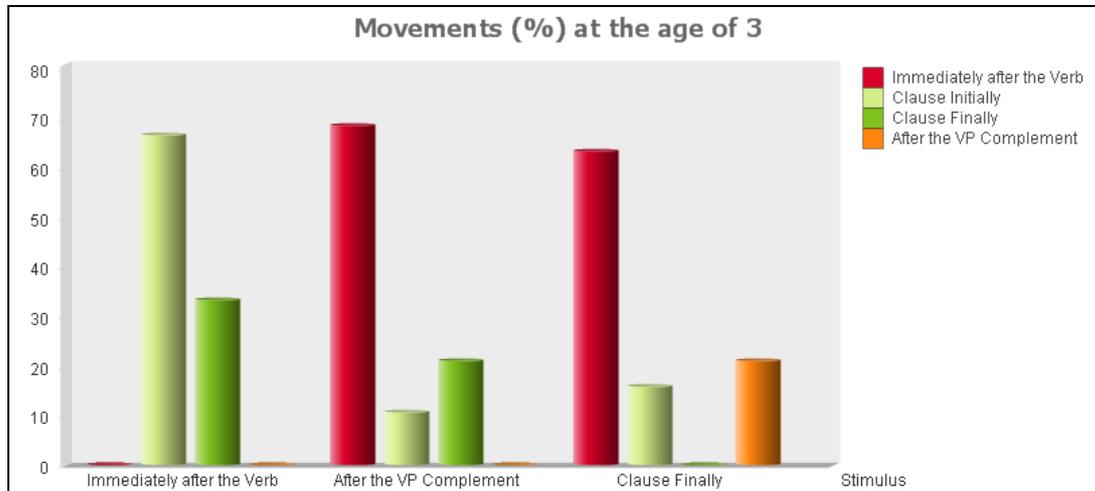
Appendices

Age Group	3-4	4-5	5-6
Input/stimulus sentences : SEMELFACTIVE	40 100%	40 100%	40 100%
Grammatical stimulus sentences	40 100%	40 100%	40 100%
Child's grammatical response to grammatical input	37 92.5%	39 97.5%	38 95%
Child's grammatical response to grammatical input (faithful to the input)	26 65%	35 87.5%	37 92.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	11 27.5%	4 10%	1 2.5%
Child's ungrammatical response to grammatical input	3 7.5%	1 2.5%	2 5%

Age Group	3-4	4-5	5-6
Input/stimulus sentences : STATE	40 100%	40 100%	40 100%
Grammatical stimulus sentences	40 100%	40 100%	40 100%
Child's grammatical response to grammatical input	32 80%	38 95%	39 97.5%
Child's grammatical response to grammatical input (faithful to the input)	23 57.5%	38 95%	39 97.5%
Child's grammatical response to grammatical input (but unfaithful to the input)	9 22.5%	0 0%	0 0%
Child's ungrammatical response to grammatical input	8 20%	2 5%	1 2.5%

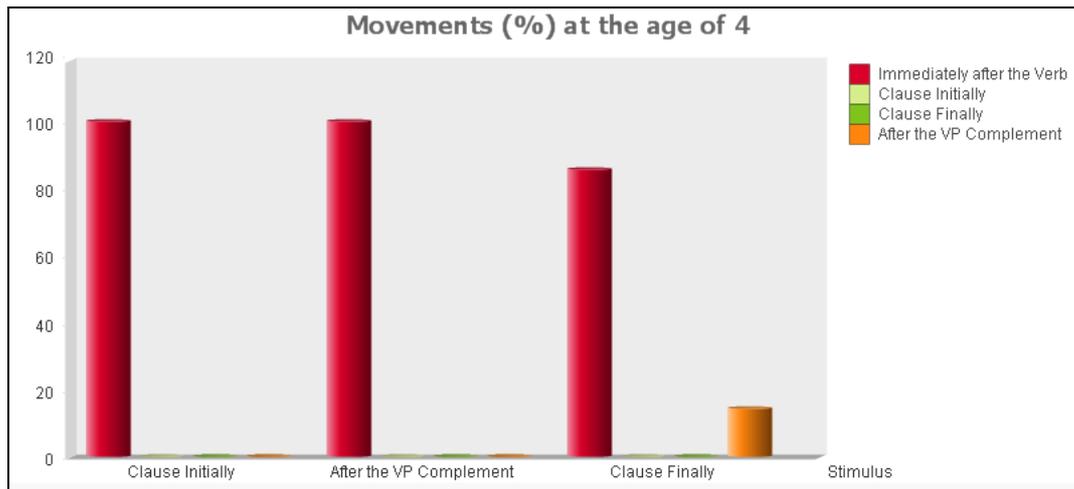
Appendices

Appendix 7: Movements of aspectual adverbials per age group



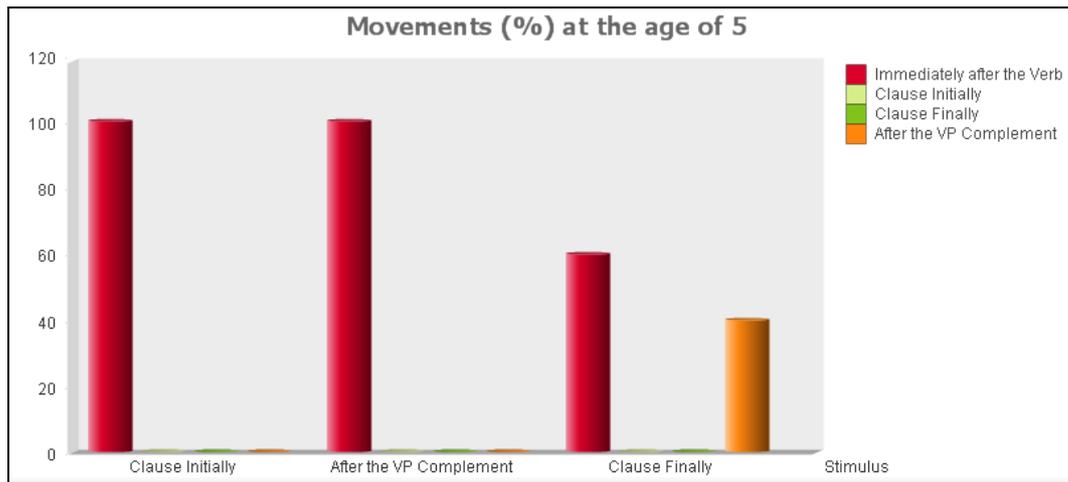
Stimulus	Immediately after the Verb	Clause Initially	Clause Finally	After the VP Complement
Clause Initially	0.00	0.00	0.00	0.00
Immediately after the Verb	0.00	66.60	33.30	0.00
After the VP Complement	68.42	10.52	21.05	0.00
Clause Finally	63.15	15.78	0.00	21.05

Appendices



Movements (%) at the age of 4				
Stimulus	Immediately after the Verb	Clause Initially	Clause Finally	After the VP Complement
Clause Initially	100.00	0.00	0.00	0.00
Immediately after the Verb	0.00	0.00	0.00	0.00
After the VP Complement	100.00	0.00	0.00	0.00
Clause Finally	85.71	0.00	0.00	14.28

Appendices



Movements (%) at the age of 5				
Stimulus	Immediately after the Verb	Clause Initially	Clause Finally	After the VP Complement
Clause Initially	100.00	0.00	0.00	0.00
Immediately after the Verb	0.00	0.00	0.00	0.00
After the VP Complement	100.00	0.00	0.00	0.00
Clause Finally	60.00	0.00	0.00	40.00

References

- Abraham, W., Epstein, S.D., Thrainsson H., & Zwart, C.J.-W., (1996). *Minimal ideas: syntactic studies in the minimalist framework*. Amsterdam: John Benjamins Publishing Company.
- Adger, D., Pintzuk, S., Plunkett, B., and Tsoulas, G. (eds), (1999). *Specifiers, minimalist approaches*. Oxford University Press.
- Adger, D., Pintzuk, S., Plunkett, B., and Tsoulas, G., (1999). Specifiers in Generative Grammar. In Adger, D., S. Pintzuk, B. Plunkett and G. Tsoulas (eds), *Specifiers, minimalist approaches*. Oxford University Press.
- Agresti, A., (1996). *An Introduction to Categorical Data Analysis*. New York: John Wiley and Sons.
- Agresti, A., (2002). *Categorical Data Analysis*, 2nd ed. New York: John Wiley and Sons.
- Aksu-Koc, A., (1998). The role of input vs. universal predispositions in the emergence of tense-aspect morphology: evidence from Turkish. In *First Language*, vol. 18(1998), *The acquisition of tense-aspect morphology* (special issue edited by Shirai, Y.), p.255-280.

References

- Alexiadou, A., (1994). *Issues in the Syntax of Adverbs*. PhD dissertation, University of Potsdam.
- Alexiadou, A., (1997). *Adverb Placement. A case study in antisymmetric syntax*. John Benjamins Publishing Company, Amsterdam/Philadelphia.
- Arad, M., (1998). *VP-Structure and the Syntax-Lexicon Interface*. MIT Occasional papers in linguistics, Number 16.
- Bayley, R., Alvarez-Calderon, A., and Schecter, S.R., (1998). "Tense and aspect in Mexican-origin Children's Spanish Narratives". In the proceedings of the Twenty-ninth Annual Child Language Research Forum, edited by Eve V. Clark, Stanford, 1998.
- Bickerton, D., (1981). *Roots of Language*. Ann Arbor. MI: Karoma.
- Bickerton, D., (1984). The Language Bioprogram Hypothesis. *Behavioral and Brain Sciences* 7: 173-188.
- Binnick, R.I., (1991). *Time and the Verb: A Guide to Tense and Aspect*. Oxford University Press, New York.
- Bishop, Y. M., S. E. Fienberg, and P. W. Holland. (1977). *Discrete Multivariate Analysis: Theory and Practice*. Cambridge, MA: MIT Press.

References

- Bloom, L., Lifter, K., and Hafitz, J., (1980). Semantics of verbs and the development of verb inflection in child language. *Language* 56: 386-412.
- Borer, H., (1994). The projection of arguments. In: Benedicto, E., Runner, J. (eds), *Functional projections*. University of Massachusetts Occasional Papers in Linguistics 17, Amherst: GLSA, University of Massachusetts.
- Borer, H., (1996). Passive without Theta Grids. To appear in S. Lapointe (ed), *Morphological Interfaces*, CSLI Stanford.
- Borer, H., (2003). The Grammar Machine. In Alexiadou, A., Anagnostopoulou, E., and Everaert, M., (eds), *The Unaccusativity Puzzle*. Oxford University Press, Oxford.
- Borer, H., (2005a). *Structuring Sense, Volume 1: In name only*. Oxford: Oxford University Press.
- Borer, H., (2005b). *Structuring Sense, Volume 2: The Normal Course of Events*. Oxford: Oxford University Press.
- Bresnan, J., and Grimshaw, J., (1978). The Syntax of Free relatives in English, *Linguistic Inquiry*,9: 331-391.
- Brown, R., (1973). *A First Language*. Cambridge, MA: Cambridge University Press.

References

- Brown, R.W., (1957). Linguistic determinism and the part of speech. *Journal of Abnormal and Social Psychology*, 55, 1-5.
- Bybee, J.L., (1985). *Morphology: A Study of the Relation between Meaning and Form*. Amsterdam/Philadelphia: John Benjamins.
- Cann, R., (1999). Specifiers as Secondary Heads. In Adger, D., S. Pintzuk, B.Plunkett and G.Tsoulas (eds), *Specifiers, minimalist approaches*, pp. 21-45.
- Chomsky, N., (1964). Formal discussion. In Bellugi, U., and Brown, R., (eds), The acquisition of language. *Monographs of the Society for Research in Child Development* 29 (1, Serial No. 92).
- Chomsky, N., (1980). *Rules and Representations*. Oxford: Basil Blackwell.
- Chomsky, N., (1988). *Language and Problems of Knowledge*. Cambridge, MA: MIT Press.
- Chomsky, N., (1989). Some notes on Economy of Derivation and Representation. *MIT Working Papers in Linguistics*, 10: 43-74.
- Chomsky, N., (1991). *Some notes on economy of derivation and representation*. In R. Freidin (ed.), *Principles and Parameters in Comparative Grammar*. Cambridge, Mass.:MIT Press, 417-545; preliminary draft in MIT Working Papers in Linguistics (1989), 10, 43-74.

References

- Chomsky, N., (1993). A Minimalist Program for Linguistic Theory. In Hale, K., and Marantz, A., (eds.), *The View from Building 20*, MIT Press, Cambridge, Mass.
- Chomsky, N., (1995a). *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N., (1995b). Bare Phrase Structure. In G. Webelhuth (ed.) *Government and Binding Theory and the Minimalist Program*. Oxford: Oxford University Press.
- Cinque, G., (1999). *Adverbs and Functional Heads. A Cross-Linguistic Perspective*. Oxford Studies in Comparative Syntax. Oxford University Press.
- Clark, E.V., (1995). Later Lexical Development and Word Formation. Pages 393-412 In Fletcher, P., and MacWinney, B., (eds.). *The Handbook of Child Language*. Basil Blackwell Ltd.
- Comrie, B., (1976). *Aspect: An Introduction to the study of verbal aspect and related problems*. Cambridge University Press.
- Comrie, B., (1985). *Tense*. Cambridge, England: Cambridge University Press.
- Cormack, A., (1999). Without Specifiers. In Adger, D., S. Pintzuk, B. Plunkett and G. Tsoulas (eds), *Specifiers, minimalist approaches* pp.46-68.

References

- Cormack, A., and Smith, N. (1999). Why are depictives different from resultatives?
UCL Working Papers in Linguistics 11: 251-286.
- Costa, J., (1996). Adverb positioning and V-movement in English: some more evidence. *Studia Linguistica, 50, 22-34.*
- Dahl, O., (1985). *Tense and Aspect Systems.* Oxford: Blackwell.
- Davidson, D., (1980). *Essays on Actions and Events.* Oxford: Clarendon Press.
- Demirdache, H., Uribe-Etxebarria, M., (2000). The primitives of temporal relations.
In R. Martin, D. Michaels and J. Uriagereka (eds), *Step by step: Essays on Minimalist Syntax in Honor of Howard Lasnik.* Cambridge, MA: MIT Press, pp.157–186.
- Demirdache, H., Uribe-Etxebarria, M., (2005). Aspect and temporal modification. In:
Kempchinsky, P., Slabakova, R. (eds.), *Aspectual Inquiries.* Kluwer, Dordrecht, pp. 191-221.
- Ebbesen, S., (1979). ‘Contact verbs’ in Modern Greek, *Ellinika, 31:65-107.*
- Elman, J. L., Bates, E.A., Johnson, M.H., Karmiloff-Smith, A., Parisi, D., and Plunkett, K., (1996). *Rethinking Innateness: A Connectionist Perspective on Development.* Cambridge, MA: MIT Press.

References

- Emonds, J., (1987). The Invisible Category Principle, *Linguistic Inquiry*, 18: 613-632.
- Ernst, T., (2002). *The Syntax of Adjuncts*. Cambridge Studies in Linguistics 96. Cambridge University Press.
- Evans, J.B., (1996). Event Variables and Davidson's Program in Semantics. *UCL Working Papers in Linguistics* 8:101-110.
- Evans, J.B., (1998). *A Non-Coercing Account of Event Structure in Pular*. PhD Thesis. University College London.
- Fienberg, S. E. 1994. *The Analysis of Cross-Classified Categorical Data*, 2nd ed. Cambridge, MA: MIT Press.
- Fodor, J., (1983). *The Modularity of Mind*. Cambridge, MA: MIT Press.
- Frawley, W., (1992). *Linguistic Semantics*. Lawrence Erlbaum, Hillsdale, N.J.
- Froud, K., (2001). *Linguistic Theory and Language Pathology: Evidence for the Morphology Interface from a Case of Acquired Language Disorder*. PhD Thesis. University College London
- Fukui, N., (1986). *A theory of category projection and its applications*. PhD dissertation, MIT

References

- Giannakidou, A., (2003). A puzzle about *until* and the present perfect. In Alexiadou, A., Rahter, M., and A. von Stechow (eds.), *Perfect Explorations*, pp. 101-133. Berlin: Mouton de Gruyter.
- Gleitman, L.R., and Gillette, J., (1995). The Role of Syntax in Verb Learning. Pages 413-427 in Fletcher, P., and MacWinney, B., (eds.). *The Handbook of Child Language*. Basil Blackwell Ltd.
- Hakes, D.T., (1980). *The development of metalinguistic abilities in children*. Berlin: Springer- Verlag.
- Hale, K., and Marantz, A., (eds.), (1993). *The View from Building 20*, MIT Press, Cambridge, Mass.
- Hesse, R., (1980). *SYNTAX OF THE MODERN GREEK VERBAL SYSTEM: The Use of the Forms, Particularly in Combination with 'tha' and 'na'*. Museum Tusulanum Press: Copenhagen.
- Higginbotham, J., (1985). On Semantics. *Linguistic Inquiry* 16:547-593.
- Higginbotham, J., (1986). Linguistic theory and Davidson's Program in Semantics. In LePore, E. (ed) (1986). *Truth and Interpretation: Perspectives on the Philosophy of Donald Davidson*. Oxford: Blackwell.
- Higginbotham, J., (1995). *Sense and Syntax*. Oxford: Clarendon Press.

References

- Hollebrandse, B., and Van Hout, A., (1998). Aspectual bootstrapping via Light Verbs. In Dittmar, N., and Penner, Z. (eds), *Issues in the Theory of Language Acquisition. Essays in Honor of Jurgen Weissenborn*.
- Horrocks, G., and Stavrou, M., (2003). Actions and their results in Greek and English: The complementarity of morphologically encoded (viewpoint) aspect and syntactic resultative predication. *Journal of Semantics* 20: 297-327.
- Horrocks, G., and Stavrou, M., (2007). Grammaticalized aspect and spatio-temporal culmination. *Lingua*, 117: 605-644.
- Hyams, N.M., (1986). *Language Acquisition and the Theory of Parameters*. D. Reidel Publishing Company.
- Hyams, N., (2001a). Now you hear it now you don't: the nature of optionality in child grammar. *Proceedings of BUCLD 25*: 34-58.
- Hyams, N., (2001b). Unanchored expressions in child language. In Kazuko Inoue and Nobuko Hasegawa (eds). *Linguistics and Interdisciplinary Research: Proceedings of the COE International Symposium*, 211-236.
- Hyams, N., (2002). Clausal Structure in Early Greek: A reply to Varlokosta, Vainikka and Rohrbacher and a reanalysis. *The Linguistic Review* 19.

References

- Jackendoff, R., (1972). *Semantic interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.
- Jackendoff, R., (1990). On Larson's treatment of the double object construction. *Linguistic Inquiry*, 21,427-456.
- Kamp, H., and Reyle, U., (1993). *From Discourse to Logic*. Kluwer Academic Publishers, Dordrecht.
- Katis, D., (1984). *The acquisition of the Modern Greek verb: With special reference to the imperfective past and perfect classes*. Doctoral dissertation, University of Reading, England.
- Katz, J.J., and Postal, P.M., (1964). *An integrated theory of linguistic descriptions*. Cambridge, Mass.: MIT Press.
- Kayne, S.R., (1994). *The Antisymmetry of Syntax*. Linguistic Inquiry Monographs. The MIT Press.
- Keenan, E.L., (1975). *Formal semantics of natural language*. Cambridge: Cambridge University Press.

References

- Kempchinsky, P., and Slabakova, R., (2005). Issues and interfaces in the study of aspect. In Kempchinsky, P., and Slabakova, R., (eds.) (2005). *Aspectual Inquiries*. Studies in Natural Language and Linguistic Theory, volume 62. Springer.
- Klairs C., and Babiniotis, G. (in co-operation with Mozer A., Bakakou-Orfanou A., and Skopeteas S.), (1999). *Yrammatiki tis Neas Ellinikis*. Domoleitourgiki-Epikoinoniaki. II. To rima: I oryanosi tou minimatos. Ellinika grammata
- Klein, W., (1995). A time-relational analysis of Russian aspect. *Language* 71: 669-695.
- Knoke, D., and P. J. Burke. (1980). *Log-Linear Models*. Thousand Oaks, Calif.: Sage Publications, Inc..
- Krifka, M., (1992). *Thematic relations as links between nominal reference and temporal constitution*. In Sag, I. And Szabolsci (eds.) *Lexical Matters*. CSLI, Stanford University, Stanford.
- Lakoff, G., (1968). Instrumental adverbs and the concept of Deep Structure. *Foundations of Language*, 4, 4-29.
- Landman, F., (1995). Plurality. In Lappin, S. (ed), *Handbook of Contemporary Semantics*. Oxford: Blackwell.

References

- Landman, F., (2000). *Events and Plurality: The Jerusalem Lectures*. Dordrecht: Kluwer.
- Larson, R., (1985). Bare NP Adverbs. *Linguistic Inquiry* 16:595-621.
- Larson, R., (1988). On the double object construction. *Linguistic Inquiry* 19:335-391.
- Larson, R., (1990). Double objects revisited: a reply to Jackendoff. *Linguistic Inquiry* 21:589-632.
- Lewis, D., (1975). Adverbs of quantification. In E.L. Keenan (ed.) *Formal semantics of natural language*. Cambridge: Cambridge University Press.
- Li, P., and Boweman, M., (1998). The acquisition of lexical and grammatical aspect in Chinese. *First Language* 18: 311-350.
- Li, P., and Shirai, Y. (2000). *The acquisition of lexical and grammatical aspect*. Berlin and New York: Mouton de Gruyter.
- Li, P. (2000). The acquisition of lexical and grammatical aspect in a self-organising feature-map model. In L. Gleitman and Aravind K. Joshi (eds), *Proceedings of the 22nd Annual Conference of the Cognitive Science Society*. Mahwah NJ: Lawrence Erlbaum.

References

- Lonzi, L., (1991). Il Sintagma Avverbiale. In L. Renzi and G. Salvi (eds.), *Grande Grammatica Italiana di Consultazione II*. Bologna: Il Mulino.
- Lust, B., Flynn, S., and Foley, C., (1996). What Children Know about What They Say: Elicited Imitation as a Research Method for Assessing Children's Syntax. In McDaniel, D., McKee, C, and Cairns, H.S. (eds), *Methods for Assessing Children's Syntax*. MIT Press.
- Lyons, J., (1968). *Introduction to Theoretical Linguistics*. Cambridge University Press, Cambridge.
- Lyons, J., (1977). *Semantics*. Cambridge: Cambridge University Press.
- Mackridge, P.A., (1985). *The Modern Greek Language: a descriptive analysis of Standard Modern Greek*. Oxford University Press.
- Macnamara, J., (1972). Cognitive basis of language learning in infants. *Psychological Review*, 79, 1-13.
- McCawley, J., (1988). Adverbial NPs: Bare or Clad in See-Through Garb? *Language*, 64:583-590.
- McConnell-Ginet, S., (1982). Adverbs and logical form: a linguistically realistic theory. *Language*, 58, 144-184.

References

- McDaniel D., McKee C, and Cairns, H.S., (1996). *Methods for Assessing Children's Syntax*. MIT Press.
- McDaniel, D., and Cairns, H.S., (1996). Eliciting Judgments of Grammaticality and Reference. In McDaniel, D., McKee, C, and Cairns, H.S., (eds), *Methods for Assessing Children's Syntax*. MIT Press.
- Mehler, J., and Fox, R, (1985). *Neonate cognition: Beyond the blooming buzzing confusion*. Hillsdale, N.J.: Lawrence Erlbaum.
- Meisel, J.M., (1992). *The Acquisition of Verb Placement: Functional Categories and V2 Phenomena in Language Development*. Kluwer Academic Publishers: Dordrecht.
- Meltzoff, A. N., and K. Moore, (1985). Cognitive foundations and social functions of imitation and intermodal representation in infancy. In J. Mehler and R. Fox, (eds), *Neonate cognition: Beyond the blooming buzzing confusion*. Hillsdale, N.J.: Lawrence Erlbaum.
- Mirambel, A.,(1959). *La Langue grecque moderne: description et analyse*. Klincksieck, Paris.
- Moens, M., and Steedman, M., (1988): Temporal ontology and temporal reference. *Computational Linguistics*, 14, pp. 15-28.

References

- Mozer, A., (1994). *Ποιόν και Απόψεις του Ρήματος* [Situational and View point Aspect of the Verb]. Athens: Parousia.
- Newton, B., and Veloudis, I., (1982). Senses of Modern Greek Weak Modal and Verbal Aspect *Glotta* 60,3-4:282,299.
- Norusis, M.,(2004). *SPSS 13.0 Statistical Procedures Companion*. Upper Saddle-River, N.J.: Prentice Hall, Inc.
- Nunes, J., and Uriagereka, J., (2000). Cyclicity and extraction domains. *Syntax*, 3, 20-43.
- Ouhalla, J., (1990). Sentential negation, relativised minimality and the aspectual status of auxiliaries. *Linguistic Review*, 7,183-231.
- Ouhalla, J., (1991). *Functional categories and parametric variation*. London and New York: Routledge.
- Ouhalla, J., (1999). *Introducing transformational grammar: from Principles and Parameters to Minimalism*. London: Arnold.
- Panitsa, G.,(2001). Aspects of aspect: Acquiring grammatical aspect in Modern Greek: The interaction of aspect with aspectual adverbials in children's grammars. *UCL Working Papers in Linguistics* 13:405-424.

References

- Parsons, T., (1990). *Events in the Semantics of English*. Cambridge, MA: MIT Press.
- Philippaki-Warbuton, I.,(1970). *On the Verb in Modern Greek*. Indiana University, Bloomington.
- Philippaki-Warbuton, I.,(1998). Functional categories and Modern Greek Syntax. *The Linguistic Review* 15: 159-186.
- Pinker, S., (1984). *Language Learnability and Language Development*. Harvard University Press.
- Pinker, S., (1994). *The Language Instinct*. New York: William Morrow and Co.
- Platzack, C., (1996). The initial hypothesis of syntax: A minimalist perspective on language acquisition and attrition. In- Clahsen, H. (ed.), *Generative Perspectives on Language Acquisition*. Amsterdam/ Philadelphia: John Benjamins.
- Pollock, J.-Y., (1989). Verb movement, UG and the structure of IP. *Linguistic Inquiry* 20,365-424.

References

- Pullum, G. and Scholz, B., (2002). Empirical Assessment of poverty stimulus arguments. *The Linguistic Review* 19, 9-50.
- Pulman, S.G., (1997). Aspectual Shift as Type Coercion. *Transactions of the Philological Society* 95: 279-317.
- Pustejovsky, J., (1991). The Syntax of Event Structure. *Cognition* 41, 47-81.
- Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J., (1985). *A comprehensive grammar of the English Language*. London: Longman.
- Radford, A.,(1990). *Syntactic Theory and the Acquisition of English Syntax*. Oxford. Blackwell.
- Radford, A., (1992). The Acquisition of Morphosyntax of Finite Verbs in English. In Meisel, J.M., (ed.). *The Acquisition of Verb Placement: Functional Categories and V2 Phenomena in Language Development*. Kluwer Academic Publishers: Dordrecht.
- Radford, A.,(1997). *Syntactic theory and the structure of English. A minimalist approach*. Cambridge University Press.
- Renzi, L., and Salvi, G. (1991). *Grande Grammatica Italiana di Consultazione II*. Bologna: Il Mulino.

References

- Rivero, M.-L., (1990). The Location of Non-Active Voice in Albanian and Modern Greek. *Linguistic Inquiry*, 21:135-146.
- Rivero, M.-L., (1992). Adverb Incorporation and the Syntax of Adverbs in Modern Greek. *Linguistics and Philosophy*, 15:289-331.
- Roeper, T., & Williams, E.,(1987). *Parameter Setting*. Dordrecht: Reidel Publishing Company.
- Rothstein, S., (2004). *Structuring Events: A Study in the Semantics of Lexical Aspect*. Blackwell: Oxford.
- Rumelhart, D.E., McClelland J.L., and the PDP Research group (eds.), (1986). *Parallel distributed processing: Explorations in the Microstructure of Cognition, Vol. 1: Foundations*. Cambridge, MA: MIT Press.
- Sampson, G.,(1997). *Educating Eve: The 'Language Instinct' Debate*. London: Cassell.
- Schourup, L., (1999). Tutorial overview: discourse markers. *Lingua*, 107,227-265.
- Shirai, Y., (1991). *Primacy of aspect in language acquisition: simplified input and prototype*. Doctoral dissertation, University of California, Los Angeles.

References

- Shirai, Y., and Andersen, R.W., (1995). The acquisition of tense-aspect morphology: a prototype account. *Language* 71: 743-762.
- Shirai, Y., (1998). The emergence of tense-aspect morphology in Japanese: universal predisposition? *First language 18: The acquisition of tense-aspect morphology*, p.281-309.
- Shirai, Y.(ed.), (1998). *First language 18: The acquisition of tense-aspect morphology*. Alpha Academic.
- Sioupi, A., (2002). On the syntax and semantics of verb-complement constructions that involve 'creation': a comparative study in Greek and German. In Abraham, W., Zwart, J. - W. (eds.), *Issues in Formal German(ic) Typology*. John Benjamins, Amsterdam, pp. 293-284.
- Sioupi, A., (2005). Morphological and telicity aspect with accomplishment VPs in Greek. In Hollebrandse, B., Van Hout, A., and Vet, C. (eds.), *Crosslinguistic Views on Tense, Aspect and Modality* [Cahiers Chronos 13], pp.131-144, Amsterdam, New York: Rodopi.
- Slobin, D.I., (1979). *Psycholinguistics*. Scott Foresman and Co., London.
- Smith, C.S., (1991). *The Parameter of Aspect* [*Studies in Linguistics, Volume 43*]. Kluwer Academic Publishers: Dordrecht, Boston, London.

References

- Smith, C.S., (1997). *The Parameter of Aspect [Studies in Linguistics, Volume 43]*.
Second edition. Kluwer Academic Publishers: Dordrecht, Boston, London.
- Smith, N.V., (1989). *The Twitter machine. Reflections on Language*. Blackwell.
- Smith, N.V., (1999). *Chomsky: Ideas and Ideals*. Cambridge University Press.
- Stephany, U.,(1981). Verbal Grammar in Modern Greek early child language. In
Philip Dale and David Ingram (eds.) *Child language: An International
Perspective*. Baltimore, MD: University Park Press.
- Stephany, U.,(1997). The acquisition of Greek. In Dan I. Slobin (ed.), *The
Crosslinguistic study of language acquisition, volume 4:183- 333*. Mahwah,
NJ: Lawrence Erlbaum.
- Tenny, C.,(1987). *Grammaticalizing Aspect and Affectedness*. Doctoral Dissertation.
MIT.
- Thrainsson, H., (1996). On the (non)universality of functional categories. In W.
Abraham, S.D. Epstein, H. Thrainsson & C.J.-W. Zwart (eds.) *Minimal ideas:
syntactic studies in the minimalist framework*. Amsterdam: John Benjamins
Publishing Company.
- Thornton, R., (2008). A review of Snyder. *Journal of Linguistics, 44, issue 2: 552-
558*.

References

- Tomasello, M.,(1995). Language is not an instinct: A review of Steven Pinker's Language Instinct. *Cognitive Development 10: 131-156.*
- Triantafyllidis, M.,(1941). *Neoelliniki Grammatiki (tis Dimotikis)*. Thessaloniki: Aristotle University of Thessaloniki (1988).
- Tsangalidis, A., (1999). *Will and Tha: A Comparative Study of the Category Future*. Thessaloniki, University Studio Press.
- Tsimpli, I.M., (1992). *Functional Categories and Maturation: The Prefunctional stage of Language Acquisition*. PhD Thesis, University College London.
- Tsimpli, I.M., (1996). *The Prefunctional Stage of First Language Acquisition. A crosslinguistic study*. Garland, New York.
- Tsimpli, I.M., (2005). Peripheral Positions in early Greek. In Stavrou, M., and Terzi A., (eds.). *Advances in Greek Generative Syntax, Linguistics Today*, Amsterdam: John Benjamins. pp. 179-216.
- Tsimpli, I.M., and Papadopoulou, D., (2006). Aspect and argument realization: A study on antecedentless null objects in Greek. *Lingua 116: 1595-1615.*
- Tzartanos, A.,(1946). *Neoelliniki Sindaksis (tis Kinis Dimotikis), Tomi A & B*. Thessaloniki: Kiriakidis (1989).

References

- Van Hout, A., (1996). *Event Semantics of Verb Frame Alternations*. TILDIL Dissertation Series, 1996 - 1.
- Van Kleeck, A., (1982). The emergence of linguistic awareness: A cognitive framework. *Merrill-Palmer Quarterly* 28, 237-265.
- Varlokosta, S., Vainikka, A., and Rohrbacher, B., (1998). Functional Projections. Markedness, and 'Root Infinitives' in early child Greek. *The Linguistic Review* 15: 187-207.
- Vendler, Z., (1957). Verbs and Times. *Philosophical Review*, 66:143-160.
- Vendler, Z., (1967). *Linguistics and Philosophy*. Ithaca, NY: Cornell University Press.
- Verkuyl, H.J., (1972). *On the Compositional Nature of the Aspects*. Reidel: Dordrecht. (Dissertation, Utrecht University 1971)
- Verkuyl, H.J., (1993). *A theory of aspectuality: the interaction between temporal and atemporal structure*. Cambridge University Press
- Verkuyl, H. J., (1997). *Events as Dividuals: Aspectual Composition and Event semantics*. Utrecht Institute of Linguistics OTS.

References

- Verkuyl, H. J., De Swart H., and Van Hout, A., (2005). *Perspectives on Aspect*. Studies in Theoretical Psycholinguistics, Volume 32, Springer.
- Weibelhuth, G.,(1995). *Government and Binding Theory and the Minimalist Program*. Oxford: Oxford University Press.
- Wexler, K., & Manzini, M.R., (1987). *Parameters and learnability in Binding Theory*. In T. Roeper & E. Williams (eds.) *Parameter Setting*. Dordrecht: Reidel Publishing Company.
- Wexler, K., (1991). On the argument from the poverty of the stimulus. In *The Chomskyan Turn*, Asa Kasher (ed.), 252-270. Oxford: Basil Blackwell.
- Wexler, K., (1994). *Finiteness and Head Movement in early child language*. In D.. Lightfoot and N. Hornstein (eds), *Verb Movement*. Cambridge: Cambridge University Press, 305-350.
- Woisetschlaeger, E.,(1976). *A Semantic Theory of English Auxiliary System*. Bloomington: Indiana University Linguistics Club.
- Xydopoulos, G.J., (1991). Distribution, Interpretation and Licencing of Adverbs in Modern Greek. *SOAS working papers in Linguistics and Phonetics*, 2, 205-27.
- Xydopoulos, G.J., (1994). Adverbial NPs in Modern Greek. *UCL Working Papers in Linguistics*, 6:287-317.

References

Xydopoulos, G.J., (1996). *Tense, Aspect, and Adverbials in Modern Greek*. PhD Thesis, University College London.

Zubizarreta, M.L., (1987). *Levels of Representation in the Lexicon and in the Syntax*. Dordrecht: Foris.