The acquisition of aspect in Modern Greek: Grammatical aspect and aspectual adverbials in children's grammars

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ABSTRACT
The acquisition of the verb and its grammar plays a central role in early language acquisition. This paper focuses on aspects of the acquisition of verbal aspect in Modern Greek language. In particular, the following will be looked at: (a) Greek children's comprehension and acquisition of the semantics of viewpoint aspect, (b) The role of aspectual adverbial in the determination of aspect in MG, as well as the children's awareness and mastery of the system, (c) Finally, it will be shown (i) That the way children combine aspectual adverbials with verbs marked for viewpoint aspect can provide insights about their acquisition of the semantics of aspect. This is made explicit in the way they correct an ungrammatical\(^1\) input by: a) omitting the aspectual adverbial, b) by changing the aspectual marking on the verb, or c) by substituting an aspectual adverbial with another one in a clause, (ii) Regarding the positioning of aspectual adverbials in children's grammars, I will show that quite frequently they place the aspectual adverbial to a position immediately following the verb.

A. THEORETICAL ISSUES
On the notion of aspect
The term aspect refers to viewpoint aspect and to lexical aspect.
1] Lexical aspect 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. For example, note the difference between:

1a) Mary ate a banana. and
1b) Mary ate bananas.

A distinction can be drawn between a durative and a terminative sentence; the verb "eat" being constant, the aspectual differences in these sentences

\(^{1}\) By "grammatical" or "ungrammatical" I refer to the correct or incorrect combination of aspectual marking on the verb and an aspectual adverbial in a clause.
must be attributed to the difference between the complements (a banana, bananas).

2) Viewpoint aspect shows the way in which an event is presented, the particular viewpoint toward the described situation. For example, note the difference between:

2a) I Nina diabaze (IMPF) ena biblio
    Nina was reading a book. and

2b) I Nina diabase (PF) ena biblio.
    Nina read a book.

In 2a, the verb is imperfective. “Imperfective aspect presents a situation from an internal point of view, often as ongoing (progressive) or enduring (continuous)”, whereas in 2b, the verb is perfective. “Perfective aspect presents a situation from an external perspective, often as completed” (Li, 2000).

In Modern Greek, there are two aspectual categories: the perfective, which stems from the past theme of the verb (e.g. diabase) and the imperfective, which stems from the present theme of the verb (e.g. diabaze).

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

Aspect interacts with aspectual adverbials; aspectual adverbials point to the internal temporal properties of a situation, e.g. duration, frequency. Following Alexiadou (1994) aspectual adverbials are classified into:

Durative: yia mia ora ‘for an hour’
Indefinite frequency: kathimerina ‘daily’, kathe toso ‘every so often’
Definite frequency (cardinal count): mia fora ‘once’,
Point adverbials: amesos ‘immediately’, ton lounio (in June)
Compleetive adverbials: se mia ora ‘in an hour’

Durative and indefinite frequency aspectual adverbials normally require the imperfective, whereas definite frequency (cardinal count), point and compleetive adverbials require the perfective. As exemplified in the following sets of examples from 3 to 5:

3a) I Maria etroye ena payoto kathe mera.
    Mary was eating (IMPF) an ice-cream every day (indefinite frequency adverbial)

b) *I Maria efaye ena payoto kathe mera.
    Mary ate (PF) an ice-cream every day (indefinite frequency adverbial)

4a) I yatoula niaourize yia mia ora.
    The cat was mewing (IMPF) for an hour (durative adverbial)

b) *I yatoula niaourise yia mia ora.
The cat mewed (PF) for an hour (durative adverbial)

5a) *Piyame sto tsirko mia fora.
(We)-went (PF) to the circus once (cardinal count adverbial)

b) *Piyename sto tsirko mia fora.
(We)-were going (IMPF) to the circus once (cardinal count adverbial)

B) The experiment
An elicited imitation task was introduced to Greek children, aged 1, 9, 19 to 4, 3, 15. The children were asked to perform a sentence repetition task.

According to Chomsky (1964), "the child's ability to repeat sentences... 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. 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).

So, 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.

Aims and design of the stimuli sentences
The design of the stimuli sentences was motivated by the following questions:

A) How do children acquire the semantics of aspect? What are we presupposing the semantics of aspect is? We do need a semantic analysis that is the explicit target of the children's acquisition process. The question is: Do the children know 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, do they know the distinction between the:

6a) O Kostas zoigrati-z-e (IMPF) mia zoigrafia.

6b) O Kostas zoigrati-s-e (PF) mia zoigrafia.

Do they know that 6a) presents the event as ongoing, whereas 6b) presents the same event as a completed one?
Furthermore, acquiring the semantics of aspect would also entail that the children acquire the internal temporal structure of an event, that is: (a) the semantics associated with lexical 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. However, this paper focuses on the acquisition of grammatical aspect only.

Finally, it needs to be pointed out that lexical and grammatical aspect interact, aspect standing at the “interface between the lexicon and the grammar” (Li, 2000:5) and this is in need of investigation in terms of language acquisition in general, and in terms of the acquisition of the semantics of aspect in particular.

B) Further, given that aspect interacts with aspectual adverbials, the following questions triggered our experiment: 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? What happens with the position aspectual adverbials have in children’s grammar when other types of adverbials co-occur in the clause being uttered?

The stimuli sentences were designed as follows: In all the sentences an aspectual adverbial was present. In MG the verb is necessarily marked for grammatical aspect, so it is not easy to decide on the acquisition of the semantics associated with it. This is why aspectual adverbials were employed at this task; the idea is that if the children can associate the properties of verbal aspect with those of aspectual adverbials, then this is an indication of them beginning to acquire the semantics of aspect.

The aspectual marking on the verb was either the one preferred by the adverbial that was in the clause or one which, in combination with the adverbial, would make the clause ungrammatical. The child then had to imitate the sentence, by producing its own version of it.

There were also sentences with double adverbial constructions. Two aspectual adverbials were in the same clause; either both of them would favour the same aspectual value on the verb or the one would favour the perfective and the other the imperfective aspect on the verb. And again, even in these cases of additional complexity the child had to perform an elicited imitation task.

At a pilot study, it had been noticed that 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 I presented the children with sentences where the aspectual adverbial was distanced from the verb. Instead, a non-aspectual adverbial was intentionally placed
immediately after to the verb, to check how the children would react to this. The aspectual adverbial was placed in positions other than pre- or postverbally, and I had arguments and/or adjuncts in between the verb and the aspectual adverbial.

The same procedure was followed with each one of the subjects. The children actually thought that by repeating the stimulus sentences, they were actually teaching Greek to some aliens and to Kermit the frog.

THE RESULTS

The children's responses to the stimuli sentences – an overview

The children's responses to the stimuli sentences were looked at. The grammatical and the ungrammatical responses to grammatical and ungrammatical input were examined separately. The focus was mainly on (a) children's incorrect production of grammatical stimulus and (b) their corrections of ungrammatical input.

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.

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 an ungrammatical stimulus is changed to a grammatical one during this repetition task, this actually indicates that the children are acquiring the semantics of aspect. The decrease in the production of ungrammatical clauses given a grammatical input is more obvious after the age of 3.8.

Younger subjects up until the age of 3.5 seem to produce grammatical sentences given grammatical stimulus, but this may be because the younger the children the more imitative the nature of the task they are performing. It should be noted, however, that there is individual variation, which prevents us from seeing clearly marked differences with age. However, after 3.8, the difference in the subjects' responses becomes clear.

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, it may be the case that children acquire grammatical aspect and its semantics a bit earlier, and this experiment hinges upon the acquisition of aspectual adverbials as well as the acquisition of the semantics of lexical aspect.

It is for this reason, that a spherical and accurate picture of how children acquire the semantics of aspect is available when we combine the results of experiments carried out following different experimental methods. The combination of a Storytelling task, spontaneous speech and an elicited judgement task can give us a complete picture.

WAYS OF CORRECTING UNGRAMMATICAL STIMULI
The means the children were employing when correcting ungrammatical stimuli to produce grammatical utterances were looked at. These are summarized as follows:

a) in some cases, the omission of the aspectual adverbial resulted in a grammatical clause, as exemplified in 8

7a) I Maria etroie payota oli mera kathe mera
    Maria was eating (IMPF) ice-creams all day every day (stimulus sentence)
7b) I Maria etroie payota oli mera
    Maria was eating (IMPF) ice-creams all day (Ilias 4,1,12)

8a) *To liontaraki diavase sinthos ena paramithi.
    The little lion read (PF) usually a story (stimulus sentence)
8b) To liontaraki diavase ena paramithi.
    The lion read (PF) a story
    (Angelos 3,7,4 – omission)

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

b) The subjects were changing the aspect the verb was marked for, i.e. from perfective to imperfective and vice versa, as exemplified in 9 and 10:

This correction was either spontaneous upon repetition of the adult stimulus utterance:

9a) * Diava-s-a sinthos ena paramithi.
    (I) read (PF) usually a story. (stimulus sentence)
9b) Ki evo diava-z-a sinthos ena paramithi.
    And I was usually reading (IMPF) a story too. (Angelos - 3,5,16)

Sometimes the correction occurred after the child had been offered two alternatives, and it would choose the grammatical one as in 10 a to d.

10a) * To arkoudaki horep-s-e sinehia.
    The bear danced (PF) all the time. (stimulus)
10b) *To arkoudaki hore-s-e sintheia.
The bear danced (PF) all the time (imitation)

10c) Ti ekane? Horep-s-e sintheia I horeve sintheia?
What did it do? Danced (PF) all the time? Or was it dancing (IMPF) all the
time? (two alternatives are being introduced to the child)

10d) Horeve.
It was dancing (IMPF) (Angelos - 3,5,16)

or c) the children were changing the aspectual adverbial given to them in the
stimulus sentence, by substituting it for another of the same or different
aspectual type.

At 11 a and b, the child successfully substitutes one adverbial with
another of the same type, and this results in a grammatical utterance that has
the same aspectual interpretation. This may be an indication that the child
has actually understood the semantics of the adverbial of the stimulus
sentence.

11a) To lontaraki diava-z-e sinithos ena paramithi.
The lion was usually reading (IMPF) a story (stimulus sentence)

11b) To lontaraki diava-z-e kathe mera ena paramithi.
The lion was reading (IMPF) every day a story (Yioryos 2,8,27-
substitution)

However, the substitution of an adverbial, occasionally, with another of a
different class is more important (e.g. a durative complelve adverbial is
substituted with a frequency adverbial, or with a durative adverbial). As a
result, the ungrammatical stimulus 12a becomes the grammatical12b:

12a) *O Kostas etroye ena payoto dio fore.
Kostas was eating (IMPF) an ice-cream two times. (stimulus sentence)

12b) O Kostas etroye ena payoto kathe mera.
Kostas was eating (IMPF) an ice-cream every day. (Vassilis 3,11)

Finally, sometimes the children produced with their own version of what
they had been told. 13b is a striking example:

13a) *Sinithos eftiak-s-a to pehnidaki se ligi ora.
Usually I made (PF) the little toy in little time. (stimulus sentence)

13b) Telo-s-amse ligi ora ta pehnidakia ke pezume sinheia.
We finished (PF) (making) the little toys in little time and we play (IMPF)
all the time. (Sonia - 3,7,24)

Sonia (3,7,24) was given the ungrammatical utterance 13a during her
sentence repetition task. The verb in the perfective form and there are two
adverbials, a frequency one ("sinithos" usually) and a durative completive one ("se ligi ora" in little time, in a while), the former normally combining with imperfective and the later with perfective aspect. Upon her repetition task she picked up the meaning of the clause given to her and she produced two clauses: 1] telosame se ligi ora ta pchnidakia (we finished (PF) (making) the little toys in little time) and 2] pezume sinehia (we play (IMPF) all the time). The clauses she produces are an indication of her acquisition of the semantics of aspect. It is significant that of all the different alternatives ways children employed to correct ungrammatical stimulus, 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 the aspectual marking on the verb. In other instances, but not as frequently, they were omitting the aspectual adverbial of the clause, this leading to a grammatical sentence. Not being able to associate verbal aspect with the appropriate aspectual adverbial, they would omit the later. These findings clearly suggest 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.

*Children's positioning of the aspectual adverbial in the clause*

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 to a position adjacent to the verb, regardless of its position in the stimulus sentence, was striking. That could suggest that there is a stage in their grammar that children have only this position for the aspectual adverbial. 14b and 15b exemplify the placement of the adverbial to this position:

14a) Kathe mera pigeno ston pediko stathmo.
I go to the playgroup every day. (stimulus)

14b) Erhome katho mera ston pediko stathmo.
I come every day to the playgroup. (Fei 3,5,26)

15a) * I Maria efaye ena payoto katho mera.
Maria ate an ice-cream every day. (stimulus)

15b) I Maria etroye katho mera ena payoto.
Maria was eating every day an ice-cream. (Fei 3,5,26).

There are instances, however, where at the sentence repetition task the adverbial is retained at a position other than the post-verbal one.
All the above are to be looked at in terms of the positioning of aspectual adverbials in adult Greek. In adult Greek language, aspectual adverbials can occur in the beginning or in the end of the clause, pre- or post-verbally, or post-VP. The positioning of aspectual adverbials in adult MG language is exemplified in 16:

16a) I Maria etroye payoto *kathe mera*
    The-Maria was eating-IMPF ice-cream every day-asp adv
    Maria was eating ice-cream every day.

16b) I Maria etroye *kathe mera* payoto.
    The-Maria was eating-IMPF every day-asp adv ice-cream.
    Maria was eating ice-cream every day.

16c) *Kathe mera* o Yioryos pigaine sto sxoleio.
    Every day the-George was going-IMPF to school.
    George was going to school every day.

16d) O Yioryos pigaine sto sxoleio *kathe mera*
    The-George was going-IMPF to school every day.
    George was going to school every day.

The aspectual adverbials in the clauses the children uttered upon reproduction of the stimuli utterances were looked at in respect of the following:

A) the positioning of the aspectual adverbials

B) the number of times the aspectual adverbial has shifted to a position adjacent to the verb, immediately following it.

The percentages indicating the number of times that an aspectual adverbial that was found right next to the verb in the children's utterances had actually shifted to this position, from a position elsewhere in the stimulus clause, were statistically 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 extremely low.

Looking at the children's reproduction utterances, 57 (out of 127) times that an aspectual adverbial was found right after the verb, it had actually been moved to this position. They were moving the aspectual adverbial to this position both in their grammatical productions (41.4%) and in their ungrammatical ones (54.5%). This may suggest that already from the beginning when they 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 probably why they attempt to put them close to each other, even if they are not able to fully associate their semantic properties just yet.
The children then, seem to have a preferred position for the aspectual adverbial, they place it adjacent to the verb. Is this shift due to syntactic or to semantic reasons? To investigate this a few more stimulus utterances were recently presented to the subjects, in which the aspectual adverbial will be adjacent to the verb, but in a pre-verbal position. The idea is that if the children move it to the post-verbal position, then the reasons are of syntactic nature, if not, then it if probably for semantic reasons that they want the aspectual adverbial adjacent to the verb in either position.

The testing has actually shown that the subjects will place an aspectual adverbial from a position immediately preceding the verb to the position immediately after the verb. The opposite does not occur in my data. However, as the children become older this placement of the aspectual adverbial to the position immediately after the verb is not as frequent, possibly because the other positions become available in the child grammar.

To try to explain this preference, a close look needs to be taken at the position where adults base-generate aspectual adverbials

On aspectual adverbials
Alexiadou (1994) 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 head. This claim presupposes the existence of features in the adverbs, which must be in an agreement relation with the licensing head. Thus, as Cinque (1999) argues, a system that analyses adverbs as specifiers is a more restrictive one than a system that analyses them as adjuncts. 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.

Following Cinque and Alexiadou in my approach: 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. The adverb should be a specifier of a head in order to be formally licensed. Furthermore, 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 of 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 AgrSP, 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 for “aspect before tense” hypothesis. This linguistic principle, according to Woietschlaeger (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, I 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 my data. The adult stage is reached after object movement is acquired, yielding V-O-Adv order, as well as various focus-related movements which derive the observed word order freedom.

CONCLUSION
In conclusion, it has been shown that the way children combine aspectual adverbials with verbs marked for viewpoint aspect can provide insights as to their acquisition of the semantics of aspect. This has been looked at in terms of the ways children employ to correct an ungrammatical 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 they place the aspectual adverbial to the position immediately after the verb.

REFERENCES