Voice morphology and the *apo*-phrase[*]

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Abstract

Active and non-active morphology in Greek does not always correspond with active and passive readings in a one-to-one fashion. In addition, the '*apo*-phrase' is found in various syntactic contexts. This paper investigates how voice morphology, verb reading and animacy of the syntactic subject interact with the reading of '*apo*-phrases' produced by Greek Native Speakers. Data, obtained through a Sentence Completion Task, show a general preference for the 'cause' reading of the '*apo*-phrase' and an interaction of voice morphology, verb class and animacy of the syntactic subject on the status of the produced *apo*-phrase.

Keywords: voice morphology, verb reading, [+/-animate] syntactic subject, *apo*-phrase

1. Introduction

Theories on passive in English and similar languages focus on the fact that the logical subject argument, not realized in an NP in passives, is realized through a 'by-phrase' (Baker, Johnson & Roberts 1989), which is independent of its θ-role (Marantz 1984). Moreover, the question of whether the 'by-phrase' can cause a delay in the acquisition of passive has been central in first language acquisition research (Borer & Wexler 1987; Demuth 1989; Fox & Grodzinsky 1998; Verrips 2000; Tsimpli 2006, a.o.). It has been argued that 'short' or 'truncated' passives (i.e. without the '*by*-phrase') are produced earlier than 'long' or 'non-truncated' passives (with '*by*-phrase') by English children. Maratsos et al. (1985) showed that children (with English as L1) could interpret 'actional' passives after the age of 4, but still faced a problem with 'non-actional' ones. On the basis of such facts Borer & Wexler (1987) propose the *Maturation Account* for A-Chains (that is, the dependency between the thematic position of the moved element and its landing site in Spec IP). They argue that, since these structures are unavailable at early stages of L1 acquisition, passives produced by children are adjectival (derived in the lexicon and not in the grammar). Furthermore, when the passives are non-truncated, the external argument is absorbed pre-syntactically. Borer & Wexler's (1987, 1992) claim has been criticized on theoretical and empirical grounds. Fox & Grodzinsky (1998) argue that L1 English children have a problem with the '*by*-phrase' since they lack the syntactic process of θ-transmission and that this is the reason that they cannot produce or interpret non-truncated passives. Turning to crosslinguistic data, Demuth (1989) shows that Sesotho speaking children as young as 2;8 use non-truncated actional passives productively, a fact that she attributes to the productivity of the structure in the language and its frequency in the input. In addition, Verrips (2000), in an analysis that argues that the *Projection Principle* overrides lexical transitivity alternations, presents

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Dutch L1 acquisition data where an implicit argument is shown both in passive and in anti-causative (ergative) structures, which the adult L1 grammar does not allow. In the specific experiment morphological cues (periphrastic – non-active morphology for the passive and active morphology for the ergative structure) did not appear to help the children interpret the test items correctly. An alternative account proposed in Borer (2004), argues in favor of the priority of syntax over lexicon claiming that syntactic and aspectual (event) knowledge is available to children very early on and that this knowledge constraints the use and the overgeneralizations attested in child data.

In Greek non-active morphology is used in passive, reflexive, reciprocal, middle and ergative structures (see section 2 below). Despite the underspecification of non-active morphology, it has been argued that the [+/- animate] syntactic subject accounts for the distinction between a reflexive and a non-reflexive (the other structures mentioned above) reading of the morpheme (Tsimpli 1989; Theophanopoulou-Kontou 2000; Alexiadou & Anagnostopoulou 2004). More specifically, the non-active morpheme attracts a θ-feature of the verb, reducing the number of its arguments, but further semantic and pragmatic constrains are needed for a more detailed distinction. Moreover, both passive and ergative sanction an '*apo*-phrase' (=*by*-phrase). Finally, the Greek present tense is argued to be responsible for the modal reading of verbs in phrases where a 'by-agent phrase' is optional (Papastathi 2001; Papastathi & Tsimpli 2004; Tsimpli 2006).

This paper investigates how voice morphology (ACT *vs* NACT), verb reading (ergative, passive, middle and reflexive, among others) and animacy of the syntactic subject (+/-animate) affect the interpretation of the *apo*-phrase, by providing data from a sentence-completion task with native speakers of Greek[1].

2. Verb type & voice morphology in MG

Active (hence ACT) and non-active (hence NACT)[2] morphology in Greek (hence MG) does not always correspond with active and passive readings in a one-to-one fashion. This is partly due to the syncretism of NACT morphology. As will be shown in this section, NACT morphology has a passive, middle or reflexive reading[3], and ACT morphology is found in unergative, transitive and ergative structures[4]. Specifically, ACT morphology can appear in (a) transitive structures with overt or null objects (1),

(1)   Diavazo (afto to vivlio) apo noris.
       read.$_{1S}$ this the book since early
       'I've been reading this book (since early).'

(b) unergative structures, which involve a deep-structure subject and no object (2),

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[2] The term active (ACT) / non-active (NACT) morphology, used in Alexiadou & Anagnostopoulou (2004) and Tsimpli (2006), is adopted in the present paper instead of the more general term 'active' and 'mediopassive' found in previous literature, as it is compatible with the various structures in which ACT/NACT morphology occurs.
[3] For theoretical approaches to mediopassive/non-active morphology see Warburton (1970, 1975), Theophanopoulou-Kontou (1982, 1983), Laskaratou (1984), Campos (1987), Vassilaki (1988), Tsimpli (1989), Rivero (1990), Smirniotopoulos (1992), Joseph & Smirniotopoulos (1993), Philippaki-Warburton (1998), Ralli (1999), Papastathi (1999), Papastathi & Tsimpli (2004).
[4] For further analyses see also Sioupi (1998), Theophanopoulou-Kontou (1999, 2001), Alexiadou & Anagnostopoulou (2004).

(2)   O Petros trexi apo ta nevra tu.
       the Peter runs because-of the nerves-his
       'Peter is running (because of his nerves).'

(c) ergative structures, in which the syntactic subject of the sentence is the object in terms of thematic structure, the logical object in other terms. A prepositional phrase that absorbs the θ-role agent or cause[5], and is the logical subject of the verb, may follow (3).

(3)   I porta eklise apo ton aera
       the door closed.$_{3S}$ by the wind
       'The door closed (*by the wind).'

On the other hand, NACT morphology allows for (a) a passive reading, where a transitive actional verb is detransitivized and where the *apo*-phrase may express cause or agent theta-roles, similar to English or may introduce an indirect object (4), (b) a reciprocal reading (5) and (c) a reflexive reading (6).

(4)   O Petros therapeftike apo to jiatro / apo tin arrostia tu.
       the Peter cured.$_{NACT.3S}$ by the doctor / of the illness-his
       'Peter was cured (*by the doctor / of his illness).'
(5)   Ta koritsia kitahtikan apo amihania.
       the girls looked.$_{NACT.3P}$ of embarrassment
       'The girls looked at (each other / themselves) (*out of embarrassment).'
(6)   O Petros ksiristike apo monos tu / ton kurea.
       the Peter shaved.$_{NACT.3S}$ by himself / by the barber
       'Peter was shaved by himself / by the barber.'

There is finally the category of ergative (or anticausative) verbs with ACT/NACT alternation, which express a change-of-state. In order to explain the possibility of this alternation, Theophanopoulou-Kontou (2000) claims that the passive morphology is responsible for a passive reading of the structure, with the syntactic subject being 'affected' by the action expressed by the verb; the active morphology presents the event as a natural or spontaneous process that takes place without the intervention of an 'agent' and implies that the speaker is unaware or wants to avoid reference to a cause or agent. Alexiadou & Anagnostopoulou (2004) argue that the active form is used to denote a partial change and the non-active expresses a complete change of state. Finally, Tsimpli (2006) proposes that the two possible surface forms have a different syntactic derivation: the non-active voice marking denotes an implicit external cause or agent, whereas the external argument is suppressed in the anti-causatives.
   Note that the ACT/NACT morphology alternation is not possible with ergatives implying an internal cause (7b) or with verbs whose syntactic subject is [+animate] (8b) (Alexiadou & Anagnostopoulou 2004; Tsimpli 2006).

(7a)   To skini tentoni/tentonete apo to varos.
       the rope stretches /stretch.$_{NACT.3S}$ by the weight
       'The rope stretches/gets stretched (by the weight).'

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[5] Notice that English can not have a by-phrase that absorbs the θ-role in ergatives:
   (i)   The door closed.
   (ii)   *The door closed by the wind.
   (iii)   The door was closed by the wind.

(7b) To psomi muxliase /*muxliastike apo tin igrasia.
      the bread staled.$_{3S}$ /* staled.$_{NACT.3S}$ by the humidity
      'The bread got stale /*was staled by the humidity.'
(8a) To poukamiso lerose / lerothike.
      the shirt dirty.$_{PAST.3S}$/dirty.$_{PAST.NACT.3S}$
      'The shirt got dirty.'
(8b) To paidi *lerose/lerothike.
      the kid *dirty.$_{PAST.3S}$/dirty.$_{PAST.NACT.3S}$
      'The kid (*dirtied) / got dirty.'

3. The *apo*-phrase ('by-phrase') in MG

3.1 The possible interpretations of the apo-phrase

The *apo*-phrase can have a locative/temporal reading, express comparison, or source, instrument, cause and agent among others, as partially shown in the examples above (the English translation varies depending on the meaning).

3.2 The position of the apo-phrase in the syntax

The *apo*-phrase is used in different syntactic contexts due to the underspecification of the preposition in terms of semantic features. Specifically, it can have argument (as in (9)) or adjunct status (as in examples (10), (11)) (Levin B. & M. Rappaport-Hovav 1995; Reinhart 2001, 2002; Tsimpli 2004). There may be co-indexation with the θ-agent role, absorbed by the NACT morphology –see (10) – (Baker et al. 1989), or the *apo*-phrase may express cause, as part of the lexical-conceptual rather than as part of the argument structure of the verb –as in (11) – (Jackendoff 1990).

(9)   O kleftis kriftike apo tous astinomikus.
      the burglar hid.$_{PAST.NACT.3S}$ from the police
      'The burglar hid (from the police).'
(10) To pedi dithike apo ti mama tu.
      the kid dressed.$_{NACT.3S}$ by the mother-his
      'The kid got dressed by his mother.'
(11) I porta eklise apo ton aera.
      the door closed.$_{3S}$ by the wind
      'The door closed (*by the wind).'

4. Research questions

In light of the status of *apo* in L1 Greek and the underspecification of the non-active morphology, an experiment was designed to test the preferences of native speakers of Greek in producing *apo*-phrases. Thus, the experiment was designed on the basis of the following hypotheses: Because of the interaction of the animacy of the subject [+/-animate] and voice morphology [ACT/NACT], the *apo*-phrase is expected to:
• have a locative/temporal reading when there is ACT morphology and [+/-animate] syntactic subject
• be a θ-agent expressing cause when there is NACT morphology and an [+/-animate] syntactic subject.

5. The study

The data presented in the present paper come from a pilot study investigating the interpretation of voice morphology and its interaction with the reading of the *apo*-phrase in Greek. A sentence completion task was administered to native speakers (NS) of Greek, in order to test structures with active and non-active morphology verbs in relation to (a) the animacy of the syntactic subject and (b) the verb type[6].

5.1 Method

5.1.1 Materials and procedure

The test, the mean duration of which was 15 minutes, consisted of two almost identical parts (see below). Each part was presented as a leaflet of 56 pages (a sentence per page). The test sentences included a left-raised DP, a verb followed by three periods, so the subjects would complete the sentence in the way they thought best, and the preposition *apo* (=by) followed by three periods, where the subjects had to write anything that seemed correct to complete the sentence. Each part included 28 sentences with an animate syntactic subject and 28 sentences with an inanimate syntactic subject. Furthermore, each of the subgroups above (i.e. each group of 28 sentences) included 7 sentences with the different verb types presented in sections 2 and 3, namely ergatives and verbs allowing the ACT/NACT alternation. The task included a total of 112 sentences (see Appendix for examples). The only difference between the two parts of the questionnaire was that when a sentence of the first part included a verb in the present, an identical structure appeared in the second part with the verb in past, so as to control for possible tense effects[7]. Subjects were to fill the leaflet following the instruction below:

> *"Please complete the sentences, filling the first gap optionally, as fast and accurately as you can."*

5.1.2 Subjects

Fifty (50) native speakers of Greek (25 women and 25 men) participated in the research. They were all living in Thessaloniki and had not done any studies in linguistics. Their mean age was 28 years. Twenty-five of them were given the first part while the second part was given to the other twenty-five.

5.2 Results

2800 answers were analyzed for possible interaction of voice morphology, verb reading and animacy of the syntactic subject with the reading of the *apo*-phrase. Tables 1 & 2 present the responses in the sentences with verbs of ACT and NONACT morphology respectively.

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[6] As stated in Tsimpli (2006) verb type – or class – reflects the preferred reading of NS, since the grammar does not appear to restrict derivational options depending on the verb class.
[7] Since there were no effects of verb tense in the findings here, I will not discuss this variable any further.

Table 1. Verbs of active morphology, [+/- animate] subject

Verb Type	*Verb morphol.*	*Syntactic subject*	*Transitive*	*Cause*	*Agent*	*Instrument*	*Other*	*Blanc/ Error*
ergatives	ACT	animate	86	208	0	1	44	11
		inanimate	0	242	21	8	74	5
ACT/NACT alternation	ACT	animate	257	21	0	15	51	6
	ACT	inanimate	27	162	46	33	62	20
Total *n = 1400*			*370* *(26.4%)*	*633* *(45.2%)*	*67* *(4.7%)*	*57* *(4%)*	*231* *(16.5%)*	*42* *(3%)*

As shown in Table 1, when the verb is in the active morphology, the most frequent reading of the *apo*-phrase is the *apo*-Cause. More specifically, when the sentence includes a [-animate] syntactic subject, results show

- a general preference (69.14%, 242/350) to produce *apo*-phrases denoting cause in ergatives.
- Contrary to our expectation, with ergative verbs there was a 6% (21/350) preference to produce *apo*-phrases denoting the agent. However, since such a reading would be ungrammatical with ACT/NACT alternation verbs, it might be the case that it receives a [+animate] cause interpretation and functions as an adjunct[8].
- A considerably high preference (46.2%, 162/350) to produce *apo*-phrases denoting cause with ACT/NACT alternation verbs.

In sentences involving a [+animate] syntactic subject, results show that

- in ergatives, there was a 59.42% (208/350) preference to produce *apo*-phrases with cause readings and a 24.57% (86/350) preference to produce transitive structures.
- In ACT/NACT alternation verbs 73.4% (257/350) of the sentences produced by the subjects were transitive and only in the 6% (21/350) they produced an *apo*-phrase denoting cause.

Overall, a [-animate] syntactic subject favors an *apo*-phrase denoting cause, while the [+animate] syntactic subject causes a transitive reading of the verb tested.

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[8] Examples of some of the productions (the English translation remains ungrammatical):
- (i) I porta xtipise apo anthropous pou den ithela. (The door closed by people I didn't desire to (hit it)).
- (ii) O lekes katharise topika apo tin Maria. (The stain cleaned locally by Maria.)
- (iii) To sxini tendose apo ton akrovati. (The rope stretched by the acrobat.)
- (iv) To sidero lijise poli efkola apo ton koutaliano. (The iron bent very easily by Koutalianos.)

Table 2. Verbs of non-active morphology

Verb Type	Verb morphol.	Syntactic subject	Transitive	Cause	Agent	Instrument	Other	Blanc/ Error
Passives	NACT	animate	0	65	119	16	142	8
	NACT	inanimate	0	33	222	29	62	4
ACT/NACT alternation	NACT	animate	0	170	49	53	72	6
	NACT	inanimate	0	148	114	41	44	3
Total n = 1400			0	*416* *(29.7%)*	*504* *(36%)*	*139* *(9.92%)*	*320* *(22.85%)*	*21* *(1.5%)*

As shown in Table 2, when the verb has non-active morphology, the most frequent production of *apo*-phrase is the *apo*-Agent when the verb used is a transitive one, and the *apo*-Cause, in ACT/NACT alternation verbs. In more detail, when the sentence includes a [-animate] syntactic subject, results show

- a general preference (63.4%, 222/350) to produce *apo*-phrases denoting the agent in passives, which come from transitive verbs;
- in ACT/NACT alternation verbs, a considerably high preference (42.2%, 148/350) to produce *apo*-phrases denoting cause, followed by a 32.5% (114/350) preference to produce *apo*-phrases denoting the agent.

In sentences involving a [+animate] syntactic subject, results show that

- in passives (structures that come from transitive verbs), there is a 34% (119/350) preference to produce *apo*-phrases denoting the agent and only an 18, 5% (65/350) preference to produce *apo*-phrases denoting cause, whereas in the 40,5% (142/350) of the sentences, the *apo*-phrases (PPs) produced by the subjects express locative, temporal meaning and comparison;
- in ACT/NACT alternation verbs, there is a 48.6% (170/350) preference to produce *apo*-phrases denoting cause while the rest of the readings is equally distributed in the data.

6. Conclusion

In this paper, I presented evidence from a sentence-completion task whose aim was to examine the interaction between voice morphology, the animacy of the syntactic subject and the meaning of the *apo*-phrase. Analysis of the findings shows that active (ACT) morphology favors an *apo*-phrase denoting cause regardless of the animacy of the syntactic subject (still, with an animate syntactic subject, there is a higher rate of transitive reading of the verb used). On the other hand, non-active (NACT) morphology with an animate syntactic subject favors the production of *apo*-phrases denoting the agent in the case of transitive verbs, and the production of *apo*-phrases denoting cause in the case of ACT/NACT alternation verbs with NACT morphology. Moreover, non-active morphology with an inanimate syntactic subject favors the production of *apo*-phrases denoting the agent, in transitive verbs, while preferences seem to be divided between the agent and the cause reading in contexts with ACT/NACT alternation verbs. Last, ACT/NACT alternation verbs in ACT and ergatives behave differently, with the first ones demonstrating a high rate of transitive use when the syntactic subject is animate. Similarly, ACT/NACT alternation verbs in NACT and passives (from

transitives) behave differently, with the first ones exhibiting a significantly higher preference for *apo*-phrases denoting cause.

In future research, I plan to further investigate the status of *apo*-phrase using additional off-line and on-line measures. In addition to the L1 data, I intend to use L2 data in order to determine whether the *apo*-phrase causes problems in the acquisition of passive structures.

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Appendix

The test sentences

Morphology and verb type	Syntactic subject	Tense	Examples
NACT (Passive – Reflexive – Reciprocal) (n = 28)	Animate (n = 14)	Present (n = 7)	*To moro plenete… apo…* (The baby wash.PRES.NACT.3S…by…)
		Past (n = 7)	*To agori plithike … apo …* (The boy wash.PAST.NACT.3S …by...)
	Inanimate (n = 14)	Present (n = 7)	*To pukamiso plenete…apo …* (The shirt wash.PRES.NACT.3S …by...)
		Past (n = 7)	*I bluza plithike…apo…* (The T-shirt wash.PAST.NACT.3S …by...)
ACT (Ergative – Transitive) (n = 28)	Animate (n = 14)	Present (n = 7)	*To pedi klini...apo...* (The kid close.PRES.ACT.3S …by...)
		Past (n = 7)	*I mama eklise ...apo...* (Mum close.PAST.ACT.3S …by...)
	Inanimate (n = 14)	Present (n = 7)	*I porta klini…apo…* (The door close.PRES.ACT.3S…by...)
		Past (n = 7)	*To parathiro eklise... apo...* (The window close.PAST.ACT.3S …by...)
(ACT/NACT) alternation ACT (n = 28)	Animate (n = 14)	Present (n = 7)	*Ta koritsia katharizun...apo...* (The girls clean.PRES.ACT.3P…by...)
		Past (n = 7)	*Ta pedia katharisan...apo...* (The kids clean.PAST.ACT.3P …by...)
	Inanimate (n=14)	Present (n = 7)	*I lekedes katharizun…apo…* (The stamps clean.PRES.ACT.3P…by...)
		Past (n = 7)	*O lekes katharise...apo...* (The stamp clean.PAST.ACT-3S …by...)
(ACT/NACT) alternation NACT (n = 28)	Animate (n = 14)	Present (n = 7)	*Ta pedia katharizode...apo…* (The kids clean.PRES.NACT.3P …by...)
		Past (n = 7)	*Ta koritsia katharistikan..apo…* (The girls clean.PAST.NACT.3P…by...)
	Inanimate (n = 14)	Present (n = 7)	*O lekes katharizete...apo…* (The stamp clean.PRES.NACT.3S…by...)
		Past (n = 7)	*To trapezi katharistike...apo…* (The table clean.PAST.NACT.3S …by...)