

# Structuring Participles

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## 1. Aims and goals

In this paper we discuss three types of adjectival participles in Greek, ending in *-tos* and *-menos*, and provide a further argument for the view that finer distinctions are necessary in the domain of participles (Kratzer 2001, Embick 2004). We further compare Greek stative participles to their German (and English) counterparts. We propose that a number of semantic as well as syntactic differences shown by these derive from differences in their respective morpho-syntactic composition.

## 2. Two adjective like constructions

### 2.1 *-tos* and *-menos* participles

Next to pure adjectives, Greek has two further constructions that can be used in an adjectival function: the participle in *-menos* and what traditional grammars call the verbal adjective in *-tos*. Here we refer to them as *-menos* and *-tos* participles:<sup>1</sup>

(1)	a.	vraz-o	vras-men-os	vras-t-os	'boiled'
	b.	psin-o	psi-men-os	psi-t-os	'grilled'
	c.	zograf-	zografis-men-os	zografis-t-os	'painted'
	d.	anig-o	anig-men-os	anix-t-os	'opened', 'open'

In some cases, the *-tos* form exists only if prefixed by *a-* that signals negation:

(2)	a.	gra-menos	written	b.	a-graf-tos	(grap-tos)
					unwritten	
(3)	a.	pli-menos	washed	b.	a-pli-tos	(*pli-tos)
					unwashed	
(4)	a.	diavas-menos	read	b.	a-diavas-tos	(*diavas-tos)
					unread	

In general, *a-* can only be attached to the *-tos* form:<sup>2</sup>

(5)	*adiavasmenos	'a-read'	(6)	*aplimenos	'a-washed'
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It has been claimed that these two forms have the same meaning and that they are just like adjectives: they both refer to states (see for instance, Moser 1994). To begin with, they seem to have a similar function to adjectives, i.e. they appear in attributive and predicative positions just like other adjectives:

(7)	a.	to anihto parathiro
		the open window

<sup>1</sup> Note that we use the masculine ending here. Both participles inflect like adjectives and they always agree with the noun they accompany in number, gender and case.

<sup>2</sup> See Kratzer (1994, 2001) for discussion of *un-*prefixation of participles in English and German, and Anagnostopoulou (2003) for a comparison between the Greek negation pattern and negated participles in English and German.

- b. to anigmeno parathiro  
the opened window
- (8) a. to parathiro ine anihto  
the windos is open
- b. to parathiro ine anigmeno  
the window is opened
- (9) a. to kokino forema  
the red dress
- b. to forema ine kokino  
the dress is red

## 2.2 Some differences between the two forms

There are, however, a number of semantic and syntactic differences between the two constructions, which have been discussed in the literature and which point to a non-uniform treatment of the two participles (see Markantonatou et al. 1997, Georgala 2000, Kordoni 2002, Alexiadou, Anagnostopoulou & Stavrou 2000, Anagnostopoulou 2003).

First, note that the two forms differ in interpretation as is made clear by the contrast in (10) and (11). In (10) the participle is interpreted as a state resulting from a prior event while in (11) it simply refers to an underived state.

- (10) #Afti I varka ine fusko-**meni** alla den  
this the boat is pumped but not  
tin exi fuskosi kanis akoma  
it has pumped noone yet  
This boat is pumped up but noone has pumped it up yet
- (11) Afti i varka ine fusko-**ti** alla den  
This the boat is pump-ed but not  
tin exi fuskosi kanis akoma  
it have pumped noone yet  
This boat is of the type that can be pumped up but noone has pumped it up yet

The *-menos* participle in the first conjunct of (10) denotes that the boat is in a state resulting from a pumping event. Negating this event in the second conjunct of (10) results in a contradiction. On the other hand, the *-tos* participle in (11) does not entail the existence of a prior event. Therefore, the negation of the event in the second conjunct does not lead to a contradiction.

Second, change of state verbs like the unaccusative *ginome* 'become' and transitive verbs of creation *kano*, *ftiaxno* 'make' only take *-tos* participles as their complements:

- (12) a. To kotopoulo egine vras-**to**  
The chicken became boiled  
'The chicken was made boiled'
- b. Ekana/ eftiaksa to kotopoulo vras-**to**  
Did-1sg/made-1sg the chicken boiled  
'I made the chicken boiled'
- (13) a. \*To kotopoulo egine vras-**meno**  
The chicken became boiled
- b. \*Ekana/ eftiaksa to kotopoulo vras-**meno**  
Did-1sg/ made-1sg the chicken boiled

The contrast between (12) and (13) suggests that these verbs select for underived states, not states resulting from prior events.

Third, the *-menos* participle can be modified by manner adverbs, the *-tos* one cannot:<sup>3</sup>

- (14) Ta malia ine atsala htenismena  
 The hair are sloppily combed
- (15) \*Ta malia ine atsala ahtenista  
 The hair is sloppily uncombed

The *-menos* participle licenses instrumental PPs, the *-tos* participle doesn't:

- (16) a. Ta malia tis basilisas ine xtenismena me xrisi xtena  
 The hair the queen-GEN are combed with golden comb  
 The hair of the queen is combed with a golden comb
- b. \*Ta malia ine ahtenista me hrisi htena  
 the hair is uncombed with golden comb

Fourth, *-menos* participles can license *by*-phrases and control into purpose clauses, *-tos* ones cannot (see also Lascaratou 1991):

- (17) a. Ta keftedakia ine tiganis-men-a apo tin Maria  
 The meatballs are fried by the Mary  
 The meatballs are fried by Mary
- b. Aftos o pinakas ine zografismenos apo mia  
 This the painting is painted by a  
 omadha aktiviston gia na sokarun tus anthropus  
 group activists-GEN for to shock-pl the people  
 This painting is painted by a group of activists in order to shock the people
- (18) a. \*Ta keftedakia ine tigan-ita apo tin Maria  
 The meatballs are fried by the Mary
- b. \*Aftos o pinakas ine zografistos apo mia  
 This the painting is painted by a  
 omadha aktiviston gia na sokarun tus anthropus  
 group activists-GEN for to shock-pl the people  
 This painting is painted by a group of activists in order to shock the people

Finally, not all verbs seem to be able to form *-tos* participles, while they all form *-menos* participles:<sup>4</sup>

<sup>3</sup> This is reminiscent of the German participles described in Kratzer (1994). See Anagnostopoulou (2003) for a detailed comparison between Greek and German.

- (i) a. Das Haar war ziemlich schlampig gekämmt  
 The hair was rather sloppily combed  
 The hair was rather sloppily combed
- b. \*Das Haar war hässlich ungekämmt  
 The hair was ugly uncombed  
 \*The hair was ugly uncombed
- c. \*Das Haar war ziemlich schlampig fettig  
 The hair was rather sloppily greasy  
 \*The hair was rather sloppily greasy

Actually there are two types of manner adverbials: manner adverbs that modify the visible result such as *schlampig* 'sloppily', and manner adverbs that modify the initiator of the action such as *vorsichtig* 'carefully'. Only the former are licensed in German participles, while both are licensed in Greek participles for reasons that we will come back to (see Anagnostopoulou 2003 for discussion).

<sup>4</sup> Activities only marginally form *-menos* participles in Greek, similarly to German. Stative verbs do not form any participles at all, or only *-tos* participles (see Anagnostopoulou 2003). Kratzer (1994, 2001) suggests that these restrictions are due to the semantics of participles. Note that taking the classification of alternating verbs into the

(19)	√KATASTREF-	katestramenos	*katastrep-t-os
	destroy-	destroyed	
	√DOLOF-	dolofonimenos	*dolofonitos
	murder	murdered	
	√ANTH	anthismenos	*anthistos
	blossom	blossomed	
	√ASPR	aspismenos	*aspristos
	white	whitened	

### 3. Two types of *-menos* participles

Kratzer (2001) argues that participles denoting states resulting from prior events do not form a homogeneous class from a semantic point of view. They are divided into two subclasses: *target* and *resultant* state participles (Parsons 1990: 234-235). The former describe states that are in principle reversible; the latter introduce states that hold forever after the event that brings them about. The adverbial *immer noch* 'still' modifies reversible states and is compatible only with target state participles:

(20)	a.	Die	Geisslein	sind	immer noch	versteckt
		The	little goats	are	still	hidden
	b.	Die	Reifen	sind	immer noch	aufgepumpt
		The	tires	are	still	pumped up
(21)	a.	<i>Das</i>	<i>Theorem</i>	<i>ist</i>	(* <i>immer noch</i> )	<i>bewiesen</i>
		The	theorem	is	(*still)	proven
	b.	<i>Der</i>	<i>Kinder</i>	<i>sind</i>	(* <i>immer noch</i> )	<i>gewaschen</i>
		The	children	are	(*still)	washed

Anagnostopoulou (2003), following Kratzer (2001), points out that *-menos* participles can denote both target and resultant states. Target state participles in (22) are compatible with the adverbial *akoma* 'still', while resultant state participles in (23) are incompatible with it:

(22)	a.	<i>Ta</i>	<i>pedhia ine</i>	<i>akoma</i>	<i>krimena</i>
		The	children are	still	hidden
	b.	<i>Ta</i>	<i>lasticha</i>	<i>ine</i>	<i>akoma</i>
		The	tires	are	still
					<i>fuskomena</i>
					pumped up
(23)	a.	<i>To</i>	<i>theorima</i>	<i>ine</i>	(* <i>akoma</i> )
		The	theorem	is	(still)
					proven
	b.	<i>Ta</i>	<i>ruxa</i>	<i>ine</i>	(* <i>akoma</i> )
		The	clothes	are	(still)
					dried

Target state *-menos* participles do not license agent and instrument PPs and agentive adverbials. As (24) shows, *by*-phrases and instrument phrases are incompatible with *akoma* 'still':

(24)	a.	<i>Ta</i>	<i>lastixa ine</i>	(* <i>akoma</i> )	<i>fuskomena</i>	<i>apo</i>	<i>tin</i>	<i>Maria</i>
		The	tires are	(still)	inflated	by	the	Mary
			The tires are still inflated by Mary					

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categories in (i) (Alexiadou, Anagnostopoulou & Schäfer 2006), only cause unspecified roots seem to be able to produce both participle types. De-adjectival verbs tend not to produce *-tos* participles:

- (i)
- √agentive (murder, assassinate)
  - √internally caused (blossom, wilt)
  - √externally caused (destroy, kill)
  - √cause unspecified (break, open)

- b. Ta lastixa ine (\*akoma) fuskomena me tin tromba  
 The tires are (still) inflated with the pump  
 The tires are still inflated with the pump

Concerning modification by manner adverbials, we can observe that manner adverbs that modify the visible result of an event such as *schlampig* ‘sloppily’ (result-oriented) are compatible with *akoma* (26), while manner adverbs that modify the initiator of the action such as *vorsichtig* ‘carefully’ (agent-oriented) are not (25). Thus there are two types of manner adverbs which we take to attach to distinct projections (see footnote 3 above and the discussion in section 4): Voice modifiers (i.e. agent-oriented adverbs) and v modifiers (i.e. result-oriented adverbs):<sup>5</sup>

- (25) To thisavrofilakio itan (\*akoma) prosektika anigmeno  
 The safe was (still) cautiously opened  
 The safe was still cautiously opened’
- (26) Ta malia mu ine (akoma) atsala xtenismena  
 The hair my is still sloppily combed  
 My hair is still sloppily combed

#### 4. Structuring participles

We have identified **three types** of participles which seem to be in a subset relationship to one another: (I) *-tos* participles which involve no implication of an event (no result-oriented modification, lack of contradictions in context (11), licit as complements of *become; make*), lack agentivity (as they do not tolerate agent-oriented modification, nor by-phrases and instruments).

(II) *-menos* target state participles which include implication of an event (diagnosed by result-oriented modification, the emergence of contradiction in context (10) and the fact that they are illicit as complements of *become; make*) but lack agentivity (no agent-oriented modification, no by-phrases and instruments)

(III) *-menos* resultant state participles which include both implication of an event (as diagnosed by result-oriented modification, the emergence of contradiction in (10), and the fact that they are illicit as complements of *become; make*) and agentivity (as diagnosed by agent-oriented modification and the licensing of by-phrases and instruments).

The above distribution suggests that *-menos* participles must contain layers that bring about properties lacking from *-tos* participles, namely the **implication of an event** and that resultant state – *menos* participles bring about properties lacking from target state *-tos* participles, namely **agentivity**.

In the spirit of much recent work, a specific implementation of which was presented in Alexiadou, Anagnostopoulou & Schäfer (2006), we take properties such as agentivity and event implications to be located in functional heads, e.g. Voice and v respectively. Moreover, following Marantz (1997, 2001), we assume that one place to build words is in the domain of a root, attaching a morpheme to the root before attaching a functional head that determines the syntactic category of the word (N, V, Adj). A second place to build words is outside the domain of functional head that determines syntactic category – the little v’s, n’s, and a’s.



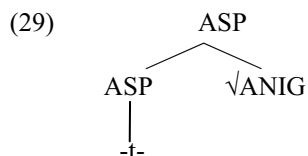
<sup>5</sup> The same distribution is found in contexts with the verb *parameno* 'remain'.

Turning to the structure of the Greek participles, we propose that a layer Asp (=stativizer) is present in the structure of all three types (cf. Anagnostopoulou 2003, Embick 2003, 2004). Where the three differ is the height of attachment of Asp, root cycle vs. outer-cycle.<sup>6</sup>

(28) [ASP Asp X] (where X = root/vP/VoiceP)

#### 4.1 Decomposition of *-t-os* participles

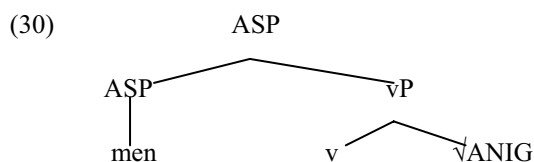
*-t-* is a realization of ASP. Since *-tos* participles lack agentivity and event implications, we take it that they involve root attachment of Asp:



On this view, *-tos* participles have a structure similar to ‘adjectives’. A question we leave here open for further research is how different these participles are from adjectives such as *red* or *big*.

#### 4.2 Decomposition of *-men-os* participles

We propose that *-men-* is also an exponent of Asp.<sup>7</sup> As we have identified two types of *-men-os* participles, we will propose that these differ as far as the layers below Asp are concerned. Let us begin with target states in *-menos*. In view of the fact that these contain event implications, they must contain v:



Further supportive evidence for the presence of v within target state participles in Greek comes from the following observations. As mentioned above, there are different types of manner adverbs: those that modify the initiator of an event, and those that modify the result state. Taking adverbs to be licensed by functional heads only, we take result state manner adverbs to modify v, while initiator related manner adverbs modify Voice. As already mentioned, only the former are present within target states in Greek:

- (31)
- |    |                   |       |            |            |
|----|-------------------|-------|------------|------------|
| a. | Ta mallia mu ine  | akoma | atsala     | htenismena |
|    | The hair my are   | still | sloppily   | combed     |
| b. | *Ta mallia mu ine | akoma | prosektika | htenismena |
|    | The hair my are   | still | sloppily   | combed     |

Moreover, the morphological decomposition of Greek verbs containing *-iz-* and other such affixes suggests that a further head is present in these structures:

<sup>6</sup> Kratzer (2001) presents arguments that the target state operator has different semantics from the resultant state one; see the discussion in section 5.

<sup>7</sup> It could be argued that *men* is a Voice marker (not a stativizer), as this is the affix used in Classical Greek for the formation of the middle and passive participle which had different aspects. However, *-men-* cannot be argued to spell-out agentive voice with target state participles. Moreover, internally caused verbs that never combine with Voice can form *-menos* participles.

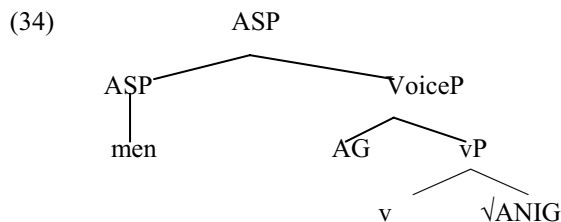
- (32)
- |             |           |                  |               |          |             |
|-------------|-----------|------------------|---------------|----------|-------------|
| aspr-iz-o   | 'whiten'  | aspr-iz-men-os   | aspr-os/i/o   | 'white'  | <b>*tos</b> |
| kokin-iz-o  | 'reddden' | kokin-iz-men-os  | kokin-os/i/o  | 'red'    | <b>*tos</b> |
| mavr-iz-o   | 'blacken' | mavr-iz-men-os   | mavr-os/i/o   | 'black'  | <b>*tos</b> |
| kitrin-iz-o | 'yellow'  | kitrin-iz-men-os | kitrin-os/i/o | 'yellow' | <b>*tos</b> |

Alexiadou (2001, to appear) proposed that *-iz* is an overt reflex of a *v* head, a head that verbalizes roots and introduces eventivity.

Finally, most internally caused verbs e.g. *anth-iz-o* 'blossom', *sap-iz-o* 'rot' can form *-menos* participles. These have been argued to never combine with Voice but to contain *v* (Alexiadou, Anagnostopoulou & Schäfer 2006):

- (33)
- |    |                 |                |
|----|-----------------|----------------|
| a. | i kerasia       | ine anthismeni |
|    | the cherry tree | is blossomed   |
| b. | to sidero       | ine sapismeno  |
|    | the iron        | is rotten      |

Turning to resultant state participles *-menos* participles, these do not only contain event implications, but also agentivity. Hence they may contain VoiceP in addition to *vP*. Voice licenses agent-PPs, instrument-PPs and agent-oriented adverbs like *prosektika* 'carefully'.



## 5. Differences between Greek and English/German resultant state participles

While target state participles seem to behave alike in Greek and German/English, Greek resultant state *menos* participles crucially differ from their counterparts in English and German (see Kordoni 2002, Anagnostopoulou 2003).

To begin with, agent PPs and control into purpose clauses are not licensed with participles in these two languages but they are in Greek:

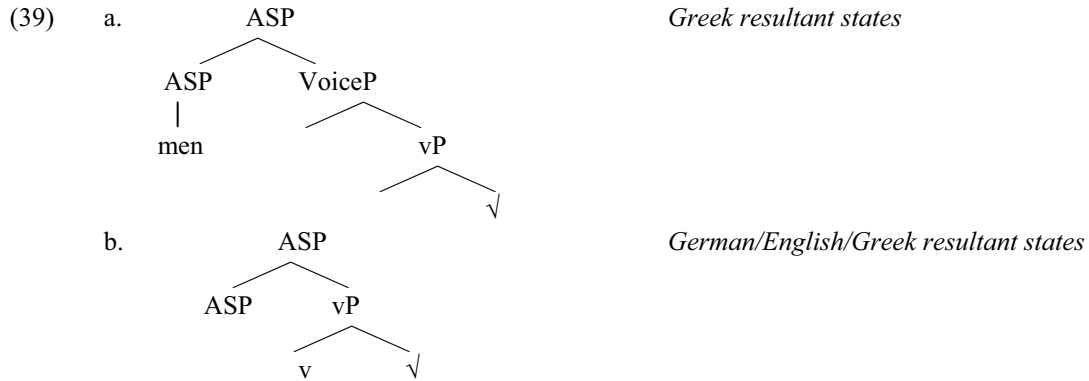
- (35) The metal is hammered by John *only eventive passive*
- (36) a. \*Der Fisch war von Maria gebraten  
The fish was by Mary fried  
The fish was fried by Mary
- b. \*Die Tür war von den Polizisten geöffnet  
The door was by the policemen opened  
The door was opened by the policemen
- (37) Das Kind ist schlampig gekämmt  
The child is sloppily combed  
(\*um die Großmutter zu schockieren)  
(in order the grandmother to shock)  
The child is sloppily combed in order to shock the grandmother

Second, adverbs that are sensitive to the presence of Voice (agentive features) can be licensed in Greek *-menos* participles, but not in their German/English counterparts:

- (38) \*Ihre Haare sind mit einem goldenen Kamm gekämmt  
 Her hair are with a golden comb combed  
 Her hair is combed with a golden comb

The participles in both languages license result state manner adverbs.

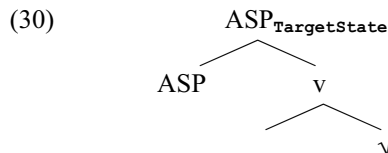
The above contrasts suggest that the structure of Greek participles may differ from their English and German counterparts. Arguably, this relates to the presence vs. absence of Voice and can be represented by the structures in (39):



Note that this does not mean that Greek resultant states always contain Voice. They may contain Voice. Unaccusative verbs that can be independently argued to lack Voice may form resultant state participles:

- (40) To grammatokibotio ine (\*akoma) adiasmemo  
 The mailbox is still empty

We suspect that ‘adiasmemo’ lacks Voice because ‘adiazo’ cannot form the mediopassive – \*adiastike- i.e. it lacks morphology associated to Voice (Alexiadou & Anagnostopoulou 2004). Moreover, as already mentioned, Greek and German target states behave alike, and arguably the structure in (30) is involved in both.



Here a problem arises, as in this system we have no way to express the difference between resultant and target states. (30) is identical to (39b). So what is responsible for the difference between target states and resultant states within a language and across languages?

In principle, there are three options to consider. We could assume that the difference between resultant and target states is localized in the semantics of the roots. Alternatively we could suggest that both in Greek and German target states lack functional layers (see Anagnostopoulou 2003). On this view, (29) would correspond to the structure of target states across languages. This is possible in a system in which roots contain event variables, which would then explain why target states participles differ from the pure stative participles in *tos*, but is incompatible with the assumptions made in this paper. Crucially, this would make *tos* participles identical to *menos* target state participles, contrary to fact (and of course would create a problem with the morphological decomposition of Greek verbs, as suggested earlier).



The third option would be to accept that (30) and (39b) correspond to the structure of target and resultant states respectively, i.e. suggest that resultant state participles can have the same structure as target state participles when they lack Voice, and propose that the difference is related to the semantics of Asp, in other words the semantics of Asp<sub>ResultantState</sub> differ from those of Asp<sub>TargetState</sub>.

We opt for option (iii) and we propose that the resultant state (RS) operator is different from the Target State operator, although they may both be realized by the same morpheme. Both may attach to vP and the semantic differences between the two result from the semantics of the two operators in question (in combination with particular types of Roots). In addition, the Asp<sub>ResultantState</sub> (but not the Asp<sub>TargetState</sub>) may attach to Voice.

Building on von Stechow (2002), we take the RS operator to be in principle able to stativize a phrase that contains an external argument. In German this happens in the Present Perfect which denotes the Perfect of Result. In Greek this is systematically expressed in the adjectival passive construction, which has a meaning rather close to that of the Perfect of Result.

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