On the syntax and morphology of Greek participles

Artemis Alexiadou (University of Stuttgart) & Elena Anagnostopoulou (University of Crete)

artemis@ifla.uni-stuttgart.de, elena@phl.uoc.gr

1. The problem

- We examine the properties of Greek participles ending in -tos and –menos.
- 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 ‘underived 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:

(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. skal- skalis-me-nos skalis-t-os “carved”
e. graf- gram-men-os grap-t-os “written”
f. anig- anig-men-os anix-t-os “opened”, “open”
g. klin- klis-men-os klis-t-os “closed”,

In some cases, the –tos form exists only if suffixed 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
(5) a. fago-menos eaten b. a-fago-tos (*fago-tos)
uneaten

In general, a- can only be attached to -tos form:¹

(6) *adiavasmeno *aplimento
a- read a-washed

It has been claimed that these two have the same meaning and that they are just like adjectives: they both refer to states (see for instance, Mozer 1994).

¹ See Kratzer (1994; 2001) for discussion of un-prefixation of participles in English and German, and Anagnostopoulou (2003) for a comparison between the Greek pattern in (6) and negated participles in English and German.
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 parathiro ine aniko  
      the window is open  
  b. to parathiro ine anigmeno  
      the window is opened  

(8)  
  a. to aniko parathiro  
      the open window  
  b. to anigmeno parathiro  
      the opened window  

(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

It has been shown by several people that the two forms differ (Markantonatou et al. 1996, Georgala 2001, Kordoni 2002, Alexiadou, Anagnostopoulou & Stavrou 2000, Anagnostopoulou 2003):

- There are semantic and syntactic differences between the two constructions (based on Anagnostopoulou 2003):

I. Difference in interpretation:

(10) To parathiro ine anikto (characteristic state)  
    the window is open  
(11) To parathiro ine diaplasa anigmeno  
    the window is wide open  
    (state as result of the action denoted by the verb)

In (11) the participle is interpreted as a state resulting from a prior event while in (10) it simply refers to an underived state.

(12)  
  a. #Afti i varka ine fusko-meni alla den  
      This the boat is pumped but not  
      tin exi fusko-ki kanis akoma  
      it has pumped noone yet  
      'This boat is pumped up but noone has pumped it up yet'  
  b. Afti i varka ine fusko-ti alla den  
      This the boat is pump-ed but not  
      tin exi fusko-ki 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 (12a) denotes that the boat is in a state resulting from a pumping event. Negating this event in the second conjunct of (12a) results in a contradiction. On the other hand, the -tos participle in (12b) 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.

II. Distributional differences: change of state verbs like the unaccusative ginome 'become' and transitive verbs of creation kano, fitaxno 'make' only take -tos participles as their complements:

(13) 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'

(14) 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 (13) and (14) suggests that these verbs select for underived states, not states resulting from prior events.

III. Adverbial modification: the -menos participle can be modified by manner adverbs, the -tos one cannot:

(15) a. Ta malia ine atsala htenismena
   The hair are sloppily combed

---

2 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 schlampigfettig
   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).
b. *Ta malia ine atsalala ahtenista
   The hair is sloppily uncombed

The -menos participle licenses instrumental PPs, the –tos participle doesn’t:

(16) a. Ta malia tis basilisas ine xtenismen a 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

IV. -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’

V. There is a difference in 'productivity': not all eventive roots seem to be able to form -tos participles, while all eventive ones form -menos participles:³

(19) √KATASTREF- destroyed katestramenos *katastrept-os
    √DOLOF- murdered dolofonimenos *dolofonitos
    √PRASIN green prasinismenos *prasinistos
    √ASPR white asprismenos *aspristos
    √DIAVAZ- read diavasmenos *diavastos

³ 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). As discussed in Kratzer (1994, 2001), these restrictions are due to the semantics of participles.
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)  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Die Geisslein sind immer noch versteckt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Die Reifen sind immer noch aufgepumpt</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Resultant state participles do not tolerate immer noch:

(21)  

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Das Theorem ist (*immer noch) bewiesen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Der Kinder sind (*immer noch) gewaschen</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Anagnostopoulou (2003), following Kratzer (2001), points out that -menos participles can denote 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.  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta pedhia ine akoma krimena</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The children are still hidden</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b.  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta lasticha ine akoma fuskomena</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The tires are still pumped up</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(23) a.  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>To theorima ine (*akoma) apodedigmeno</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The theorem is (still) proven</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b.  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta ruxa ine (*akoma) stegnomena</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The clothes are (still) dried</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Target state -menos participles do not license agent and instrument PPs and agentive adverbials:

(a) By-phrases and instrument phrases are incompatible with akoma ‘still’:

(24) a.  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ta lastixa ine (*akoma) fuskomena apo tin Maria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The tires are (still) inflated by the Mary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

‘The tires are still inflated by Mary’
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’

(b) There are two types of manner adverbials (see also fn. 2 above):

(i) manner adverbs that modify the visible result of an event such as schlampig ‘sloppily’ (result-oriented) and
(ii) manner adverbs that modify the initiator of the action such as vorsichtig ‘carefully’ (agent-oriented).

Voice (i.e. agent-oriented) modifiers are incompatible with akoma (25), while adverbs denoting the visible result (result-oriented) are compatible with it (26):⁴

(25) To thisavrofilakioitan (*akoma) prosektika anigmeno
The safe was (still) cautiously opened
‘The safe was still cautiously opened’

(26) Ta malia mu ine (akoma) atsala xtenisma
The hair my is still sloppily combed
‘My hair is still sloppily combed’

4. Structuring participles

We have identified three types of participles:

(I) -tos participles:
- no implication of an event (no result-oriented modification, lack of contradictions in context (12), licit as complements of become; make)
- no agentivity (no agent-oriented modification, no by-phrases and instruments)

(II) -menos target state participles:
- implication of an event (diagnosed by result-oriented modification, emergence of contradiction in context (12), illicit as complements of become; make)
- no agentivity (no agent-oriented modification, no by-phrases and instruments)

(III) -menos resultant state participles:
- implication of an event (diagnosed by result-oriented modification, emergence of contradiction in (12), illicit as complements of become; make)
- agentivity (diagnosed by agent-oriented modification, by-phrases and instruments)

⁴ The same distribution is found in contexts with the verb parameno 'remain'.

6
In terms of functional layers the above distribution suggests, that -menos participles must contain layers that bring about properties that are lacking from -tos participles, namely the **implication of an event** and that resultant state –menos participles bring about properties that are lacking from target state –tos participles, namely **agentivity**.

Following much of the recent literature, we take properties such as agentivity and event implications to be located in functional heads, e.g. v and/or Voice.

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.

(27) root-cycle

<table>
<thead>
<tr>
<th>morpheme</th>
<th>root</th>
<th>outer-cycle attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td>morpheme</td>
<td>functional head</td>
<td>… root…</td>
</tr>
</tbody>
</table>

- Turning to the structure of the Greek participles:

We propose that a layer Asp (or stativizer) is present in the structure of all three types (cf. Anagnostopoulou 2003, Embick 2003). Where the three differ is the height of attachment of Asp, root cycle, vs. outer-cycle.\(^5\)

(28) ASP

ASP ⎮ XP (where X = root or vP or Voice)

4.1 Decomposition of -tos participles

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

(29) ASP

ASP ⎮ √ANIG

-t-

On this view, -tos participles have a structure similar to ‘adjectives’.

- Are there any differences between -tos and 'underived' adjectives?

First, as already shown, they have similar functions and appear in similar positions:

\(^5\) At this point, we remain agnostic as to whether the stativizer has different semantics in each construction (see Kratzer 2001 for arguments that the target state operator has different semantics than the resultant state one).
To kotopoulo egine vras-to
The chicken became boiled
'The chicken was made boiled'

Ekana/ eftiaksa to kotopoulo vras-to
Did-1sg/made-1sg the chicken boiled
'I made the chicken boiled'

Second, many adjectives can take the negative prefix a- exactly like the -tos formations:

a. kakos 'bad' a-kakos 'neg-bad'
dikeos 'just' a-dikos 'neg-just'
glikos 'sweet' a-glikos 'neg-sweet'
b. a-graftos a-plitos a-ksiristos
neg-written neg-washed neg-shaven

In principle we could adopt the structure in (33) for both:

(33) ASP
    ASP √ANIG
    -t-Ø √KOKIN

The difference between 'underived' adjectives and -tos adjectives could be one at the level of allomorphy, i.e. -t- is an ASP exponent that appears with particular types/lists of roots, while Ø appears together with a different list of roots.6

a. aspr-iz-o 'whiten' aspr-iz-men-os aspr-os/i/o 'white' *tos
    kokin-iz-o 'redden' kokin-iz-men-os kokin-os/i/o 'red' *tos
    mavr-iz-o 'blacken' mavr-iz-men-os mavr-os/i/o 'black' *tos
    kitrin-iz-o 'yellow' kitrin-iz-men-os kitrin-os/i/o 'yellow' *tos
    prasin-iz-o 'green' prasin-iz-men-os prasin-os/i/o 'green' *tos
    kathar-iz-o 'clean' kathar-iz-men-os kathar-os/i/o 'clean' *tos
    megal-on-o 'grow' megal-o-men-os megalos 'big' *tos

- Blocking!

6 See Embick (2003) for further discussion of the idea that exponents make reference to particular lists.
(35) Spell-out of ASP: Root Cycle

\[
\begin{align*}
\text{ASP} & \leftrightarrow -\varnothing/\{\sqrt{\text{KOKIN/RED}}, \sqrt{\text{KATHAR/CLEAN}}/\ldots\} \\
\text{ASP} & \leftrightarrow -\upsilon/\{\sqrt{\text{ANIG/OPEN}}, \sqrt{\text{KLIN/CLOSE}}, \sqrt{\text{VRAZ/BOIL}}/\ldots\}
\end{align*}
\]

Alternatively, it can be assumed that there is a difference as far as the encyclopedic meaning of the root is concerned: \(\sqrt{\text{KOKIN}}\) type roots can be classified as states, while this is not the case with roots like \(\sqrt{\text{VRAZ}}\): they become stative in the presence of ASP. If this is correct, then ASP is not really necessary with the former.

- What about the other cases of roots such as \(\sqrt{\text{KATASTREF}}\)\,-DESTROY and \(\sqrt{\text{DOLOFON}}\)\,-MURDER/ that cannot form a -tos participle?

Such roots necessarily require the presence of Voice (as they are agentive/externally caused, Anagnostopoulou 2003; Alexiadou, Anagnostopoulou & Schäfer 2005). Hence it is expected that -tos cannot appear with them.

- Internally caused roots do not seem to produce good -tos formations either:

(36) *sapistos rotted *adinatistos thin

Such formations are blocked once again by the presence of an adjective. 

(37) sapios 'rotten' adinatos 'thin'

4.2 Decomposition of –men-os participles

(38) a. anig- anig-men-os “opened”, “open”
b. klin- klin-men-os “closed”, “close”

---

7 Note there are certain complications. The analysis in the text suggests that –tos attaches only low. But, roots such as \(\sqrt{\text{KOKIN}}\)\,-RED, \(\sqrt{\text{KATHAR}}\)\,-CLEAN as well as many others can form participles ending in –tos that contain a morpheme signaling the presence of a v head; sometimes this is observed only in the negated counterpart:

(i) kokin-os kokin-is-t-os ‘red’
(ii) kathar-os a-kathar-t-os a-kathar-is-t-os ‘clean’ ‘un-clean’

If, as we do in 4.2, we take –is/z as an instantiation of v, (i-ii) suggest that probably –tos, like –menos, can attach high or low, and that it is because of the semantics of the stativizer which is interpreted as generic that we do not get an event implication and hence the licensing of adverbs. The issue awaits further research.

8 -tos participles do not sound very good after remain and look:

(i) a. *to trapezi parameni skalisto the table remains carved
b. *to kotopulo miazis psito the chicken looks grilled

There seems to exist another difference between adjectives and –tos participles. This has to do with the fact that –tos constructions seem to resist comparative formation *pio vrasto, ‘more boiled’ *ligoto vrasto ‘less boiled’, suggesting that these are non-gradable.
-men- is in Asp.\(^9\)

I. target states:

In view of the fact that -menos target state participles contain event implications, they must contain \(v\):

\[(39)\]

Further supportive evidence for the presence of \(v\) within target state participles in Greek:

(i) the morphological decomposition of Greek verbs containing –iz- suggests that a further head is present in these structures:

\[(40)\]

Alexiadou (2001) proposed that -iz is an overt reflex of an eventive \(v\).

(ii) 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, this suggests that result states manner adverbs modify \(v\), while initiator related manner adverbs modify Voice. Only the former are present within target states in Greek:

\[(41)\]

(iii) 'verbs' that do not have transitive counterparts e.g. anti-iz-o 'blossom', sap-iz-o 'rot' can form -menos participles. These are derived from internally caused roots and have been argued to never combine with Voice (Alexiadou, Anagnostopoulou & Schäfer 2005):

\[(42)\]

---

\(^9\) It could be argued that men is a v/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, see (42).
II. resultant states:

Resultant states do not only contain event implications, but also agentivity. Hence they must contain VoiceP in addition to vP. Voice licenses agent-PPs, instrument-PPs and agent-oriented adverbs like *prosektika* ‘carefully’.

-men- is in Asp:

(43)

```
ASP
   VoiceP
men  AG  vP
   v  √ANIG
```

(44) a. Spell-out of ASP: Root Cycle

```
ASP ↔ -t/...{√ANIG/OPEN, √KLIN/CLOSE/, √VRAZ/BOIL/...}
```

b. Spell-out of ASP: Outer-cycle

```
ASP ↔ men
```

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

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

I. Agent PPs and control into purpose clauses are not licensed with participles in these two language but they are in Greek:

(45) The metal is hammered by John only eventive passive

(46) 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’
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’

II. Adverbial modification: adverbs that are sensitive to the presence of Voice (agentive features) can be licensed in Greek -menos participles, but not in German/English:

(48) Ihre Haare sind mit einem goldenen Kamm gekämmt
Her hair are with a golden comb combed
‘Her hair is combed with a golden comb’

Both languages license result state manner adverbs.

- The above contrasts suggest that the structure of Greek participles differs from their English and German counterparts.
- Arguably, this relates to the presence vs. absence of Voice.

(49) a. ASP
    ASP | VoiceP
       men vP

b. ASP
    ASP vP

Greek resultant states

German resultant states

Problem: this would suggest that the structure of German resultant state participles is identical to the structure of Greek target states participles. However, target state participles do not differ, i.e. they behave alike in these two languages.

In principle, there are two options to account for this:

(i) assume that in German the difference between resultant states and target states is localized in the semantics of the roots.
Or (ii) suggest that both in Greek and German target states lack functional layers (see Anagnostopoulou 2003), which would create a problem with the morphological decomposition of the Greek participles, i.e. the assumption that –iz- is located in v.

6. Remaining questions

- What are the exact restrictions on the -tos formation?

Hard to answer.

- What is the difference between -menos constructions and the verbal passives?

Anagnostopoulou (2003): 'Greek adjectival participles differ from verbal synthetic passives only with respect to eventiveness/stativity and not with respect to the presence / absence of an implicit external argument'.

For several researchers, the interpretation of the BE + Participle construction comes close to that of the HAVE+ Pass. Participle yielding the interpretation of the passive perfect, Perfect of Result:

(50) a. To gramá ehi grafiti
    the letter has been written
b. To grammá ine grameno
    The letter is written

Further research is necessary in order to determine the differences and the similarities between the two constructions.

References
Borer, Ht. 2001. Exo-skeletal vs. endo-skeletal explanations: the projection of arguments and the lexicon. Ms. USC.
Georgala, E. 2001. The translational correspondence between the Modern Greek formations ending in –tos and –menos and their equivalent forms in German. Ms. Institute for Natural Language Processing of the University of Stuttgart.

Marantz, A. 2001. "Words and Things". handout, MIT.
