Two puzzles with agentive nominalizations

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Abstract

This paper discusses two puzzles with agentive nominalizations. The first one concerns certain restrictions in the formation of agentive nominalizations derived from change of state verbs in Greek. The second one relates to gradience: according to Baker & Vinokurova (2009), cross-linguistically we do not find an agent-denoting construction that has a mixture of verbal and nominal properties, while we do find event-denoting constructions that display such mixed properties. I will focus here on the first puzzle, which I will discuss in the context of what we know about the causative alternation. With respect to the second puzzle, building on the results of the discussion of the first one, I will show that there is indeed some variation and then explore the question why the individual/entity denoting nominalizations seem to behave differently from eventive ones.

Keywords: agentive nominalization, instrumental nominalization, Greek, causative alternation, change of state verbs

1. Introduction

In this contribution, I will discuss two puzzles surrounding the formation of agentive nominalizations. The first puzzle is observed in the derivation of agentive nominalizations from change of state verbs and will constitute the bulk of my discussion. The observation is the following: in Greek several change of state verbs cannot form the counterpart of an English agentive -er nominal, i.e., a nominal having the interpretation the one who Vs, while they can form an instrumental nominal or a nominal bearing an idiomatic reading. (1) illustrates the readings available with nominalizations of Greek verbs of change of state, while (2) shows that their English counterparts under an agentive reading are attested. As we can see, the forms in (1b-c) are attested in instrumental readings, meaning collar and a device that tears wood apart respectively, a point I will discuss in detail in section 2.3. The verb in (1a) can form a feminine instrumental nominalization:

(1) a. skotono ‘kill’ *skototis ‘killer’

ok skotostra ‘dangerous road, car or engine’

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b. *pnigo ‘drown’ pnihtis ‘*person who, drowner’
   ok ‘instrument that drowns’

c. *shizo ‘tear’ shistis ‘* person who tears’
   ok ‘tool that tears’ (Zombolou 2004: 125)

(2) a. they implied that we knew the killer's name and let him roam free
   https://www.english-corpora.org/coca/, MAG: Vanity Fair
b. The near drowner was an elderly man with a thick fringe of gray
   beard
   https://www.english-corpora.org/coca/, FIC: Sadar's Keep
c. The ticket tearer smiles and talks about how he hopes I have a
   good time
   https://www.english-corpora.org/coca/, NEWS: Atlanta Journal
   Constitution

English change of state verbs, as shown in the examples in (3), may also form nominals
bearing an instrumental reading only, but see Ryder (1999) for some counterexamples.

(3) opener, dryer, freezer, heater

In English, as stated in Levin and Rappaport Hovav (1988: 1075), ‘‘-er nominals derived
from verbs of change of state, which have both transitive and unaccusative uses, refer to
instruments on their nonevent interpretation and are associated with the transitive and not
the unaccusative uses of the related verbs.’’ In other words, in a non-eventive construal,
which typically do not license complements, such nominals never denote the internal
argument of the change of state verb only the external one and they are associated with
the instrumental interpretation. Keyser & Roeper (1984) suggest that in English change
of state verbs can nevertheless form agentive nominals, when they appear with
complements, and we will see such examples below.

The important difference thus between English and Greek is that while in Greek
change of state verbs may yield instrumental nominalizations, as do their English
counterparts, most of them, if not all, cannot be produce agentive ones, a pattern we will
discuss in detail in the next section.

According to Levin and Rappaport Hovav (1988) and Rappaport Hovav & Levin
(1992: 132) and others following them, -er nominals obey the external argument
generalization (EAG). Importantly, according to the EAG in (4), -er nominals are derived
from verbs that have external arguments but see Lieber & Andreou (2018) for the claim
that -er nominals have a range of readings.

(4) -er nominals correspond to the external argument of the base verb,
   whatever its thematic role

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2 Note here that for (1b) we find compound forms like skilo-pnihtis ‘dog-drowner’, referring to a ship that
is in danger of sinking and liko-pnihtis ‘wolf-drowner’, referring to a particular dog breed. Unlike their
English counterparts, the Greek nouns do not denote agents, but see Ryder (1999) for similar such English
examples.
Thus, an agentive interpretation of the nominalization should always be possible if an agent theta role is available for the source verb. Somewhat differently, Borer (2013) views ER type affixes as bearing originator functions. However, for both views, the puzzle remains: why do the Greek counterparts of English -er nominals derived from change of state verbs prefer the instrumental reading and not the agentive one?

The second puzzle relates to the following claim, made in Baker & Vinokurova (2009: 542): “a language might have a true agentive nominalisation, which has no verbal properties beyond (maybe) the taking of an object. Or it might have a construction that is purely verbal other than (maybe) having a determiner and being used in an argument position - especially if the morphosyntactic trappings are similar to what one would expect a subject relative to look like in the language. Or it might have both constructions or neither. But it will not have an agent-denoting construction that has a mixture of verbal and nominal properties, even though it might have event-denoting constructions that display such mixtures.” The question they raise is why agentive nominalizations lack the gradience observed in other nominalization structures, as discussed in e.g., Alexiadou (2001), (2020), Borer (2013) and others.

The paper is structured as follows. In section 2, I first discuss agentive nominalization in Greek in comparison to English and establish the empirical picture of what is to be explained. In section 3, I turn to some previous analyses and then present my proposal. In section 4, I briefly discuss Baker & Vinokurova's puzzle. In section 5, I conclude.

2. Agentive nominals in Greek in comparison to English

In this section, I will first briefly summarize what we know about the formation of -er nominals in English and then turn to the affixes that form agentive nominals in Greek. I will look at several verb classes that have been argued to undergo the causative alternation in the language and examine whether they can produce agentive -er nominals. The reason for this is that I want to see whether the restriction is a more general pattern to be explained, affecting all verbs that undergo the causative alternation and not simply change of state verbs.

2.1 Two types of -er nominals in English

As is well known, -er in English is polysemous, characterized along the [±event] dimension, see Rappaport Hovav & Levin (1992): specifically, [+event] -er nominals are not necessarily [+agentive], they simply correspond to the external argument of the base verb irrespective of the thematic role that this verb assigns to its external argument (agent, causer, holder, experiencer, instrument, see the EAG in (4)). In the case of [-event] -er nominals, again we find both [+agentive] and [+instrumental] nouns; in this case, the nominals denote entities which are designated for some specific job or function, but which do not have to have actually been involved in such a job or function (the [-event] property), (5).
(5) a. lifesafer, fire-fighter → a person educated for a specific job, teacher
b. a grinder → a person and machine intended for grinding things
c. the destroyer → a person and/or something intended for the purposes of destroying, warship

The [+event] division has been argued by Rappaport Hovav & Levin (1992) to correlate with the availability of complement structure (CS), as follows: i) An -er nominal has a complement structure iff it has an eventive interpretation, i.e., it is [+event], but cf. Borer (2013). ii) An instrumental reading is possible only for the nominals derived from verbs for which the expression of an instrumental performing a 'subject' role is available, see also Alexiadou & Schäfer (2010). Importantly for my discussion, the instruments that yield good -er nominals are so-called intermediary instruments, i.e., they can be understood to perform the action expressed by the verb (to some extend) independently, see (6), from Levin & Rappaport Hovav (1988: 1071-1072). This property that qualifies them as subjects of these verbs (Marantz 1984, Rappaport Hovav & Levin 1992, Kamp & Rossdeutscher 1994, Alexiadou & Schäfer 2006 and references therein). They are labelled instrument causers in Kamp & Rossdeutscher (1994), and Alexiadou & Schäfer (2006):

(6) a. Doug opened the door with the new gadget.
   b. The new gadget opened the door.
   c. Bill ate the meat with a fork.
   d. *The fork ate the meat.
   e. opener *eater

Levin & Rappaport Hovav conclude that “instrumental -er nominals, refer to those instruments which can appear as subjects, precisely those instruments which there is reason to believe are external arguments.”, Levin & Rappaport Hovav (1988: 1072). However, this does not explain why change of state verbs in Greek yield instrumental nominalizations and not agentive ones if both agent and instrument are possible thematic roles for the subject of the base verb. Note that the additional qualification that it is the presence of an event construal and CS that leads to an agentive interpretation does not hold in Greek, as we will see in the next section. Hence, we cannot appeal to that either.

2.2 Agentive nominals in Greek

There are several agentive affixes in Greek. The first one is -t-isMASC, which also has a feminine form -t-r-(i)a, whereby -is and -(i)a are declension class (DC) markers. Normally, if the male agentive nominal is formed, its female counterpart can be formed as well. In (7), we see that the feminine form is more complex than the masculine one; it can thus be argued that the masculine form is the input to the feminine nominalization (Kramer 2015, Alexiadou 2017). Note also that the nominal forms contain a different verbalizer than the verb itself (7a), namely -i- in (7b-c). According to Spyropoulos et al.
(2015), this verbalizer surfaces in the perfective stem of second conjugation verbs, to which the Greek verb sing belongs. (7b-c) suggest that the nominalization is built out of the perfective stem:

(7) a. tragud-a-o  
    sing-v-1SG  
  b. tragud-i-s-t-is  
    sing-v-PERF-er- DC  
  c. tragud-i-s-t-r-ia  
    sing-v- PERF-n-n-DC  
    female singer

Greek has been argued to have two variants of -t-is: unstressed /t-is/ is attached to monosyllabic verbal stems, while stressed /-t-is/ is attached to polysyllabic ones (Drachman et al. 1995); crucially, whenever there is a verbalizer, e.g. -is- in (6b) or (7), the stressed one will be used, as shown in (8b):

(8) a. [[kléf]VTis]N\textsubscript{MASC} ‘thief’  
    b. [[kəθar-is]VTis]N\textsubscript{MASC} ‘cleaner’

There is a second affix, -e-as, which attaches to monosyllabic and prefixed verbs. This form does not have a feminine counterpart, and the default grammatical masculine form is gender neutral. Again here -as is DC information; it can also attach to other nouns, (9c), to yield profession nouns, (9d). Other nominalizations simply involve affixes signaling declension class (DC), namely -os, as shown in (10a), i.e., they are zero-derived:

(9) a. sigraf-o  
    write-1SG  
  b. sigraf-e-as  
    writ-er  
  c. skapani  
    axe  
  d. skapan-e-as  
    digger

(10) a. dolofon-os  
    murderer  
  b. dolofon-o  
    murder-1SG

As in English, unergative and clearly agentive verbs form -er nominals, see e.g. (7), (10) and (11) below:
Koutsoukos & Pavlakou (2009) report that some verbs can only form a feminine agentive nominalization, as shown in (12):

\[
\begin{align*}
&\text{(12)} \quad \text{mirologo} \quad \text{mirologitra} \quad \#\text{mirologitis} \\
&\quad \text{‘lament’} \quad \text{‘woman who laments’} \quad \text{‘man who laments’}
\end{align*}
\]

However, several of the verbs they cite do give masculine -er nominals, see (13), albeit they are archaic or not often used; in fact, I was able to find a masculine form for (12) as well for the man who laments.

\[
\begin{align*}
&\text{(13)} \quad \text{pleko} \quad \text{‘knit’} \\
&\quad \text{plektria} \quad \text{‘woman who knits’} \\
&\quad \text{plektis} \quad \text{archaic klostis}
\end{align*}
\]

The authors took this as evidence suggesting that the feminine forms are directly derived from the verb. They support this conclusion by pairs such as the ones in (14), where masculine and feminine forms have distinct semantics.

\[
\begin{align*}
&\text{(14)} \quad \text{a. enishio} \quad \text{enishitis}_{\text{masc}} \quad \text{enishtria}_{\text{fem}} \\
&\quad \text{‘boost’} \quad \text{‘amplifier’} \quad \text{‘woman who strengthens/amplifier’} \\
&\text{b. thermeno} \quad \text{thermastis}_{\text{masc}} \quad \text{thermastro}_{\text{fem}} \\
&\quad \text{‘heat’} \quad \text{‘boilerman’} \quad \text{‘heater’}
\end{align*}
\]

In (14b) we do not have a compositional agentive nominalization, as *thermastis* is a profession noun, denoting the individual responsible for a boiler in a train or a ship, and for (14a) an instrument reading is possible for the feminine nominalization as well.

While in English -er is ambiguous between agentive and instrumental readings, Greek has several dedicated instrumental affixes, e.g., masculine -tir-asDC, and neuter -tir-idC, see (15). Interestingly, the instrumental affix seems to be more complex than the agentive one. The feminine affix -tra/-tria, however, is ambiguous between agentive and instrumental readings, see (12)-(14).

3 Note that the Modern Greek verb *pidao* ‘jump’ forms an -er nominal, but as a diminutive; interestingly the diminutive, which I take to be a denominal formation, is built on the basis of the non-active form of the verb. This would suggest, contra to Baker & Vinokurova (2009), that the nominal affix is not a Voice head. The nominal form in (i) does not seem to take complements. Thanks to Despina Oikonomou for pointing this out to me. There is also a more archaic nominal form, namely *piditis* ‘jumper’:

\[
\begin{align*}
&\text{(i)} \quad \text{pid-i-hlt-ul-is} \\
&\quad \text{jump-v-NACT-DIM-DC} \\
&\quad \text{‘one who jumps a lot’}
\end{align*}
\]
Finally, unlike in English, as noted in Kakouriotis (1993), -tis nominals may never refer to the affected object of a transitive verb, e.g., *best seller, sleeper*. They only refer to external arguments.

### 2.3 -Tis nominals and the causative alternation

As has been discussed in the literature, intransitive variants of verbs undergoing the causative alternation in Greek appear either bearing active or non-active morphology, as shown in (16). -Active (NAct) morphology appears also on passives and reflexives and middles (Tsimpi 1989, 2006, Embick 1998, Alexiadou & Anagnostopoulou 2004, Zombolou 2004, Alexiadou, Anagnostopoulou & Schäfer 2006, 2015 among others).

(16) a. o Janis ekapse ti supa.  
the John-NOM burnt the soup-ACC  
‘John burnt the soup.’

b. i supa kegete  
the soup-NOM burns-NAct-3SG  
‘The soup is burning.’

c. O Janis adiase ti sakula.  
the John-NOM emptied the bag-ACC  
‘John emptied the bag.’

d. I sakula adiase.  
the bag-NOM emptied  
‘The bag emptied.’

We saw in the examples in (1) that certain verbs of change of state do not form agentive nominalizations. In Table 1 I present a list of Greek verbs undergoing the causative alternation, from Alexiadou, Anagnostopoulou & Schäfer (2015: 88). The classification into three classes refers to whether or not they form intransitive variants with NAct or active morphology. Class A has intransitive variants with NAct, class B has intransitive variants with active morphology, and class C has both NAct and active intransitive variants:

| Table 1. Greek change of state verbs undergoing the causative alternation |
|--------------------------|------------------|------------------|
| class A                  | class B          | class C          |
| kommatiazo (tear)        | asprizo (whiten) | zarono (wrinkle) |
| miono (decrease)         | kokinizo (redden)| tsalakono (crumple)|
| eksafanizo (diminish)    | mavrizo (blacken)| zesteno (heat)   |
| veltiono (improve)       | katharizo (clean)| skizo (tear)     |
| diplasiazio (double)     | stroggilevo (round)| erimono (desert)|
| singentrono (collect/gather) | klino (close) | madao (pluck) |
| dhialdihidho (spread a rumor) | anigo (open) | lerono (dirty) |
| dhialio (dissolve)       |                  |                  |
vithizo (sink)
kovo (cut)
skotono (kill)
keo (burn)
plateno (widen)
spao (break)
gremizo (demolish/collapse)

Certain verbs in this list, namely dhiplasiazó, dhiadhidho, dhialio, kovo, spao, skizo, and katharizo can form a -tis nominal, as shown in (17), but with an instrumental reading only. katharizo ‘clean’ is the only one that yields an agentive nominalization. dhiadhidho forms a -tis nominal with an instrumental interpretation as well as an idiomatic one via a different affix (dhiadosias ‘spreader of false rumors’). Spao forms an idiomatic -tis noun, and I will come back to this point, see also (1) and footnote 2.4

\[(17)\]
\[
dhialio ‘dissolve’ \quad dhialitis ‘substance used to dissolve’
dhiplasiazó ‘double’ \quad dhiplasiastis ‘device that duplicates voltage’
skizo ‘tear’ \quad skistis ‘tear of wood’, instrument
kovo ‘cut’ \quad koftis ‘the cutting instrument’
katharizo ‘clean’ \quad katharistis ‘cleaner’
spao ‘break’ \quad spastis ‘device for breaking/annoying person’
dhiadhidho \quad dhiadhotis ‘device, propagator’
\]

While certain verbs are not able to form either an agentive or an instrumental nominal, e.g., asprizo or widen, other verbs form an instrumental nominal and not an agentive one; most of them bear the special Greek instrumental affix -tir/tr-. As shown in (18), kill only forms a feminine instrumental nominalization. As we also see, spao forms an instrumental nominal as well:

\[(18)\]
\[
skonotono ‘kill’ \quad skotostra ‘dangerous road, car or engine’
vrazo ‘boil’ \quad vrastiras ‘kettle’
katastrofeo ‘destroy’ \quad katastrofeas ‘destroyer’, instrument
stegnono ‘dry’ \quad stegnotiras ‘drier’, instrument
kseskonizo ‘dust’ \quad kkseskonistiri ‘the duster’
keo ‘burn’ \quad kafstiras ‘device that burns’
anigo ‘open’ \quad anihtiri ‘device that opens’
spao ‘break’ \quad spastiras ‘instrument for breaking’
\]

We saw that killer is an agentive nominalization in English, but an instrumental nominalization in Greek. Unlike, e.g., open that undergoes the causative alternation in English, kill does not. However, the Greek counterpart of kill undergoes the causative alternation, as detailed in Alexiadou, Anagnostopoulou & Schäfer (2015). Thus, the behavior of Greek the pattern can be summarized as follows: verbs that undergo the causative alternation in Greek cannot form an agentive nominal, while they may form an instrumental one.

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4 As noted in Kakouriotis (1993), spastis may appear within compounds, e.g., apergo-spastis ‘strike-breaker’ and rizo-spastis ‘root-breaker = reformer’. Both nouns bear an idiomatic reading, thus they cannot really be accounted for by the observation in Embick & Marantz (2008) about the obligatory transitivity of certain verb classes in English -er formation.
What I will show now is that this behavior is not restricted to change of state verbs but applies to other verb classes that have been argued to undergo the causative alternation as well. For instance, Anagnostopoulou (2018) observed that instrumental verbs undergo the causative alternation. Specifically, Anagnostopoulou discussed two classes of instrumental verbs, so-called wipe verbs and tape verbs, illustrated in (19) and (20), using the list provided in Alexiadou & Anagnostopoulou (2013) and Anagnostopoulou (2018). I note that in (20) the profession nominal klidaras bears the -as affix, which is typical for derived nominals out of nouns and thus may not be verb derived:

(19) wipe verbs: instrumental verbs

<table>
<thead>
<tr>
<th>Root-verbalizer-1sg</th>
<th>Root-nominal inflection</th>
<th>-er nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>psalid-iz-o</td>
<td>psalid-i</td>
<td>psalidistis</td>
</tr>
<tr>
<td>‘trim’</td>
<td>‘scissors’</td>
<td>(instrument)</td>
</tr>
<tr>
<td>ravad-iz-o</td>
<td>ravad-i</td>
<td>ravidistis</td>
</tr>
<tr>
<td>‘flog’</td>
<td>‘stick’</td>
<td>(idiomatic, policeman)</td>
</tr>
<tr>
<td>sfug-iz-o</td>
<td>sfug-ar-i</td>
<td>sfugarista</td>
</tr>
<tr>
<td>‘sponge/wipe’</td>
<td>‘sponge’</td>
<td>(fem.instrument, mop)</td>
</tr>
<tr>
<td>sider-on-o</td>
<td>sider-o</td>
<td>siderostra</td>
</tr>
<tr>
<td>‘iron’</td>
<td>‘iron’</td>
<td>(fem.instrument, ironing board)</td>
</tr>
</tbody>
</table>

(20) tape verbs: instrumental verbs

<table>
<thead>
<tr>
<th>Root-verbalizer-1sg</th>
<th>Root-nominal inflection</th>
<th>-er nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>klid-on-o</td>
<td>klidi</td>
<td>klidaras</td>
</tr>
<tr>
<td>‘lock’</td>
<td>‘key’</td>
<td>‘one who makes keys’</td>
</tr>
<tr>
<td>sfug-iz-o</td>
<td>sfugida</td>
<td>sfragistiras</td>
</tr>
<tr>
<td>‘seal’</td>
<td>‘seal’</td>
<td>(instrument, sealant)</td>
</tr>
</tbody>
</table>

As we see in (21), these verbs undergo the causative alternation and thus their behavior aligns with other change of state verbs undergoing the causative alternation- they only allow instrumental er- nominals:

(21) a. O Janis klidose tin porta.
    ‘John locked the door.’

b. O Janis sfugase tin isodo.
    ‘John sealed the entrance.’

c. I porta klidose.
    ‘The door locked.’

d. I isodos sfugase .
    ‘The entrance sealed.’

Object experience verbs have also been argued to undergo the causative alternation, (22), (Alexiadou & Iordanchioaia 2014), and these verbs do not form an agentive -tis nominal, as noted in Kakouriotis (1993). Arguably, this is expected assuming that object experience verbs in Greek lack external arguments (Alexiadou & Anagnostopoulou 2019,
and see also Kakouriotis 1993), even when they have agentive subjects. Note here that in English these verbs can form an -er nominal, (23), (where these verbs do not alternate, as argued by Alexiadou & Iordâchioaia 2014). In addition, the nominals may also denote the experiencer argument, (23a) and (23c), derived from the subject experiencer construal, cf. https://www.english-corpora.org/coca/:

(22)  a.  o Janis thimose ti Maria.
      ‘John angered Mary.’
    b.  i Maria thimose.
      ‘Mary got angry.’
    c.  *thimotis
      ‘angerer’

(23)  a.  Denny always looked like that. He was a worrier.
    b. but on balance, say therapists, there is the Annoyer and the Annoyed.
    c.  and this one boy -- he was always a puzzler, he thought about things.

Finally, note that, as discussed in Oikonomou (2012), we find idiomatic interpretations of certain change of state predicates such as break, (24). Under this idiomatic reading, they can also form a -tis nominal, (25):

(24)  a.  spazo ‘break’ → ‘get angry’
    b.  tu Jani tu ti espase o Nikos.
      the John-GEN cl-GEN cl-ACC.FEM broke-3SG the Nikos-NOM
      ‘Nikos annoyed John.’
(25)  O Nikos ine megalos spastis.
      ‘Nikos is so annoying.’

(25) is particularly interesting as it suggests that the issue is not morpho-phonological, and see also footnote 4; that is, it is not the case that some verbs cannot form a -tis nominal because of a morpho-phonological constraint, it is more about the domain that determines the interpretation of -tis formation.

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5 Note that subject experiencer verbs may form -tis nominals (i) and also a derived adjective to refer to the person who possesses the emotional state via the affix (i-)aris/arasi, (ii). The forms in (ii) are adjectival, as they can modify an overt noun, unlike -tis nominalizations. (from Thanks to Despina Oikonomou for mentioning this:
(i)  thavmazo thavmastis
    I admire admirer
(ii)  fovame fovitsiaris (anthropos)
    I fear fearer man
    sichenome sihasiari (anthropos)
    I detest detester man

6 I actually found just one hit online including the formation anisihiaris as a translation of worrier on its subject experiencer interpretation. See footnote 5.
We can summarize the empirical picture as follows: a) if a verb undergoes the causative alternation in Greek, it does not form an agentive nominalization. b) in English, there seems to be no such restriction. Perhaps dry is the only verb that undergoes the causative alternation and only yields an instrumental nominal in English. This can be understood, as a drying event can only be performed by an agent using a particular instrument/device or by a natural cause. Other verbs such as drown and tear yield agentive nominalizations, as do open and break. Break yields an agentive nominalization predominantly in the presence of a complement, e.g., heart-breaker. Breaker can also have the idiomatic reading of a ‘wave breaking into foam’. c) Verbs such as destroy, and kill undergo the causative alternation in Greek, but not in English, and behave as other changes of state verbs in that they do not form agentive nominals.

German seems to pattern as English, see (26), where verbs like break and open can form instrumental nominalizations. An agentive interpretation is possible if they appear together with an internal argument, e.g., in compounds. This is reminiscent of the discussion of password-stealer and heart-breaker in Embick & Marantz (2008: 15), according to which, transitive verbs of specific verb classes require the presence of an object in their agentive nominal form, see also footnote 4.

(26) a. Brecher
   ‘wave’
 b. Knochenbrecher
   ‘bones breaker’
 c. Öffner
   ‘opener’
 d. Türköffner
   ‘door opener’

Notice that for Greek, we cannot appeal to a similar explanation, as the agentive nominalization is simply not possible. In other words, the presence of an internal argument does not give rise to an agentive interpretation. This is certainly clear in the case of nominalizations in (18), where the only available reading is that of an instrumental nominal, but also applies to the forms in (17), irrespectively of whether or not the complement appears next to the noun either in the genitive e.g., koftis kalodion ‘cutter of cables’, or as the non-head member of a compound, e.g., nihokoptis ‘nailcutter’. The puzzle then is: if change of state verbs in Greek allow all three types of external arguments, i.e., agents, causers and instruments, as shown in (26), why are agentive nominalizations out with these verbs, while instrumental ones are allowed?

(27) O ilio/ i komotria/ to pistoloki stegnose ta mali/mia mi.
     the sun/ the hairdresser/ the hair dryer dried-3SG the hair mine
     ‘The sun/the hairdresser/the hair dryer dried my hair.’

---

7 Many thanks to Florian Schäfer for pointing this out to me.
3. Towards an analysis

3.1 The causative alternation

Alexiadou, Anagnostopoulou & Schäfer (2015) proposed that the causative alternation is actually a Voice alternation in the sense that VoiceP introduces the external argument, Kratzer (1996), (28a). Anticasuals either lack Voice, (28c), in which case they appear with unmarked active morphology, or involve a Voice that bears a [-D] feature, (28b), following Schäfer (2008a). In this case, Voice will be spelled-out as NAct, as in (28d), building on Embick (1998):

\[
\begin{align*}
(28) & \quad \text{a. } \left[ \text{VoiceP} [+D] \right] \text{ Act } \left[ \text{vP} \left[ \text{ResultP} \ \text{\textbackslash burn} \right] \right] \\
& \quad \text{b. } \left[ \text{VoiceP} [-D] \right] \text{ NAct } \left[ \text{vP} \left[ \text{ResultP} \ \text{\textbackslash burn} \right] \right] \\
& \quad \text{c. } \left[ \text{vP} \left[ \text{ResultP} \ \text{\textbackslash open} \right] \right] \\
& \quad \text{d. } \text{Voice } \rightarrow \text{NAct/\_ (no specifier)}
\end{align*}
\]

As we saw in section 2, it does not really matter what type of morphology we find on the intransitive variant of a verb undergoing the causative alternation in Greek, the formation of an agentive nominal is out, while the instrumental one is in.

3.2 What we know about the structure of agentive and instrumental nominals

This empirical picture is rather problematic for syntactic treatments of agentive nominals. For instance, Alexiadou & Schäfer (2010) argued that the structure involved in the formation of [+event] -er nominals is as in (29):

\[
\begin{align*}
(29) & \quad \text{a. } [\text{-er} \left[ \text{VoiceP[vP [RootP]]} \right]] \\
& \quad \text{b. } \text{nP} \\
& \quad \text{\quad -er VoiceP} \\
& \quad \text{\quad x Voice'} \\
& \quad \text{\quad Voice vP} \\
& \quad \text{\quad v RootP}
\end{align*}
\]

For Alexiadou & Schäfer, all external argument -ers (agents, holders, experiencers, instruments) involve (29). We assumed that the different theta roles related with the external argument are due to 'flavors' of Voice. This analysis is built upon the Voice Hypothesis (Kratzer 1996), according to which the external argument is not introduced by the verb itself, but by a semi-functional Voice-projection on top of vP. This means that all transitive and unergative verbs should yield fine -er nominalizations that contain external arguments.

The n-layer is clearly the nominalizer. The main function of this head is to introduce the R-argument and in this particular case is spelt out as -er and its counterparts.
across languages All functional projections above n are nominal. In Greek, as mentioned above, n hosts in addition gender and declension class features, see Alexiadou (2017).

Alexiadou & Schäfer (2010) view the role of R as follows: R has been argued by Williams (1981) to be responsible for the referential reading of the noun. Grimshaw (1990) states that R is identified with an argument of the base verb. Which argument is identified with R is a function of the affix that is added, so the affix must specify which argument it binds. For instance, the affix -ee binds a patient argument, while the -er binds the external argument, as shown in (30):

(30)  
(a) detain (y (x)) detainee (R = x) such that y detains x  
(b) teach (x (y)) teacher (R = x) such that x teaches y

Since all -er nouns are referential, we claimed that R is introduced in n, irrespectively of the [+event] classification.

As mentioned above, the individual denoted by the -er nominal is, in its productive use, the one that is the external argument of the event entailed by it (see van Hout & Roeper 1998). Alexiadou & Schäfer proposed therefore that in these kinds of -er nominals the referential argument <R> binds a variable <x> located in Spec,Voice; this derives the ‘external argument generalization’ and ensures the correct theta role for the -er nominal. A shown in (31a) and (31b), the instrumental nominalization does not radically differ from the agentive one; the only difference is that [+event] nominals contain an episodic aspectual projection, while [-event] contain a dispositional aspectual projection:

(31)  
(a) [+event]-er – ASP_{EPISODIC}  
(b) [-event]-er – ASP_{DISPOSITIONAL}

It is not clear how the analysis proposed by Alexiadou & Schäfer can be altered to capture the restrictions identified with change of state verbs. Importantly, if change of state verbs in Greek, as in English, allow all three types of external arguments, e.g., agents, causers and instruments why are agentive nominalizations out with these verbs? One could argue that (31a) is filtered out by encyclopedic knowledge in the case of change of state verbs, but then why would it be consistently excluded?
Baker & Vinokurova (2009) analyze -er as the counterpart of Voice and propose that it combines with VPs. These authors do not discuss instrumental nominalizations. Thus, it is not clear how they would deal with the puzzle of Greek change of state verbs present.

Roy & Soare (2014) propose that instrumental nominalizations are actually root nominalizations. However, in view of the fact that several of our instrumental nominals, at least in Greek, contain verbalizing morphology, located in v, the analysis proposed by Roy & Soare cannot be maintained. Their analysis of agentive nominalizations is similar to that in Alexiadou & Schäfer (2010), thus it is also not quite clear why agentive nominalizations are out.

(32)  
\[
\begin{align*}
&\text{stegn-on-o} & \text{stegn-o-tir-as} \\
&\text{dry-v-1SG} & \text{dry-v- instrument.IC}
\end{align*}
\]

Note here that Borer's analysis of -ER as bearing an originator interpretation could not work either, as it is unclear why the originator cannot be interpreted as an agent. According to Borer, -er is a functor, yielding an originator interpretation, which can be viewed as an underspecified role subsuming agents and instruments. Arguably, however, in Borer's system as well, it could be suggested that it is encyclopedic knowledge that leads to the preference of the instrument interpretation.

3.3 A proposal

In order to deal with the puzzle discussed in section 2, we need to crucially distinguish between two layers in the projection of external arguments. Recall that for Levin & Rappaport Hovav (1988) and Rappaport Hovav & Levin (1992) the type of verbs that allow an instrumental subject are those that allow a special type of instruments, the ones we labelled instrument causers. I assume that Agents are introduced in Voice, while causers are introduced at the vP level in a verbal decomposition as in (33).

(33)  
\[
\begin{array}{c}
\text{VoiceP} \\
\text{agent} & \text{Voice'} \\
\text{Voice} & \text{vP} \\
\text{v} & \text{ResultP/ Root}
\end{array}
\]

In a nutshell the proposal is the following: change of state verbs do not form agentive -er nominalizations as -er/-tis nominalization targets the vP layer. This particular restriction explains why several -er nominalizations are idiomatic in Greek. Idioms cannot include the syntactic projection that hosts external arguments/agents; beyond with this level, only compositional interpretation is available. The reason for this could be phrased in terms of the role Voice has in determining idiomatic interpretations, see (34)-(35), and
Anagnostopoulou & Samioti (2013) for further discussion on idiomatic domains in Greek participial constructions. Greek -er nominalizations are a further illustration of this effect.

(34) “The syntactic head that projects agents defines a locality domain for special meanings. Nothing above this head may serve as the context for the special meaning of any root below this head, and vice versa”

(Marantz 1997:208)

(35) Idiomatic interpretation is not available above the projection that hosts prototypical external arguments (Agents) – namely, VoiceP.

Note that the change of state nominalization facts could also be accounted for under Borer's (2013) treatment of non-compositional meaning. According to Borer (2013), the presence of non-compositional meaning is related to the absence of segments of extended projection within nominals. Such segments license event interpretation and arguments. Basically, v does not 'count' as a head creating such an internal complex structure, and thus idiomatic readings are allowed.

Specifically, I assume that there are two ways to introduce external arguments with change of state verbs: Alexiadou (2014, 2018), Alexiadou, Anagnostopoulou & Schäfer (2015), Alexiadou & Anagnostopoulou (2019). Following specifically Alexiadou (2018) and Alexiadou & Anagnostopoulou (2019), when the subject is a causer, the structure is as in (36), i.e. a Voice layer is missing. On the other hand, agentive verbs project an additional Voice layer, as in (37):

(36) vP
     /   
    v'  v
      /   
     v  ResultP
       /   
      DP (undergoer) Root

(37) VoiceP
     /   
agent Voice'
     /   
Voice vP
      /   
     v  ResultP/ Root

Clearly agentive verbs, i.e. verbs that do not allow any other type of external arguments yield agentive nominalizations, since (37) is the input structure to nominalization. Typically, such formations should have both a masculine and a feminine form, if they refer to individuals. We could argue that the feminine affix -η- involves is a special affix realizing n [+feminine] on top of the masculine bearing n, i.e. the feminine
nominalization is derived from the masculine one. In other words, there is a further layer of n, as illustrated in (38), and see Kramer (2015) for a discussion of similar derivations.

(38) \[
\begin{array}{c}
\text{nP} \\
\text{r-a nP} \\
\text{t VoiceP} \\
\text{agent Voice'} \\
\text{Voice vP} \\
\text{v ResultP/ Root}
\end{array}
\]

By contrast, Greek change-of-state verbs involve nominalization of a vP layer, yielding the instrumental or idiomatic interpretation, (39). (39) is also possible for idiomatic nominalizations in English and German as well, but not for instrumental nominals, which must have as their input the structure in (37). In a structure like (39), the affix is sensitive to the properties of v's complement. Moreover, this suggest that change of state verbs, never actually include an external argument introduced in Voice. Again feminine nominalizations would involve a further n layer. The structure in (39) is reminiscent of the one proposed in Schäfer (2008b) for eventive -er nominals in German out of semelfactive verbs, e.g., Klopfer ‘knock’, the difference being that in German the -er affix binds the event variable in v, and there is no individual variable to be bound in the structure:

(39) \[
\begin{array}{c}
\text{n} \\
\text{t-is vP} \\
\text{causer v'}
\end{array}
\]

What explains then the difference between English/German and Greek nominals? I argue that this relates to another difference between these languages, namely the fact that anticausatives in Greek, but not in English (and German), license instrument causers, as observed in Alexiadou, Anagnostopoulou & Schäfer (2015: 34), see (40) and cf. Kakouriotis (1994). (40) suggests that instrument causers in Greek anticausatives are licensed at the vP level, since they may modify as PPs the intransitive event, and thus may combine with special instrumental affixes or -t-is, which in turn may never receive a
theme interpretation. -tis and -tir- would be realizations of n, although a decomposing -tir- to -t- and -ir- is also possible:

(40)  a. Ta malia mu stegnosan me to pistolaki.  
       the hair my dried with the hair dryer  
       ‘My hair dried with the hair dryer.’

          (40)  b. To pani skistike me to psalidi.  
                   the cloth tore-NACT with the scissors  
                   ‘The clothes tore with the scissors.’

Further support for the fact that only clearly agentive verbs can form agent denoting nominals in Greek comes from Grestenberger (2018), who shows that several deponents which are classified as agentive form agentive -tis nouns:

(41)  hiris-tis ‘user, manipulator’ (hirizome ‘use, manipulate’)

       ekmetalef-tis ‘exploiter’ (ekmetalevome ‘exploit’)

I take it that examples such skapane-as ‘digger’/‘pioneer’ are root or n derived, i.e., there is no verbal source involved, see (42). In this case, the individual denotation is introduced in n:

(42)  n

       -as      Root/n

There are some further issues to be addressed. First, as pointed out by Zombolou (2004), the verbs that form agentive nominalizations, do not form instrumental nominalizations, (43). This is explained, as these verbs cannot involve an instrument as their subject, i.e., they are not causative verbs.

(43)  ekfono    ekfonitis    *ekfonitiras
       ‘deliver a speech’    ‘the person who Vs’ instrument

       metafrazo    metafrastis    *metafarstiras
       ‘translate’    ‘person who Vs’ instrument

       ekdido    ekdotis    *ekdotiras
       ‘publish’    ‘person who Vs’ instrument

However, there are some that do, as shown in (44):

(44)  peripato    peripati-tis    peripati-tir-as
       walk        walker        walker, instrument

(44) involves an archaic verb, which has a Modern Greek variant that does not actually produce an agentive nominalization, only an instrumental one, see (45). This verb is a
prefixed manner of motion verb, which also forms an instrumental nominal in English, as discussed in Rappaport Hovav & Levin (1992) and Ryder (1999):

\[(45) \quad \textit{perpato} \quad \textit{perpatura} \]

\[
\text{walk} \quad \text{walker (baby's walking device)}
\]

Second, I mentioned in section 2.3 that \textit{katharizo} ‘clean’ is a change of state verb that yields an agentive nominalization. This might not be so surprising if, following Alexiadou & Anagnostopoulou (2013) and Anagnostopoulou (2018), we view this verb as ambiguous: as this verb can enter the so-called \textit{clean} alternation, it may have a reading as a manner verb (Rappaport Hovav 2017) and not as a change of state verb, and thus expected to allow an agentive nominal.

In conclusion, this means that Greek change of state verbs are conceived of as primarily lacking the layer introducing the external argument, VoiceP.

4. Lack of gradience

As has been discussed extensively in the literature, deverbal nominalizations come in many guises, i.e., show gradience with respect to verbal properties, see Alexiadou (2001), Alexiadou (2020), Alexiadou et al. (2011), Borer (2013), Borsley & Kornfilt (2000), Iordâchioaia (2020), Kornfilt & Whitman (2011), Panagiotidis (2014), but this does not hold for agent nominalizations. Baker & Vinokurova (2009) point out that while the -ing of nominal in (46) has a more verbal counterpart, namely the verbal gerund, agent nominalizations lack more verbal counterparts.

\[(46) \quad \text{The finding of the wallet took all afternoon.} \]

\[(\text{Baker & Vinokurova 2009: 517})\]

In fact, Baker & Vinokurova (2009) argued that we do not find cross-linguistically agent nominalizations with mixed verbal and nominal properties. We either find the counterpart of English -\textit{er} or a type of relative clause, where the whole structure is purely verbal, but see Kiparsky (2017) for some criticism.

We have seen here that in fact there is some variation as not all nominalizations necessarily include Voice or v. But we certainly do not have the type of variation that e.g., previous literature has argued for derived nominals, i.e., variation with respect to the presence of Aspect, Tense and CP. According to Baker & Vinokurova (2009: 549), this is so because agentive nominalizations “must happen at the deepest level of phrase structure, and so does not permit most verbal heads or modifiers.” This correlates with their analysis of agentive nominalizations as having meanings similar to Voice heads.

This generalization is equally derived from Alexiadou & Schäfer's (2010) analysis according to which, in \textit{er} nominals the referential argument <R> binds a variable <\text{x}> located in Spec,Voice. We can extend this and claim that there are not so many functional categories that may introduce such a variable, Voice and v can, but introducing arguments is not a property that all functional heads have. Since higher functional heads do not introduce such variables, they do not yield fine individual denoting nominalizations.
Note that under Borer's analysis of -er, agentive nominals lack a verbal structure to begin with, and thus the question of why we do not find mixed properties does not lead to tension. Ultimately, however, a special role is attributed to the nominalizer which restricts the structural possibilities available: either because of, as argued in Baker & Vinokurova (2009), -er realizes a Voice head, or because the referential argument must bind a variable in its local domain. In other words, while event denoting nominalizations can denote different types of events, individual nominalizations seem to be less flexible. The behavior is not shared by other affixes, which can apply at different layers of structure.

5. Conclusion

In this paper, I discussed two puzzles with agentive nominalizations. The first one, which was the main focus of the paper, was that change of state verbs in Greek do not form such nominalizations. The second puzzle related to Baker & Vinokurova's (2009) observation that cross-linguistically we do not find agent-denoting construction that has a mixture of verbal and nominal properties, while we do find event-denoting constructions that display such mixtures. I argued that the first puzzle relates to the fact that Greek change of state verbs, unlike their English counterparts, license instrument causers, thus the nominalization applies to the vP layer and in the language agentive nominalizations are only licit out of verbs that include a Voice layer, cf. Kakouriotis (1993). With respect to the second puzzle, the formation of the Greek counterparts of -er nominals suggests that there is in fact some flexibility, i.e., a nominalization may contain a structure smaller than Voice, but the semantics of the affixes denoting originators/individuals seem to restrict the process.

References


