

Greek derivational affixes: roots or categorizers?¹

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ABSTRACT.

In this paper, I am concerned with the status of derivational affixes in Distributed Morphology: are these roots or categorizers? I will compare Greek to English and Dutch, as some derivational affixes in these two languages have been claimed to be roots. I will show that Greek derivational affixes are categorizers, and I will offer an explanation that capitalizes on the stress properties of Greek derivational affixes.

KEYWORDS.

Derivational affixes; roots; categorizers; Greek; English; Dutch; accented affixes.

1. Introduction

Distributed Morphology, henceforth DM, is a theory of grammar that takes the syntactic component to build complex hierarchical representations from abstract morphemes via Merge. In DM, it is generally assumed that the morphemes manipulated by syntax are roots and functional morphemes. According to Embick (2010: 21), these can be defined as follows:

- (1) **Functional Morphemes:** Terminal nodes consisting of (bundles of) grammatical features, such as [past] or [pl], etc.; these do not have phonological representations.

Roots: Members of the open-class or ‘lexical’ vocabulary: items such as $\sqrt{\text{CAT}}$, $\sqrt{\text{OX}}$, etc.

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In this framework, roots are taken to be a-categorial. Category defining heads introduce categorization in the syntax, e.g., little *n*, little *v*, and little *a*. The combination of a category defining head with a root yields thus nouns, verbs or adjectives, but see Borer (2013) for arguments that adjectives come categorized. Once categorized, words can of course participate in further word formation processes, see Arad (2005) and Embick (2010) for further discussion.

As for DM there is really no difference between inflection and derivation, derivational affixes are not treated differently from functional morphemes in most DM analyses. However, several authors have questioned the analysis of derivational affixes as realizations of categorizing heads, claiming that at least certain such affixes may be roots. This is a very interesting debate, which ultimately highlights the need for diagnostics of what a root is. De Belder (2011), Lowenstamm (2015) and Creemers et al. (2018) among others argue that all or indeed some derivational affixes in Dutch and English are actually roots, cf. Borer (2013). In this contribution, I will revisit this discussion by comparing Greek to English and Dutch. Specifically, I will consider certain Greek derivational affixes in the light of this controversy and show that while at first sight it looks like Greek has also derivational affixes that may be classified as roots, a closer inspection reveals that they are actually categorizers.

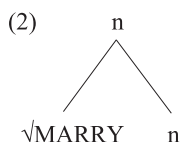
The paper is structured as follows: in section 2, I summarize the debate on the status of derivational affixes. In section 3, I discuss certain processes of word formation in Greek. In section 4, I offer some general conclusions.

2. The controversial status of derivational affixes

2.1 Derivational affixes as categorizers

In Embick (2010), a DM approach to word formation is outlined according to which, category defining heads, namely, *n*, *v*, and *a* are cyclic heads, see also Arad (2005). This means that these heads define the phases that trigger spell-out. According to Embick (2010: 37), when a cyclic head is merged, the cyclic domains in the complement of this head are spelled out. The

cyclic head itself is not subject to Vocabulary Insertion, which takes place when this head is found in the cyclic domain of another cyclic head, Embick (2019: 39). Embick offers a discussion of nominal derivational affixes to illustrate the point. The noun *marriage* has the structure illustrated in (2):



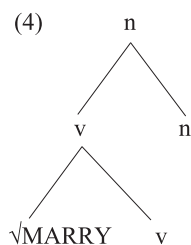
According to Embick, when *n* is merged with the root, there are no phases in *n*'s complements. Thus, when a higher cyclic head is merged, the domain centered on *n* will be spelled out. In this cycle, the $\sqrt{\quad}$ and *n* will be linearized, and Vocabulary Insertion (VI) will take place. This is illustrated in (3), from Embick (2010: 40):

(3) Syntax: Higher cyclic head triggers spell out of *n*

1. PF: Linearization $\sqrt{\text{MARRY}} \sim n$

2. PF: VI at *n*: $\sqrt{\text{MARRY}} \sim [n, -age]$

However, when a category changing head is involved, e.g. *-ing*, the derivation is a bit more complex, as a *v* layer is included. Now *n* triggers spell-out in its domain, as it embeds *v*. The steps are summarized in (5), from Embick (2010: 40):



- (5) a. Merge of n triggers spell out of v-phase
- i. PF: Linearization $\sqrt{\text{MARRY}} \frown v$
- ii. PF: Vocabulary Insertion at v: $\sqrt{\text{MARRY}} \frown [v, -\emptyset]$
- b. Syntax: Later cycle triggers spell out of n-phase
- i. PF: Linearization $[v, -\emptyset] \frown n$
- ii. PF: Vocabulary Insertion at n: $[v, -\emptyset] \frown [n, -ing]$

As detailed in Embick (op.ci.t.), when n undergoes VI, the root is not present, hence n does not show root conditioned allomorphy. In addition, this cyclic domain is a special domain for interpretation: the first categorizing head fixes the interpretation of the root, which is then carried on in further derivation processes (Arad 2005).

On this type of approach, category changing affixes are realizations of categorizers. In this, DM basically follows the standard analysis of category changing affixes as being responsible for the category of the word which they head.

2.2 Derivational affixes as roots

According to De Belder (2011: 153ff), there are several affixes in Dutch that can be found in more than one category: 21 out of 143 affixes in Dutch yield both nouns and adjectives. As shown in (6) and (7), the affix *eel* and its allomorphs *-ieel*, *-ueel*, *-aal*, *-icaal*, *-onaal* and *-iaal* are used both in noun and adjectival formation:

- (6) de intellect-ueel

the intellect-UEEL

‘the intellectual’

(7) de koloni-aal

the colony-AAL

‘the colonial’

The two affixes cannot be combined, as shown in (8) from De Belder (2011: 158), which is accounted for if these are one and the same VI, and thus not a case of accidental homophony:

(8) *de nonsens-icaalA-aalN

the nonsense-ICAAL-AAL

Intended: ‘someone or something which is nonsensical’

(9) illustrates some more affixes that yield both nouns and adjectives, and see De Belder (2011: 160-161) for a complete list:

(9) suffix	N	A
-air	<i>diamantair</i> ‘diamond dealer’	<i>elementair</i> ‘elementary’
-oot	<i>malloot</i> ‘scatterbrain’	<i>idiot</i> ‘idiotic’
-(o)ide	<i>asteroïde</i> ‘asteroid’	<i>paranoïde</i> ‘paranoid’
-ieur	<i>interieur</i> ‘interior’	<i>inferieur</i> ‘inferior’
-aan	<i>mohammedaan</i> ‘Muhammadan’	<i>momentaan</i> ‘momentary’
-aat	<i>kandidaat</i> ‘candidate’	<i>accuraat</i> ‘accurate’

In addition to that, Dutch has several affixes that can be used in nominal and verbal formations, see (10a-b), as well as adjectival and verbal formations, see (11a-b), from De Belder (2011: 161-164):

- (10) a. een trom-el
a drum-EL
'a drum'
- b. trom-el-en
drum-EL-INFINITIVE
'to drum'
- (11) a. en maat-ig-e belangstelling
a measure-IG-INFL interest
'a moderate interest'
- b. maat-ig-en
measure-IG-INFINITIVE
'to moderate'

De Belder (2011) thus concludes that affixes are not rigidly associated with a specific category. Turning to a discussion of Dutch affixes that seem to be category specific, she suggests that this may be due to convention, as cases of nonce words support the claim that affixes may have some flexibility. One such example is given in (12), from De Belder (2011: 193), showing the verbal use of an affix that otherwise only forms adjectives:

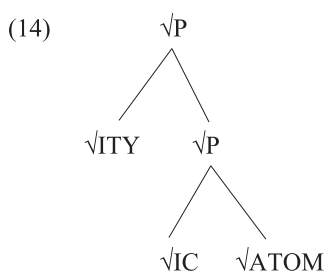
- (12) ge-schild-erij-d-e muren
GE-paint-ERIJ-D-INFL walls
Lit.: 'paintinged walls' Intended: 'walls with paintings'

A similar point is made in Lowenstamm (2015) in his discussion of English derivational affixes. For instance, *-ian* in English is not unequivocally associated with one category, and is involved both in adjective and nominal formation:

- (13) a. reptil-ian_A
b. librar-ian_N

(13) is unexpected, according to Lowenstamm (2015), if affixes simply realize categorial heads: if that were the case, one would need to assume that there are two affixes, one realizing a and one realizing n. The conclusion drawn by Lowenstamm (op.cit.) is that this is not a case of accidental homophony, but rather we are dealing with one and the same element, suggesting that affixes are roots. Lowenstamm (2015) suggests that several other English affixes behave alike, e.g., *-able*, *-al*, *-ic*, *-y*, *-ish*.

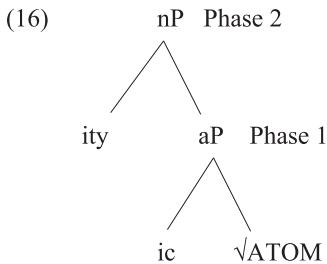
An important point that Lowenstamm makes is that if derivational affixes are no longer categorial heads, they also no longer introduce phase-boundaries. Recall that in Embick's work categorial heads introduce phase boundaries. Consider in this respect, Lowenstamm's discussion of the forms *atom*, *atomic* and *atomicity*. According to Lowenstamm, *-ic* and *-ity* are roots and the word formation processes they are involved in can be conceived of as in (14):



The structure in (14) explains why it is possible to have non-compositional meanings when *-ic* *-al* and *-ity* are involved, shown in (15a). By contrast, the DM view outlined in Embick suggests that non-compositional meaning is restricted in the domain of the first categorizing head. A similar criticism is raised in Borer (2013: 445ff), who points out that categorization at the phase level might be too narrow for compositionality: as we see in (15b) several derived forms are non-compositional beyond the level of the first categorizer.

- (15) a. globe global globality
b. civilization, naturalize, sensational

According to Lowenstamm (2015), analyzing affixes as roots can explain English stress shift, i.e., the fact that stress moves as affixes are added. In this, he states that his analysis is superior to two analyses of stress shift that view roots as categorizers, namely Marvin (2003) and Embick (2010). As Lowenstamm points out, on Marvin's (2003) analysis, phase heads trigger the spell-out of their complement, thus in a structure as the one in (16), this will yield spell-out of the root and stress will be frozen on *átom*. On Embick's (2010) account, as discussed in Lowenstamm (op.cit.), phase heads trigger the spell-out of their cyclic complements, this means that in the structure in (16) spell-out takes place in phase 2, and that would yield *atómicity*, i.e., the stress will be frozen on the penultimate syllable.



In their discussion of Dutch derivational affixes, Creemers, Don & Fenger (2018) argue that only affixes showing categorial flexibility are roots, again not allowing for an analysis in terms of accidental homophony; all other derivational affixes realize functional heads. They reach this conclusion by considering several criteria, illustrated in (17):

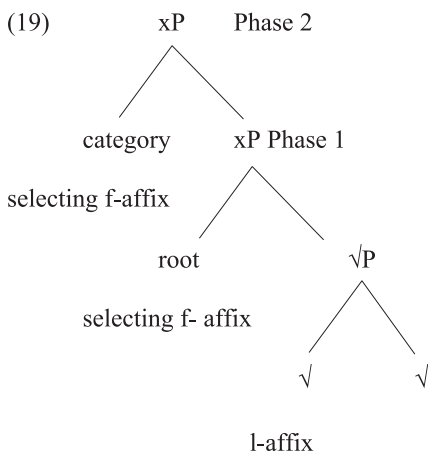
- (17) Criteria
- a. flexibility
 - b. stress behavior
 - c. selectional restrictions

d. relative order

On the basis of their arguments, Dutch affixes *aal*, *-ief*, *-iel* and *-iek* are all flexible, attach to bound stems and are stress shifting. These are labelled level Ia affixes. By contrast, *-ig* [əx], *-(e)lijk* [lək], *-iteit* [iteit], and *-(is)eer* are not categorially flexible, may attach to bound stems and are stress shifting. These are labelled level Ib affixes. Ia are roots, while Ib ones realize categorial heads. Next to those two, there is a third group of affixes, labelled level II such as *-dom*, which are rigid in terms of category, they attach to words and do not cause stress shift. These are also categorizers. Their proposal is given in (18), from Creemers et al. (2018: 67):

- (18) a. There are two types of affixes: l-affixes and f-affixes.
 b. F-affixes can have different selectional requirements: [u √P], [u xP] or [u x].
 c. Only cyclic complements of phase-heads are sent to the interfaces

Importantly, only those affixes that are l-affixes, i.e., roots, are also categorially flexible. (19) offers s structural representation of this system:



(20) shows that when all types of affixes occur, they appear in a fixed order, namely level II affixes appear outside Ib affixes, which appear outside

TABLE 1 - Greek Declension Classes

	I _{MF}	II _M	III _F	IV _F	V _N	VI _N	VII _N	VIII _N
Nom _{sg}	os	s	∅	∅	o	∅	os	∅
Acc _{sg}	o	∅	∅	∅	o	∅	os	∅
Gen _{sg}	u	∅	s	s	u	u	us	os
Voc _{sg}	e	∅	∅	∅	o	∅	os	∅
Nom _{pl}	i	es	es	is	a	a	i	a
Acc _{pl}	us	es	es	is	a	a	i	a
Gen _{pl}	on	on	on	on	on	on	on	on
Voc _{pl}	i	es	es	is	a	a	i	a

As is clear from table 1, nominal morphology in Greek is highly syncretic and we do not seem to have a perfect match between DCs and genders. As gender is a characteristic property of nouns only, (Kramer (2015), Anagnostopoulou (2017), Alexiadou (2017) and Markopoulos (2018) take gender to be a property of n.

$$(21) \quad [{}_n \text{ n-gender } \sqrt{\text{root}}]$$

Since DC is also a property related to nouns, it should be realized on n. In Alexiadou (2004), I argued against identifying special projections in the nominal domain hosting DC and gender features, see also Alexiadou & Müller (2008). Thus, from the point of view of the structure in (21), we can identify n, the nominalizing head, as the host of both DC and gender. Adjectives also inflect for DC, thus a heads should also be associated with DC information.

Greek has three conjugation classes, which means that all verbal heads in Greek should encode information about verbal conjugation. Spyropoulos, Revithiadou & Panagiotidis (2015) provide arguments that the verbalizing v head is present in many Greek verbs even those that do not contain verbalizing morphology: specifically, they argue that “in 1st Conjugation verbs it usually takes the form of certain verbalizing suffixes or, for a handful of verbs of Ancient Greek origin, it has no exponence. However, in 2nd Conjugation verbs morphology spells out this v head as an empty vocalic

slot, a ghost vowel.”, Spyropoulos et al. (2015: 321). Verbalizing affixes are: *ízo*, *-(i)ázo*, *-óno*, *-évo*, *-éno*, *-áro*, see also Alexiadou (2009), Efthymiou (2011), and Anagnostopoulou & Samioti (2013). Note that all verbalizing affixes in Greek are accented. All verbs agree with their subjects, and carry inflectional information about Aspect/Voice, and Tense, see Merchant (2015), Christopoulos & Petrosino (2018).

Thus, unlike in English, in Greek there is no single word that only contains one morpheme, rather every word is the result of the combination between a root and either inflectional information, or a root and derivational affixes to which inflectional information is added. A further point to keep in mind is that Greek is a lexical stress language, in which every word has a single stress. Importantly, the scope of stress is limited to the last three syllables of a word. For all derived words that we will consider, we need to separate the root from the affix and determine which elements belong to the root or the affix, often a non-trivial task.

3.2 Greek affixes: roots or categorizers?

As observed in Revithiadou (1999: 82), most, but not all, Greek affixes are vowel initial, a fact that she takes to be the result of the re-analysis of thematic vowels as part of the suffix. In turn, this means that roots are mostly consonant final. An important insight from Revithiadou’s work, to which I will come back in the next section, is that derivational affixes in Greek determine the stress of the word, independently of the stress pattern of the root, as expected, if they determine the category of the word.

Manolesou & Ralli (2015) state that a characteristic of the language across diachronic stages is that nominal affixes can be used in the formation of adjectives as well. This point has been made for Classical Greek, and Manolesou & Ralli argue that it is still visible in Modern Greek, offering examples such as the ones in (22) with the suffix *-mós*. For instance, Petersen (1916) states that Classical Greek *mós* is a primary suffix, attaching to roots; according to Petersen, it is meaningless initially, as it can yield different types of nouns and adjectives. In Modern Greek, the nominal examples all bear masculine gender, and the affix itself is stressed. Classical grammars list *-mó* as the derivational affix and *-s* as part of the DC information, while in

Ralli's (2000) system *-ós* would be part of the DC information.

- (22) ther-m-ós diog-m-ós kor-m-ós
hot-suffix-DC =Adjective chase- suffix-DC tree trunk- suffix-DC

Another affix that seems to be used for both nouns and adjectives is *-ik*, illustrated in (23) and (24). The nominal forms in (23) bears neuter gender, the adjectival examples are illustrated in the masculine form:

- (23) a. manávis manáv-ik-o b. psarás psar-ádik-o
grocer grocery shop suffix-DC fisher fisher shop suffix-DC
- (24) a. gálos gal-ik-ós b. ipologistís ipologist-ik-ós
French_N French_A computer_N computational- suffix-DC

Anastasiadi-Simeonidi (1997) notes that 'nominal' *-ik* is in complementary distribution with the affix *-ádiko* in the sense that nouns that are stressed in the antepenultimate syllable combine with *-ik*, while nouns stressed in the ultimate syllable combine with the form *-ádiko*. Note that in (24) the affix is stressed, while in (23a) it may not be stressed. *-ik-* has been argued by Revithiadou (1999: 193) to exhibit properties of stress float. Two positions are available for stress float: the ultimate and the antepenultimate syllable. Thus, the stress can end up on the inflectional affix, as in (24a), or on the root, as in (23a). The stress preferences of the root are not taken into consideration for the calculation of stress.

-sim- seems to be involved both in the formation of deverbal nouns and deverbal adjectives, signaling a meaning similar to *-able*:

- (25) grap-sim-o po-sim-o
write- suffix-DC drink-able-DC

Once more, while the derived noun has fixed gender, namely neuter, the adjective agrees in gender with the noun it is associated with. In the above example it is illustrated in the neuter form.

There are two further affixes that seem to show flexibility, *-ón-* and *-ar-*: *-ón-* appears both on nouns and verbs, while *-ar-* appears on verbs, nouns and adjectives. This is an interesting affix, as the nominal and verbal *-ar-* are Latin/Romance borrowings:

(26)	klid-ón-o	abel-óna-s	
	lock-v-1SG	vine- suffix-DC	
	‘I lock’	‘vineyard’	
(27)	skits-ár-o	vark-ári-s	lip-ar-ós
	sketch-v-1SG	boat- suffix-DC	fat- suffix-DC
	‘I sketch’	‘boat man’	‘fatty’

As we will see, none of the above affixes is actually involved in more than one word formation process. Some cases are easier to dismiss than others. First, in all the above examples it is important to distinguish the derivational suffix from the DC bearing material. From this perspective, once the correct decomposition is achieved, some of our examples can be immediately analyzed as involving distinct pieces.

Starting with the nominal affix *óna-s*, while originally the decomposition of a word such as *eleónas* was *ele-ón-a*, i.e., *-ón-* was a nominalizer, the suffix and the ending were reanalyzed as building one unit, namely *ele-óna-*, Ø see Fliatouras (2005). This noun is now a DC2 noun, the presence of *-s* signalling nominative case. By contrast, the verbal affix *-ón-*, as detailed in Efthymiou (2011: 178), “developed from the Ancient Greek ending $\omicron\omega > \omega\tilde$ and achieved separate suffix status in Medieval Greek by the 8th century.” Thus, these two forms are unrelated and are truly categorizers: *-ón-* is an exponent of *v* and *-óna-* an exponent of *n*.

With respect to nominal *simo*, as stated in Ralli (1988), *-ma* and *-simo* are taken to be allomorphic realisations of the same affix depending on the number of syllables of the stem: *-simo* attaches to stems with one syllable and *-ma* is the elsewhere form (Malikouti-Drachman & Drachman 1995).

Both these nominal affixes are gendered, being neuter and belong to DC8. The *sim-o* that we see in the formation of deverbal adjectives has a different decomposition. First of all, *-o-* is part of the DC information and the affix *-sim-* itself is the result of the reanalysis of two earlier affixes in Greek diachrony: according to Fliatouras (2005), *-is-im-* became the deadjectival affix *-(i)sim-*. Thus, nominal and adjectival *sim* are unrelated and are categorizers: *simo* is an exponent of *n* and *sim* an exponent of *a*.

With respect to verbal *-ár-*, as detailed in Efthymiou (2011: 180), and see also, Anastasiadi-Simeonidi (1994), this suffix “is of Italian etymology and entered Greek through borrowings of Italian verbs in *-are* and French verbs in *-er*. The suffix is very productive in forming neologisms in MG and usually forms [-learned] derivatives. Phonologically, the suffix *-ár-* attaches usually to feminine and neutral nominal disyllabic bases stressed on the penultimate syllable, to monosyllabic bases (*sok* > *sokáro* ‘to shock, scandalize’), and to a small number of adjectival bases in /e/ (*drapé* > *drapáro*.)”

By contrast, as detailed in Anastasiadi-Simeonidi & Chatzopoulou (2009), the affix *-aris* is a suffixal loan, from the Latin affix *-arius*. In Latin, this affix was used to form adjectives. In Modern Greek, according to Anastasiadi-Simeonidi & Chatzopoulou (2009), the suffix surfaces with two forms: *-ári-os* and *(i)-ári-s*. While the former is used to create nouns denoting occupation in formal registers, e.g., *vivliothikários* ‘book clerk’, the latter is found on professional nouns and adjectives denoting permanent characteristics. Anastasiadi-Simeonidi & Chatzopoulou (2009) argue that this affix brings about a subjective interpretation and the adjectives or nouns created by this are found in informal registers. It is interesting that all the examples they use refer to humans, making an adjectival analysis of their examples difficult, e.g., *triandáris* ‘thirty years old’, *pismataris* ‘stubborn’, *vromiaris* ‘grimy person’. If we wanted to create the neuter form of these formations, we would need to add the affix *-ik*, suggesting that only a noun is created via *-(i)-áris* affixation, e.g. *psimatariko pedi* ‘stubborn child_N’, as we will see below. Thus, I will view them as exponent of a nominal head, which carries gender information, see Alexiadou (2017) and Kramer (2015).

Finally, the *-ar* we see in *lip-ar-os* is an Ancient Greek affix used to form adjectives from roots. All these affixes also can be classified as categorizers, as they are unrelated. Thus, unstressed *-ar-* is an exponent of *a*; stressed *-ár-*

is an exponent of *v*, and these two have nothing to do with one *another*. Finally, there is *-áris* that is an exponent of *n*.

Turning to *ik*, this is an affix that typically creates adjectives out of nouns. It is analyzed as realizing an a head by Alexiadou & Stavrou (2011). Anastasiadi-Simeonidi (1997) shows that formations that look nominal seem to have a particular interpretation, namely they refer to the concept of shop or ship. This enables an analysis of such formations as that the cases of ellipsis or substantivization. (28) illustrates the two options:

- (28) a. [FP manaviko [nP ~~magazi~~]]
 grocery shop
- b. [nP manaviko [AP ~~manaviko~~]]

The puzzling case is the suffix *-mós-*, which I will discuss in detail. In (29) we see some further examples of nominalizations with this affix:

- | | | | | |
|------|------------|----------|-----------|----------|
| (29) | erhome | erhom-ós | kleo | klaf-mós |
| | arrive-1SG | arrival | cry-1SG | weeping |
| | frazo | frag-mós | psalo | psal-mós |
| | bar-1SG | barrier | chant-1SG | chant |

In all the above examples, the affix bears stress, basically the words are stressed on the ultimate. Moreover, we observe that the affix may trigger allomorphy root (e.g., *frazo-fragmos*).

Turning to adjectival *-mós*, there appear to exist only three such adjectives among the ca. 795 entries in Anastasiadi-Simeonidi's (2002) reverse dictionary *-mós* entries: *thermós*, *itamós* 'rude/isolent', *hlomós* 'pale'. Is it then a flexible affix? I will provide an argument here that actually *-mós* is not involved in adjective formation. According to Ralli (2013), compounding gives about a clear idea about the word structure in Greek. Specifically, in Greek non-heads in compounds cannot contain inflectional or derivational affixes, this is Ralli's (2013) bare root/stem constraint. Greek compounds

I discussed here and Lowenstamm, as well as De Belder and Creemers et al. are right about English and Dutch, and their cases do not involve accidental homophony, the question arises what determines this cross-linguistic variation.

As mentioned, one important difference between Greek and Germanic languages is that in Greek all words consist of more than one morpheme; a root that combines with either an inflectional element or a derivational affix, as explained in section 3.1. A second difference between Greek and the Germanic languages is, as discussed in Alexiadou & Lohndal (2017), that in Greek functional morphology plays a crucial role in determining the meaning of a root within a word. Finally, in Greek, as described in Revithiadou (1999) and taken up in van Oostendorp (2012), since there is only one stress per word, in the case of derivation it is always the derivational affix that determines the stress of the word.

Specifically, in Greek, derivational affixes are typically stressed. We saw that clearly in the case of verbalizers, and it is the case in most of the other examples. As stated in van Oostendorp (2012: 1170), “20 out of the list of 27 derivational suffixes in Holton, Mackridge & Philippaki-Warbuton (2006) are marked for being stressed, 3 are marked for being prestressing; 4 have no stress marking, but none of these 4 are without their complications.” Interestingly, adjectivizing *-imos* and nominalizing *-ma* are affixes that have no stress *marking*. These two go with verbs and seem to trigger antepenultimate stress: *eksáyo eksayoyimos* ‘exportable’, *ðiavázo ðiávazma* ‘reading’. Again, we see that independently of the stress pattern of the root, the affix determines the stress. As van Oostendorp points out, this behavior is explained if one assumes that derivational affixes are heads determining the category of the word they combine with.

By contrast, in the case of the combination of a root and with an inflectional affix, which is not a morphological head, if the root and the inflectional suffix have conflicting demands, it is the root that wins, as detailed in Revithiadou (1999). Compounding is also different as, sometimes, underlying stress of both roots is removed, and replaced by stress on the antepenultimate syllable (Nespor & Ralli 1994), Ralli (1993):

- (32) a. kuzinomáxero ‘kitchen knife’ (from kuzína ‘kitchen’ and maxéri ‘knife’)
b. lemonóðhasos ‘lemon tree forest’ (from lemóni ‘lemon tree’ and ðásos ‘forest’)

van Oostendorp (2012:1167)

(32) is particularly interesting, as, if derivational affixes were roots, we would expect the combination of a particular affix and a root to yield similar results, contrary to fact. As argued in detail in Revithiadou (1999), the affix always wins. This provides further evidence that the affix is the head that determines the category of the word and categorizes the root it attaches to.

REFERENCES

- Alexiadou, A. 2004. Inflection class, gender and DP internal structure. In: G. Müller, L. Gunkel & G. Zifonun. (Eds.) *Explorations in Nominal Inflection*. Berlin: Mouton de Gruyter, 21-50.
- Alexiadou, A. 2009. On the role of syntactic locality in morphological processes: the case of (Greek) derived nominals. In: A. Giannakidou & M. Rathert (Eds.) *Quantification, Definiteness and Nominalization*. Oxford: Oxford University Press, 253-280.
- Alexiadou, A. 2017. Gender and nominal ellipsis. In: N. LaCara, K. Moulton, Keir & A.M. Tessier (Eds.) *A Schrift to Fest Kyle Johnson*. Linguistics Open Access Publications. 1. https://scholarworks.umass.edu/linguist_oapubs/1/.
- Alexiadou, A. & Lohndal, T. 2017. The structural configurations of root categorization. In: L. Bauke & A. Blümel (Eds.) *Roots and Labels*. Mouton de Gruyter, 203-232.
- Alexiadou, A. & Müller, G. 2008. Class features as probes. In: A. Bachrach & A. Nevins (Eds.) *Inflectional Identity*. Oxford: Oxford University Press, 101-155.
- Alexiadou, A. & Stavrou, M. 2011. Ethnic Adjectives as Pseudo-adjectives. *Studia Linguistica* 65 (2): 1-30.
- Anagnostopoulou, E. 2017. Gender and defaults. In: N. LaCara, K. Moulton & A.-M. Tessier (Eds.). *A Schrift to Fest Kyle Johnson*. Linguistics Open Access Publications 1. https://scholarworks.umass.edu/linguist_oapubs/1/.
- Anagnostopoulou, E. & Samioti, Y. 2013. Alloosemy, idioms and their domains: evidence from adjectival participles. In: R. Folli, C. Sevdali & R. Truswell (Eds.) *On Syntax and*

- its Limits*. Oxford: Oxford University Press, 218-250.
- Anastasiadi-Simeonidi, A. 1996. The affix *-adiko* in Modern Greek. *Studies in Greek Linguistics* 17. 157-171. In Greek.
- Anastasiadi-Simeonidi, A. 1999. The affix *-(i)áris* in Modern Greek. *Studies in Greek Linguistics* 20. 65-74.
- Anastasiadi-Simeonidi, A. 2001. The element *-ódis* in Modern Greek: a case of grammaticalization. In *Greek Linguistics. Proceedings of the 4th International Conference on Greek Language (Πανεπιστήμιο Κύπρου, Λευκωσία, 1999)*. Thessaloniki: University Studio Press. 315–40. In Greek.
- Anastasiadi-Simeonidi, A. 2002. *Reverse dictionary of Modern Greek*. Thessaloniki: Institute of Modern Greek studies. In Greek.
- Anastasiadi-Simeonidi, A. & Chatzopoulou, K. 2009. Why does a Language borrow Affixes? Paper presented at the 9th International Conference on Greek Linguistics, Chicago, IL.
- Arad, M. 2005. *Roots and patterns: Hebrew Morpho-syntax*. Dordrecht: Springer.
- Borer, H. 2013. *Taking form*. Oxford: Oxford University Press.
- Creemers, A. J. Don & Fenger, P. 2018. Some Affixes are Roots, Others are Heads. *Natural Language and Linguistic Theory* 36: 45-84.
- Christopoulos, C. & Petrosino, R. 2018. Conditioning Greek root allomorphy without spans. In: Wm. G. Bennett, L. Hracz & D. Ryan Storoshenko (Eds.) *Proceedings of the 35th West Coast Conference on Formal Linguistics*. Somerville, MA: Cascadilla Proceedings Project, 151-160.
- De Belder, M. 2011. *Roots and affixes, eliminating lexical categories from syntax*. PhD dissertation, Utrecht University.
- Don, J., Sleeman, P. & Westveer, T. 2015. Three Types of Affixes in French. *Linguistics in the Netherlands 2015*, 33–47.
- Efthymiou, A. 2011. The semantics of verb forming suffixes in Modern Greek. In: *Proceedings of the 19th International Symposium of Theoretical and Applied Linguistics, 3-5 April 2009*, School of English, Aristotle University of Thessaloniki, 175-184.
- Embick, D. 2010. *Localism and globalism in morphology and phonology*. Cambridge, Mass: MIT Press.
- Fliatouras, A. 2005. Affix reanalysis in Modern Greek. In the Proceedings of the 16th International Symposium of Theoretical and Applied Linguistics, Thessaloniki, 61-76. In Greek.

- Holton, D., Mackridge, P. & Philippaki-Warbuton, I. 2006. *Greek. A comprehensive grammar of the modern language*. London: Routledge.
- Kramer, R. 2015. *The morphosyntax of gender*. Oxford: Oxford University Press.
- Lowenstamm, J. 2015. Derivational affixes as roots: Phasal spell-out meets English stress shift. In: A. Alexiadou, H. Borer & F. Schäfer (Eds.). *The Syntax of Roots and the Roots of Syntax*. Oxford: Oxford University Press, 230-259.
- Malikouti-Drachman, A. & Drachman, G. 1995. Prosodic Circumscription and Optimality Theory: A First Application in Greek. *Studies in Greek Linguistics* 16. 186-198. In Greek.
- Manolesou, I. & Ralli, A. 2015. In P. Müller In: P. Müller, I. Ohnheiser, S. Olsen & F. Rainer (Eds.), *A Handbook of Word Formation*. Berlin: Mouton de Gruyter, 2041-2061.
- Markopoulos, G. 2018. *Phonological realization of morpho-syntactic features*. PhD dissertation, University of Thessaloniki.
- Marvin, T. 2003. *Topics in the stress and syntax of words*. PhD Dissertation, MIT.
- Merchant, J. 2015. How much context is enough? Two cases of span- conditioned allomorphy. *Linguistic Inquiry* 46: 273-303.
- Nespor, M. & Ralli, A. 1994. Morphology-Phonology Interface: Phonological Domains in Greek Compounds. *The Linguistic Review* 13: 357-382.
- van Oostendorp, M. 2012. Stress as a Proclitic in Modern Greek. *Lingua* 112: 1165-1181.
- Petersen, W. 1916. The Origin of the Indo-European Nominal Stem Affixes. Part I. *American Journal of Philology* 37:173-193.
- Ralli, A. 1988. *Éléments de la Morphologie du Grec Modern*. PhD dissertation, University of Montreal.
- Ralli, A. 2000. A Feature-based Analysis of Greek Nominal Inflection. *Glossologia* 11-12: 201-227.
- Ralli, A. 2013. *Compounding in Modern Greek*. Dordrecht: Springer.
- Revithiadou, A. 1999. *Headmost accent wins: Head dominance and ideal prosodic form in lexical accent systems*. PhD dissertation, Leiden.
- Simonović, M. 2018. Derivational affixes as roots in a lexical stress system. Paper presented at the 13th European Conference on Formal Description of Slavic Languages, Göttingen.
- Spyropoulos, V., Revithiadou, A. & Panagiotidis, P. 2015. Verbalizers leave marks: Evidence from Greek. *Morphology* 25 (3): 299-325.

Triandafilides, M. 1998. Dictionary of Modern Greek. https://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/index.html.