

# Paradigm gaps: the case of Greek diminutive genitives

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## Abstract

In this paper, I discuss paradigm gaps observed in the formation of Greek diminutives as well as other derived nouns ending in *-i*: these nouns lack both genitive singular and genitive plural forms. While the latter form is deficient in several paradigms of the Greek nominal system, the gaps observed with respect to the genitive singular is observed only within this noun class and thus constitutes a morpho-phonological puzzle. I will discuss the factors that lead to this and explore an account that relies on conflicting stress requirements.

## 1. Introduction

Paradigm gaps in inflectional morphology have received a lot of attention, especially in Optimality Theoretical approaches to morphology (see the discussion and references in Müller (2020)). This paper deals with a particular type of gap observed with genitive formation in Greek.

The existence of genitive gaps in Greek has been acknowledged and discussed by several authors, see Thomadaki (2012) and Mertyris (2014) for an overview. A first systematic classification is offered in Sims (2006). Sims is primarily concerned with gaps in the formation of plural genitives in Greek. In her work, she distinguishes between two types of nouns, illustrated here in (1a–b). In (1a), the nominative bears stress on the antepenultimate, which is considered by many the default stress in Greek, see Revithiadou (1999) for discussion. The genitive singular causes stress to shift to the penultimate. The genitive plural follows the stress pattern of the genitive singular. By contrast, in (1b) the nominative and the genitive singular bear stress on the penultimate, while in the genitive plural stress shifts to the ultimate. Thus, the pattern of the plural does not follow that of the singular and cannot be predicted. According to Sims, gaps occur when a particular form is not predicted by other forms.

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\*From me, to you. A puzzle you might enjoy solving, in gratitude for a decades-long friendship.

Specifically, gaps are found when the genitive plural is badly predicted: for those nouns that bear stress in the same syllable in genitive singular as in genitive plural, there is no gap, as in (1a). However, when the stress pattern in the plural deviates from that of the singular, as in (1b), then gaps in the plural may emerge.

(1)	a.	prósopo	prosópu	prosópon
		face.NOM	face.GEN.SG	face.GEN.PL
	b.	mitéra	mitéras	??míterón
		mother.NOM	mother.GEN.SG	mother.GEN.PL

The puzzle I discuss here concerns the formation of diminutives, but also other derived forms, which show a gap both in the genitive singular and in the genitive plural. As detailed in Thomadaki (2012) and Mertyris (2014), this affects a particular sub-class of diminutives; as we will see, it also affects other derived nouns that belong to the same inflection class, specifically those ending in *-i*. While arguably, as Thomadaki (op.cit.) points out, Sims's implicational hierarchy predicts that if the singular is defective, the plural will also be defective, it is not entirely clear why this particular class of diminutives and derivatives is affected and no other diminutive/derived forms.

The paper is structured as follows: in section 2, I will discuss diminutive formation in Greek by paying particular attention to the defective paradigm. I will also introduce the other forms that show similar gaps. In section 3, I will present a morpho-syntactic analysis of Greek diminutives. In section 4, I will then turn to a more detailed discussion of the gap under investigation. In section 5, I will conclude my discussion.

## 2. Greek diminutive formation

As detailed in Triandafilidis (1926), Melisaropoulou & Ralli (2008), Thomadaki (2012), Mertyris (2014), Tsompanidou (2022) among others, diminutive nouns in *-áki* belong to well-known cases of defective nouns in Modern Greek. This affix is also the most productive diminutive formative, other affixes being *-úla*, *-ítsa* (both feminine) and *-úlis* and *-ákos* (both masculine). *-áki*, unlike these other affixes, can attach to masculine, feminine and neuter nouns and always creates neuter diminutives. By contrast, *-úla/-ítsa* and

*-úlis/-ákos* only attach to feminine and masculine nouns respectively, (2-3), (examples from Thomadaki 2012:551):

- (2) a. domata (FEM) bala (FEM)  
tomato ball
- b. papus (MASC) anthropos (MASC)  
grandfather man
- c. trapezi (NEUT)  
table
- (3) a. domat-úla ‘small tomato’, bal-ítsa ‘small ball’ (FEM)
- b. pap-úlis ‘dear grandpa’ anthrop-ákos ‘poor little man’ (MASC)
- c. domat-áki (NEUT) ‘special kind of small tomatoes’  
anthrop-áki (NEUT) ‘miserable little man’  
trapez-áki (NEUT) ‘small table’

While the feminine diminutives formed by the affixes *-úla*, *-ítsa* lack genitive plural forms, *-áki* formatives also lack the singular genitive, (4b). The fact that feminine diminutives lack the genitive plural is captured by Sims’s hierarchy: the stress pattern of the genitive plural deviates from that of the genitive singular, see (4b–d). This is not the case with the masculine diminutives, (4e), which have both genitive forms:

- (4) a. trapezáki domatúla  
table.DIM tomato.DIM
- b. \*trapezakjú domatúlas  
table.DIM.GEN tomato.DIM.GEN
- c. trapezákja domatúles  
table.DIM.PL tomato.DIM.PL
- d. \*trapezakjón \*domatulón  
table.DIM.GEN.PL tomato.DIM.GEN.PL
- e. agelákos ageláku agelákon  
angel.DIM angel.DIM.GEN angel.DIM.GEN.PL

Mertyris (2014:162) points out that there are further derivatives in *-i* that show similar gaps, shown in (5). These affixes create neuter nouns out of adjectives, and nouns. Another neuter diminutive affix, namely *-údi*, is also included in

this list. Thus, the pattern is more general and affects all **derivational** forms that belong to Ralli's (2000) inflectional class VI (see also Alexiadou & Müller 2008):

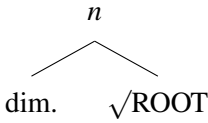
- (5) *-ádi*: kokinádi ('red make-up'): ?kokinadiú/-on (<kokinos 'red')  
*-ári*: katostári ('100 meters'): ?katostar-iú/ -on (<ekato 'one hundred')  
*-éli*: kokinéli ('red wine'): ?kokineliú/ -on (<kokinos 'red')  
*-ídi*: vrisídi ('tirade/ swearing'): ?vrisid-iú/ -on (<vrisia 'swearword')  
*-íki*: arhontaríki ('monastery dorm'): ?arhontarik-iú/ -on (<arhontaris 'monk')  
*-líki*: arhigilíki ('chieftainship' / 'pretending to be the chief'): \*arhigilik-iú -on (<arhigos 'captain/ chief')  
*-údi*: agelúdi ('little angel'): \*ageludiú/ -on (<agelos 'angel')  
*-úli*: mikrúli ('littlesie'): ?mikruliú/ -on (<mikros 'little')

In all the above examples, as in the case of *-áki*, the affixes bear stress, a point I will come back to. In all, genitive formation requires stress shift both in the singular and in the plural. Importantly, however, as Thomadaki (2012) argues, this cannot be the explanation for the gaps, as stress shift also affects other nominal forms in *-i*, which are non-derived, e.g., *spíti-spitjú* 'house/house.GEN'. Rather there must be something special about the singular genitive formation of the diminutive in particular and of derivative forms of class VI more in general.

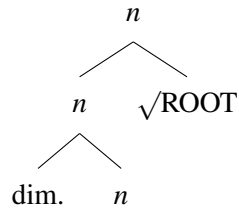
### 3. Two types of diminutives

It has been argued by e.g., Wiltschko & Steriopo (2007), Steriopo (2008) that diminutives come in two types. Some are heads, while some are adjuncts to a head. According to these authors, the status of diminutive affixes is determined on the basis of three diagnostics: i) Do they change syntactic category? ii) Do they change grammatical gender? and iii) Do they change declension class? If the answer to these questions is yes, then the diminutive affix realizes n, i.e., it is a head, as in (6). If the answer is no, then there is evidence for adjunction to n, as in structure (7).

(6) **Diminutives as heads**



(7) **Diminutives as adjuncts**



According to Wiltschko & Steriopo (2007), German *chen/-lein* are diminutives that show properties of heads: they change the gender of the noun they attach to, basically they only derive neuter nouns (8–9):

(8) a. **masculine**

der klein-er Tisch  
 the little table  
 ‘the little table’

b. **neuter**

das Tisch-chen/-lein  
 the table.DIM/DIM  
 ‘the little table’

(9) a. **feminine**

die klein-e Flasche  
 the little bottle  
 ‘the little bottle’

b. **neuter**

das Fläsch-chen/-lein  
 the bottle.DIM  
 ‘the little bottle’

In Spanish, as discussed in Kramer (2015) and Vadella (2016), certain diminutive affixes preserve the gender of the base. In addition, these affixes attach to a variety of categories, e.g., nouns, adjectives and adverbs, see (10). This is taken as evidence for the adjunct status of the affix:

(10) **Base form**                      **Diminutive form**

casa	casita	house
chico	chiquito	small
pronto	prontito	soon

Building on Melisaropoulou & Ralli (2008), in Alexiadou (2020) I adopted Kramer’s analysis of diminutive affixes as realizing *n* and showed that *-áki* is similar to *-chen/-lein*, as it changes the gender of the noun it attaches to. On the basis of this analysis, *-áki* should be represented as in (6). By contrast, *-úla* and *-ítsa* behave like adjuncts and could be analyzed as in (7). The masculine affix *-ákos* causes a shift in inflection class, and thus may also be analyzed as

in (6). Support for this analysis of *-áki* comes from further similarities between *áki* and *chen/-lein*. For instance, as Melisaropoulou & Ralli (2008) show, *-áki* changes mass nouns to count nouns, (11), as does *-chen*; it may also change the interpretation of the base noun, as in *melindzan-áki* 'little-eggplant', which also has an interpretation as a particular type of eggplant based sweet:

- (11) a. psom-i psom-ak-i  
bread bread.DIM  
b. Agorasame dio psomakia  
bought-1PL two little breads  
'We bought two rolls.'

The affixes in the examples in (5) are clearly all derivational and thus realize an n head and may receive a morpho-syntactic analysis as in (6). I furthermore assume, following Kramer (2015) and Alexiadou (2017), that inflection class information is located on n and is inserted post-syntactically, contra Alexiadou & Müller (2008).

On the basis of this, we can formulate the generalization in (12):

- (12) Genitive singular gaps are found with head-type derivational affixes that yield class VI nouns.

In other words, in agreement with Thomadaki (2012), there is a link between singular genitive gaps and derivational morphology. In support of this, Tsompanidou (2022) notes that when the diminutive affix is semantically transparent, there will most likely be a gap in the formation of the genitive singular. By contrast, when the affix is no longer transparent, there will be no gap. The latter is the case in nouns such as *pagáki* 'bench': here the affix is no longer semantically transparent and thus genitive formation is more acceptable, as Tsompanidou details.

(12) allows us to also maintain Sims's implicational hierarchy and explain the absence of the genitive plural with the derivatives under investigation on the basis of the absence of the singular: since the plural form is based on the presence of the genitive singular, the absence of the singular entails the absence of the plural. The question then is why the genitive singular form is ineffable.

#### 4. The formation of the genitive singular in class VI

Let me now take a closer look at the formation of the genitive singular. Mertyris (2014) establishes a correlation between the presence of a genitive gap and synzesis: specifically, he points out that the gap in genitive formation appeared only in certain dialects of Greek, namely those that also developed synzesis, see (13), which represents Standard Modern Greek. (13) is very telling as it clearly shows that the non-derived noun *pedí* ‘child’ can form the genitive singular, while the derived from *pedáki* ‘child.DIM’ cannot, although they both belong the same inflection class, namely VI:

(13)		–SYNIZESIS (before 13th c.)		+SYNIZESIS (after 13th c.)
n./a.sg	pedí-(n)	ped-áki-(n)		pedí-Ø ped-áki-Ø
gen.sg	pedí-u	ped-akí-u		pedi-ú —
n./a.pl	pedí-a	ped-áki-a		pedi-á ped-áki-a
gen.pl	pedí-on	ped-akí-on		pedi-ón —

By contrast, in the dialect of Kymi (Central Euboea), the diminutive suffixes *-ági* and *-átsi* have fully productive genitives, e.g., *kosif-ági* (<kosífi ‘blackbird’)/ gen.sg *kosifag-í-u*/ gen.pl *kosif-agí-on*.

Thus, it seems to that the problem arises in the contexts where we would have a *i->j* alternation, i.e., glide formation, in the genitive form of a noun that involves a derivational affix, see Ralli (2000), Revithiadou (1999), van Oostendorp (2012), Topintzi & Baltazani (2014) and references therein. The *i->j* alternation is observed in class VI in the case of non-derived forms. As Topintzi & Baltazani (2014) note, in some cases, hiatus is permitted, e.g., with nouns ending in *-o*, *pedío–pedíu* ‘field’, class V in Ralli (2000); however, in class VI, paradigm uniformity, which requires that the number of the syllables of the noun remains constant across the paradigm, may cause its resolution, e.g., [peðí] – [peðjú] \*[peðiú] ‘child’.

The gap observed cannot be further accessed without making the following observations concerning Greek nominal stress. van Oostendorp (2012:1169), following Revithiadou (1999), summarizes this as follows: in Greek “there are three different types of roots: (i) unaccented, (ii) accented, (iii) post-accenting. Different from e.g., Germanic languages like English, Greek requires all lexical words to consist of more than one morpheme: at least a root and a

desinence, denoting case, gender and lexical class in the case of nouns. Since all morphemes can be marked or unmarked for underlying stress, and since every word will contain exactly one stress, we need a calculus on how to derive this one lexical stress from the underlying specifications. In particular, if several morphemes have underlying stress, how do we decide which of those underlying markings we want to preserve?”

Revithiadou (1999) puts forth the following proposal for derivational and inflectional affixes: the former are heads and thus erase the stress of the stem, while the latter are not heads, and thus always lose to the stress of the stem, in which case, the stress will be determined by the root. The stress pattern of the genitive singular of class VI is classified as pre-accented. In this class, /i/ loses its vocalic status in the genitive, and as described in Revithiadou (1999), the stress will move to another vocalic peak of the same morpheme. This is what happens in the non-derived nouns of class VI, i.e., [peðí] – [peðjú].

Consider now the diminutives and let us concentrate on the forms that both Revithiadou and I analyze as heads, namely the neuter and the masculine. In the case of the masculine diminutive, the derivational affix combines with the pre-accenting genitive inflectional suffix, the stress is always on the derivational affix regardless of the stress requirements of the latter, see (14), and see Revithiadou (1999) for details.

(14)	ágelos	agel-ákos	agel-ák-u
	angel	angel.DIM.MASC	angel.DIM.GEN

In class VI neuter derived nouns, an inflectional pre-accenting genitive affix combines with a derivational morpheme, but now the *i*→*j* alternation would apply and as a result /i/ would lose its vocalic status. And now we have two conflicting requirements and as a result ineffability: the stress must move to another vowel of the same morpheme, but derivational affix stress must win, see also Kara (2006), who argues that the ineffability results from a stress conflict between the stress of the affix and the stress pattern of the genitive. Note that this conflict also arises with the other affixes discussed in Mertyrís (2014): if the head *n* is realized by an overt affix carrying stress, genitive formation is blocked, because of conflicting stress requirements that cannot be resolved. If hiatus is allowed, then the genitive formation will be possible.



## 5. Conclusions

In this paper, I discussed a gap observed in the formation of Greek diminutives as well as other derived nouns ending in *-i*: this noun class thereof lacks both genitive singular and genitive plural, but only in the case of derived nouns. While the latter form is deficient in several paradigms, the gap observed with respect to the genitive singular is characteristic of a particular noun class and thus constitutes a morpho-phonological puzzle. I explored an explanation that capitalizes on the head status of the affixes involved, which requires that stress remains on the affix. This requirement is in conflict with the formation of the genitive, an inflectional affix that is pre-accenting in Revithiadou's (1999) terms, and which forces glide formation and stress shift in class VI neuter nouns. As a result, a stress-conflict emerges that cannot be resolved and thus the singular genitive cannot be formed. Because this form is ineffable, the plural form cannot be formed, following Sims (2006).

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