

Nikos Koutsoukos

Implicit multiple exponence in Modern Greek verbs

Abstract: Multiple exponence in morphology has recently attracted a good deal of attention (see, among others, Harris 2017; Caballero & Inkelas 2018). In this paper, I examine Modern Greek verbs which take an extra verbalizer (implicit multiple exponence). The simple base (bare form) and the base with the verbalizer co-exist in the lexicon without any semantic or aspectual opposition and can be used in the same syntactic context. Thus, they raise important questions for morphological theory. I argue that the explanation of this pleonastic addition may be hidden in the relation between inflection and derivation and the polyfunctional character of verbalizers in synthetic languages. Since the two forms co-exist and one member of each pair features an idiomatic association of meaning and complex form, morphological theory is challenged. I argue that these formations find a natural account within the framework of Construction Morphology (Booij 2010; Jackendoff & Audring 2019).

Keywords: implicit multiple exponence, construction morphology, derivation, inflection, Modern Greek, verb

1. Introduction

The idea that a formally complex word is a simple concatenation of morphemes was very popular among the structuralists, especially in the early days of the paradigm (cf. Lieber 2004; Blevins 2016). For example, in a derivative, such as *read-er*, we can assume a derivational process (or construction) which adds the agentive meaning to the meaning of the base in a compositional fashion: *read* > *read-er*. However, there is ample evidence that morphological structures do not always adhere to this template (see, among others, Hoeksema 1985; Dressler et al. 2001; Marzo 2015; Harris 2017).

One phenomenon which shows that the formation of complex words is not always strictly compositional is multiple exponence. *Multiple exponence* is defined as “the occurrence of multiple realizations of a single morphosemantic feature, bundle of features, or derivational category within a word” (Harris 2017: 9) and is well-attested cross-linguistically (see, among others, Caballero 2013; Gardani 2015; Harris 2017). Multiple exponence is more common in non-European languages, but it is not totally absent in European languages (see, among others, Haspelmath 1993; Stolz 2010; Gardani 2015).

A classic example is the combination of the suffixes *-ic* and *-al* in English, which both create relational adjectives out of nouns, and may appear on the same formation successively. In the *Oxford English Dictionary* (OED) we find the form *geograph-ic-al* as a variant of the form *geograph-ic* with identical definitions. However, the same combination can be found in other pairs with some semantic opposition, such as *classic* ‘having a high quality or standard against which other things are judged’ vs *classical* ‘traditional in style or form or based on methods developed over a long period of time’ (OED).

Multiple exponence is pervasive at different levels of style and within different domains of grammar (Lehmann 2005: 119). Multiple exponence in inflectional morphology has attracted more attention (see, among others, Matthews 1974; Stump 2001; Stolz 2010; Harris 2017) compared to multiple exponence in derivational morphology which has been analyzed to a lesser extent (cf. Lehmann 2005). However, it deserves further attention, since it can give us important insights into morphological systems.

Multiple exponence is widely attested in the diachrony of Greek (see examples in Winer 1840). However, it is mostly inflectional multiple exponence that has received attention in the literature (see, among others, Janse 2009; Pandelidis 2003, 2006, 2010; Joseph 2016 and Karantzola & Sampanis 2016) with few exceptions of analyses of derivational multiple exponence (Hatzidakis 1905; Efthymiou 2013). In this paper, I examine cases of implicit multiple exponence in Modern Greek verbs. I analyze cases of verb-forming suffixes which are added to stems that already have the verbal category as an inherent feature (implicit multiple exponence). For example, the verb *αιματοκυλώ* [ematociló] ‘bathe in blood’ co-exists with the form *αιματοκυλιζώ* [ematocilízo] ‘bathe in blood’, which has the same meaning and the same argument structure but shows an extra suffix (*-ίζ(ω)* [izo]).

This type of multiple exponence is difficult to describe and analyze, but it poses interesting analytical challenges and raises intriguing questions regarding morphological theory. One of the problems is the compilation of the dataset, since multiple exponence is usually not discussed in grammars; when it is discussed, it is difficult to find relevant cases (cf. Harris 2017: 51). Another problem is that the analysis of implicit multiple exponence can vary depending on the theoretical assumption and premises. In the present paper, I propose a typology of implicit multiple exponence in Modern Greek verbs and solid criteria for their analysis. I also argue that a compilation of textbook examples or examples taken from grammars can be supplemented by corpus analysis.

Second, I discuss the motivation behind implicit multiple exponence in Modern Greek verbs and their formal representation within the framework

of Construction Morphology. I propose that the motivation behind multiple exponence in a language with rich inflection and synthetic typological profile may involve interaction between inflection and derivation. I argue that the addition of the pleonastic verbalizer duplicates the verbal category but at the same time is the means by which verbs shift to another inflectional class. The fact that two forms co-exist within the system with the same semantic/aspectual properties (synchronic variation) can be neatly represented in Construction Morphology, which assumes a network of relations. Moreover, constructionist models do not exclude structures which are not fully compositional (cf. Kay & Michaelis 2012; Jackendoff 2013; Jackendoff & Audring 2016, 2019). Thus, Construction Morphology is a fitting framework for the analysis of multiple exponence (cf. Caballero & Inkelas 2018).

To cover these issues, I structure this paper as follows: in section 2, I describe the defining criteria and types of multiple exponence, giving an overview of the previous literature. The next section has two parts: first, I give some basic information about the inflectional and derivational features of Modern Greek verbal system (3.1), and then present implicit multiple exponence in Modern Greek verbs (3.2). After the presentation of the data, I offer a usage-based motivation for this phenomenon (4.1) and provide a construction-based analysis (4.2). In the last section, I draw some conclusions.

2. Multiple exponence: defining criteria and types

A definition of multiple exponence (or pleonasm)¹ is provided by Lehmann (2005: 122): “An expression $E_1 + E_2 \dots E_n$, is pleonastic iff [if and only if] it contains a meaning component F that is included in the meaning of more than one E_i ”. More recently, Harris (2017: 9) defines multiple (or extended) exponence as “the occurrence of multiple realizations of a single morphosemantic feature, bundle of features, or derivational category within a word”. Multiple exponence may appear in different parts of speech and involve different morphotactic units and can also realize different semantic/functional features (cf. Gardani 2015; Harris 2017).

Morphological multiple exponence has different types. Thus, we need to set criteria for their classification. The first distinction is based on the motivation underlying the phenomenon. According to this criterion, we can distinguish between “intentional multiple exponence”, in which speakers repeat a formative for stylistic/literary/expressive reasons, and “unintentional multiple exponence”, which is typically related to diachronic morphological change.

1 Also cited as redundancy, or tautology or exuberant/extended exponence, cf. Szymanek (2015) on terminological issues.

A prime example of intentional multiple exponence at the morphological level is the use of intensifiers and evaluative morphology. For example, in Dutch we find the formation *Het bleef bloed- en bloedheet* lit. ‘it remained blood- and blood-hot’; ‘it remained extremely hot’ in which the repetition of the same prefixoid has an expressive function (Hoeksema 2001: 5; Booij 2010: 59),² while in Modern Greek intensification can be realized by the simultaneous addition of a prefix and a suffix, as in *αρχι-ψεύτ-αρ(ος)*³ [arçipséftaros] AUG-STEM-AUG.NOM.SG⁴ lit. ‘great-liar-big’; ‘a great great liar’ (Efthymiou 2003).

“Unintentional multiple exponence” is close to what has been described in the literature as hypercharacterization (Malkiel 1957). Malkiel’s (1957: 79) definition of hypercharacterization is the following: “If a given linguistic formation develops in such a way as to allow, at a certain point, one of its distinctive features to stand out more sharply than at the immediately preceding stage, one may speak of hypercharacterization [...] of that feature, in the diachronic perspective”.⁵ Later, Caballero and Inkelas (2018: 118) define hypercharacterization as a “change in stem or word form when an inner marker is not marking a category transparently enough, triggering a second layer of morphological exponence to ‘support’ or ‘supplement’ the loss of contrast in a morphologically complex word” and they propose the term “weak exponence” as the equivalent of the term hypercharacterization. Hypercharacterization is nicely exemplified in the English form *children*. The analysis of this form shows that the older English plural suffix *-er* was “augmented” by the more common plural suffix *-en* yielding forms like *childeren* (Middle English) and subsequently *children* (Haspelmath 1993: 297; Lehmann 2005: 119).

2 The authors call this phenomenon “emphatic reduplicative construction”.

3 Traditionally, Modern Greek derivational suffixes are presented along with the inflectional suffixes that follow (as one unit). Following this tradition, I present Greek derivational suffixes along with the inflectional suffixes, but I put the latter within parentheses, unless their distinction plays a role in the analysis.

4 The following abbreviations are used in this paper: N=noun, V=verb, ADJ=adjective, AG=Ancient Greek (5th/4th c. BC), AOR=aorist, AUG=augmentative, FEM=feminine, INFL=inflection, KOINE=Koine Greek (ca 3rd c. BC to 3rd c. AD), MEDG=Medieval Greek, MG=Modern Greek, NOM=nominative, NOMIN=nominal (noun and adjective), PL=plural, PRES=present, PRFV=perfective, SG=singular, VERBAL=verbalizer.

5 Lehmann (2005: 125) gives a different definition of the same term which reads as follows: “Hypercharacterization may then be defined as that kind of pleonasm where the focal component is expressed by an inflectional or derivational morpheme”.

Based on the locus of realization of multiple exponence, we can distinguish between explicit multiple exponence, in which pleonastic information is encoded by two distinct affixes, and implicit multiple exponence, in which pleonastic information is encoded on the stem (as an inherent feature) and by one affix or another word (Gardani 2015). Examples of implicit multiple exponence can be found in Newman (2000). He shows that Hausa has some nouns in which the feminine gender is encoded both on the stem and by the suffix $-ā$, e.g. $*bēgo_{(FEM)} + -ā \rightarrow bēguwā_{FEM}$ ‘porcupine’, $*tsire_{(FEM)} + -ā \rightarrow tsiryā_{FEM}$ ‘parakeet’ (Newman 2000: 214). He argues that the function of the suffix is not to change gender (since bases have already this feature), but rather to provide the word with an overt shape such that it is explicitly characterized as feminine (Newman 2000: 214).

A well-discussed example of explicit multiple exponence (suffix pleonasm) in Modern Greek is the combination of the verb-forming suffixes $-á\rho(\omega)$ [aro] and $-i\zeta(\omega)$ [izo] in the imperfective past of some verbs, e.g. $\pi\alpha\rho\kappa-\acute{\alpha}\rho-i\zeta(\alpha)$ [parkárizα] STEM-VERBAL-VERBAL.1SG.ACTIVE ‘I was parking’ (see, among others, Anastasiadis-Symeonidis 1994; Efthymiou 2013; Veloudis 2009). Normally, the suffix $-á\rho(\omega)$ [aro] is very productive in the integration of non-native bases into the category of verbs, while $-i\zeta(\omega)$ [izo] is very productive in denominal formation of verbs out of native bases (Ralli 2005, 2016). However, they have the same function, i.e. they flag the verbal category and allow the item to receive a Greek inflectional ending.

However, not all suffix combinations with the same function should be considered pleonastic. A basic condition is that the two exponents should occur independently (one without the other) and both items should be productive (Harris 2017: 25). In Dutch, for example, we find the suffix $-achtig$ which is used to derive adjectives from nouns, adjectives or verbs, as in [berg]_N- $achtig$ ‘mountain-ous’, [zoet]_{ADJ}- $achtig$ ‘sweet-ish’ and [vergeet]_V- $achtig$ ‘forget-ful’. Diachronically, it can be seen as a combination of the suffixes $-acht$ (< *haft*) and $-ig$ which both have the etymological meaning ‘to have’ (cf. *Woordenboek der Nederlandsche Taal*, s.v. $-achtig$ and $-ig$). Synchronically, $-ig$ (but not $-acht$) can occur as a separate suffix, e.g. *herfst-ig* ‘autumn-al’, with almost the same meaning/function. The combination $-achtig$ has recently undergone some new semantic developments, e.g. *Ik ben niet zo hond-achtig* lit. ‘I am not so dog-like’; ‘I don’t like dogs a lot’, which shows that it has started a life on its own. This combination of affixes is a historically/etymologically pleonastic morpheme, but synchronically it is not a case of pleonastic suffixation.

Moreover, pleonastic morphemes should not necessarily be identical or indicate identical features; they need only overlap with respect to one feature (Harris 2017: 14). Regarding functional overlap between the

pleonastic elements, both morphemes can express the same features in cases of *fully superfluous multiple exponence*, or one of the two morphemes can express only a subset of the features of the other in cases of *partially superfluous multiple exponence*. According to the grammatical status of the pleonastic element, we can distinguish between derivational multiple exponence, when the elements involved have derivational properties (Caballero 2013), or inflectional multiple exponence, when the elements involved have inflectional properties (see, among others, Matthews 1974; Stump 2001; Stolz 2010).

Multiple exponence can be easily confused with closely related – yet different – phenomena. For example, the dividing line between reduplication and multiple exponence is not always clear. Schwaiger (2015: 468) defines reduplication as “the systematically and productively employed repetition of words or parts of words for the expression of a variety of lexical and grammatical functions”. A classic example of partial reduplication is the reduplication of the first consonant of the verbal stem with the addition of the vowel -ε- [e] in order to signify the formation of the perfect stem in Ancient Greek, e.g., *λυ-* (as in *λύω* [lýo:] ‘loosen; unbind; unfasten’) → *λέλυ-* (as in *λέλυκα* [lélyka] ‘I have loosened’) (Manolessou & Ralli 2015: 2052). According to Harris (2017: 15), in reduplication a feature is realized once (“meaningful repetition”), while in multiple exponence a feature is realized more than once. In other words, in full or partial reduplication the repetition of the element is equivalent to a new meaning/function ($X+X=Y$), while in multiple exponence the repetition of the feature is equivalent to doubling of the same feature ($X+X=2X$). However, this distinction is not always watertight.

Similarly, multiple exponence should not be confused with epenthesis. Epenthesis is the addition of elements which serves to restore prosodic normality. For example, in Modern Greek dialects we notice the epenthesis of a vowel -ε [e] at the end of nominal or verbal forms to create a sequence of consonant-vowel (CV), which is the optimal syllable structure in Modern Greek. For example, in the dialect of Ochthonia (Euboea), we find the form *ερχούμαστανε* [erxúmastane] 1PL of the mediopassive imperfect of the verb *έρχομαι* [érxome] ‘come’ instead of *ερχούμασταν* [erxúmastan] (Pandelidis 2010: 324).

3. Implicit multiple exponence in Standard Modern Greek

3.1 Inflection and derivation in Modern Greek verbs

Before we move to the presentation of the data, some background information about the inflectional and derivational features of the Modern Greek

verbal system is needed. Modern Greek is a highly inflecting language. Verbs are formed by combination of a morphologically simple or complex stem, which carries the lexical meaning, and one inflectional suffix expressing the following morphosyntactic categories: person (first, second, third), number (singular, plural), tense (past, non-past), voice (active, mediopassive), aspect (perfective, imperfective) and mood (imperative, non-imperative) (Holton, Mackridg, Philippaki-Warburton 2004: 116-117; Ralli 2013).⁶

Most of the grammatical descriptions of Modern Greek varieties use the traditional criterion of the stress pattern (*oxytones vs barytones*) to describe verbal systems. However, Ralli (2005, 2006) has convincingly argued that verbs should be described and grouped on the basis of their allomorphy, i.e. the appearance of form variants which have systematic and complementary distribution. Information about the Inflectional Class (IC) of the verbal stem is part of the lexical entry of the verbs.

More specifically, in Modern Greek, verb stems belonging to IC2 display a systematic pattern X(a)~X(i/e/a) (X represents part of the stem and the vowel in parentheses is the stem-final vowel), whereas the absence of this systematic allomorphy pattern characterizes verb formations belonging to IC1. IC2 can be further divided into two subclasses IC2a and IC2b, according to the stem-final vowel (from Ralli 2005):⁷

- | | | |
|------------------------------------|---|--|
| (1) IC2a: X(a) ~ X(i/e/a) | | |
| IC2b: X ~ X(i/e) | | |
| (2) ιδρύ-ω [iðrío] ‘found’ | ~ | ιδρυ-σα [iðrisa] (IC1) |
| STEM-PRES.1SG.ACTIVE | | STEM-PRFV.PAST.1SG.ACTIVE |
| αγαπ-ώ [aɣapó] ⁸ ‘love’ | ~ | αγάπη-σα [aɣápisa] ⁹ (IC2a) |
| STEM-PRES.1SG.ACTIVE | | STEM-PRFV.PAST.1SG.ACTIVE |
| διαίρ-ώ [ðieró] ‘divide’ | ~ | διαίρε-σα [ðiéresa] (IC2b) |
| STEM-PRES.1SG.ACTIVE | | STEM-PRFV.PAST.1SG.ACTIVE |

6 The inflected verb may be modified by the particles *να* [na], *ας* [as], *θα* [ða], which precede the verb form and mark further divisions of mood (indicative/subjunctive) and tense opposition (future/non-future). The only invariant, non-finite verb forms are (a) the gerund, ending in *-όντας*[ódas]/*-ώντας* [ódas], e.g. *τρώγοντας*, *πίνοντας* και *γελώντας* [tróɣonas, pínonas, jelódas] ‘eating, drinking and laughing’, and (b) the non-finite verb form which follows the auxiliary *έχω* [éxo] ‘I have’ to form the perfect tenses (e.g. *έχω παίξει* [éxo péksi] ‘I have played’) (Holton, Mackridg, Philippaki-Warburton 2004: 117).

7 In Modern Greek, all forms, unless otherwise mentioned, are in the citation form, i.e. 1SG of the present indicative for verbs and nominative singular for nouns.

8 I use a broad phonetic transcription for the Greek data.

9 Morphological analyses differ with respect to the grammatical status of the aspectual marker *-s-* (cf. Ralli 2005).

The following table shows the distribution of the allomorphs in the paradigm, and includes only those cells which are relevant to our discussion:

Tab. 1: Distribution of the allomorphs in verbal paradigms in Modern Greek.

	IC1	IC2a	IC2b
Active present tense (imperfective non-past indicative)	λύν-ω [lino]	αγαπ-ώ [aɣapó]	διαίρ-ώ [ðieró]
Active aorist tense (perfective past indicative)	έ-λυ-σα [élisa]	αγάπη-σα [aɣápisa]	διαίρε-σα [ðiéresa]
Mediopassive aorist tense	λύ-θηκα [líθika]	αγαπή-θηκα [aɣapíθika]	διαίρέ-θηκα [ðiéréθika]
Passive perfect participle (PPP)	λυ-μένος [liménos]	αγαπη-μένος [aɣapiménos]	διαίρε-μένος [ðiereménos]

The table shows that allomorphs of verbs of all inflectional classes are found in complementary distribution: one allomorph of the verb, i.e. the stems *λυν-* [lin], *αγαπ-* [aɣap-], *διαίρ-* [ðier-], appears in the imperfective context (such as the active present tense) and the other allomorph, i.e. the stems *λυ-* [li-],¹⁰ *αγαπη-* [aɣapi-], *διαίρε-* [ðiere-], appears in the perfective context (such as the active aorist tense, the mediopassive aorist tense and the PPP).

The next question that we need to discuss in order to argue for implicit multiple exponence is whether lexical category is encoded on Modern Greek stems as inherent feature. In general, the mechanism of assignment of lexical category is a hotly debated issue (cf. the discussion in Lieber 2006). One line of research argues that stems do not have category (category-less roots), but take their category in the grammatical structure, while the opposite view argues that lexical category is encoded on stems (inherent feature). Lehmann (2008) cuts across these views and argues that languages follow different patterns for the assignment of the lexical category to their words. There are languages that assign category in the lexicon on stems (primary categorization), while other languages assign category at the level of syntax (secondary categorization).¹¹ For example, according to Lehmann (2008: 557), English is a language with low stem categoriality and assignment of words to categories is fully achieved only at the level of syntax.

Modern Greek is a language with high stem categoriality, that is, the lexicon plays a major role in the categorization of words and lexical category (noun, verb etc.) is encoded on simple stems (i.e. stems which do not have a derivational

10 Stressed and unstressed variants of the form *λυ-*[li-] are not allomorphs.

11 This typological classification does not exclude intra-linguistic variation.

suffix) as inherent feature. There are two principal arguments supporting this view. First, given that there are different inflectional paradigms for the different lexical categories, stems should have a lexical category in order to match with the right inflectional paradigm (cf. Ralli 1999, 2013).¹² For example, the verbal category is inherently encoded on the stem $\tau\rho\epsilon\chi_{(v)}$ [-trex-] ‘run’ and this information should match with the information borne by the inflectional suffix in order to give the final output, that is, the word $\tau\rho\acute{\epsilon}\chi(\omega)$ [tréxo] ‘run’.

Second, stems have sharp category boundaries (low boundary permeability),¹³ that is, they participate in only one lexical category and the transition from one lexical category to another is formally marked with a suffix. Modern Greek shows a very rich system of category-changing derivational suffixes. A very productive pattern is the formation of verbs on the basis of nouns by means of derivational suffixes, the so-called *verbalizers* (see Ralli 2005; Charitonidis 2005; Efthymiou et al. 2012; Spyropoulos et al. 2015; Panagiotidis et al. 2017; Efthymiou 2018). The appearance of a verbalizer on a Greek formation flags the verbal category, defines the inflectional class, and “prepares” the item to receive an inflectional ending (Ralli 2005).

- (3) $\chi\rho\acute{\omega}\mu\alpha_{(N)}$ [xróma] ‘colour’ \rightarrow $\chi\rho\omega\mu\alpha\tau\text{-}\acute{\iota}\zeta$ [xromatiz-] STEM_(N)-VERBAL \rightarrow $[\chi\rho\omega\mu\alpha\tau\acute{\iota}\zeta(\omega)]$ WORD [xromatízo] ‘colour, tinge’

Given this analysis, in Modern Greek one does not expect to find verbalizers with simple verbal bases, since the verbal category is encoded on the stem (as inherent feature). However, this phenomenon is not uncommon in Modern Greek varieties (see, among others, Hatzidakis 1905; Katsouda 2007; Koutsoukos 2018) and some of these formations can be considered cases of implicit multiple exponence, since the same feature is specified on the verbal stem and by the suffix. This type of formation will be examined in the next section.

3.2 Implicit multiple exponence in Modern Greek

3.2.1 Methodological premises

There are several methodological problems in the collection of instances of implicit pleonastic morphology, since the relevant cases cannot be

12 There is a debate on whether inflection can change the lexical category of the formation (see Booij 2000). The traditional assumption is that inflection cannot change the lexical category of the base -with some exceptions (cf. Haspelmath 1996). Along the same lines, (Ralli 2005, 2013) has convincingly argued that due to its paradigmatic nature inflection cannot assign lexical category to the base in Modern Greek. A number of derivational suffixes play this role.

13 For the notion of boundary permeability, see Berg (2014).

automatically extracted. Moreover, the analysis of pleonastic structures becomes even more difficult in “standardized” forms of languages, since variation is usually levelled in grammars and dictionaries.

Many researchers have observed that Modern Greek verbs may show two forms, i.e. one form without a verbalizer (bare form) and one form with a verbalizer (extended form), which co-exist in the system and can be in free variation. Hatzidakis (1905, 1912), among others, observed this phenomenon in Standard Modern Greek and Modern Greek dialects and gives extensive lists of examples. Triadafilidis (2005: 350-352) also mentions that there are some *diploximatista rimata* ‘double-formed verbs’ in Modern Greek. For example, the verb *σκορπώ* [skorpó] shows a parallel form *σκορπίζω* [skorpízo] ‘waste’ and the verb *ανθώ* [anθó] shows a parallel form *ανθίζω* [anθízo] ‘bloom’. Babiniotis (1972) and Katsouda (2007) also analyze these forms from a diachronic point of view.

These double-formed verbs are also listed in dictionaries of Standard Modern Greek. For example, the *Dictionary of Standard Modern Greek* (online edition) contains numerous verbs which have a parallel form. Iordanidou (2004) also mentions some pairs which are annotated for their usage and Papanastasiou (2008)¹⁴ gives lists of pairs in order to discuss problems in their orthography.

All these sources were used as a starting point for the compilation of my dataset. However, since none of these sources had as its primary aim the analysis of the pleonastic verbalizer, I had to check published data and compile a new dataset for the purposes of this research. It should be noticed that for the compilation of this dataset different methods were employed.

The first step was to examine verbs which were extracted from online corpus. I employed *Greek elTenTen14* corpus, available on the *Sketch Engine platform* (Kilgariff et al. 2014). This corpus consists of recent (2014-2015) native texts (untranslated language) which depict authentic language use. *Greek elTenTen14* contains 1,671,678,534 words (accessed May 2018). I employed the *Wordlist* option which creates automatic lists. In order to extract a list with all the verbs from the corpus, I used the option “lempos” (lemmas selected on the basis of their part of speech) by using the Regular expression “. *-v”. This procedure gave a total number of 1,740,826 results, which should correspond to lemmas (lexemes) but they do not – as shown below – and 222,912,527 tokens. A screening of the list showed that most of these results should be discarded because they were not verbs (incorrect tagging), they were word-forms (not lemmas), or they had spelling mistakes, etc. In order to overcome these problems,

14 I would like to thank Io Manolessou for bringing this list to my attention.

I set a cut-off point at 1/1 million verb tokens which gives a minimum token frequency ≥ 223 . This automatic sorting of the dataset gave a result of 11,844 lemmas with 214,296,866 tokens. However, this second list still had a number of entries which were not relevant. Thus, a second sorting of data was in need.

In order to clean this list, I developed a simple, easy-to-use software in Java capable of filtering large lexical datasets, based on criteria defined in a text script. The program can filter word lists based on frequency, contained substrings and length, and store them in different output files. Criteria can be combined and multiple filters can be used in succession. The criteria used for sorting this list were orthographic. The script picked out lemmas ending in $\{-\omega, -\acute{\omega}, -\alpha\}$, which gave citation forms of the verbs, and in $\{-\epsilon\}$ for verbs which appear only in the 3SG, such as *βρέχει* ‘it rains’. The output of this final list contained a number of problematic results and the list was then cleaned manually. The final list of verbs contained 5,565 lemmas. In this final list, I checked both verbs ending in $-\acute{\omega}$ [o] and verbs in $-i\zeta(\omega)$ [izo], but the analysis of the corpus examples did not yield a sufficient number of verbal pairs, so other methods had to be employed as well.

The second step was to check the *Reverse dictionary of Modern Greek* (Anastasiadis-Symeonidis 2002), and the list of data in Iordanidou (2004) and Papanastasiou (2008). In the *Reverse dictionary of Modern Greek*, I checked lemmas in $-i\zeta(\omega)$ [izo] and $-\acute{\omega}$ [o].¹⁵ The third step was to check all verbs $-\acute{\omega}$ [o] in the *Dictionary of Standard Modern Greek* and to examine whether they show parallel forms in $-i\zeta(\omega)$ [izo]. The dictionary contains 688 verbs ending in $-\acute{\omega}$ [o] (which corresponds to IC2 in the terms of Ralli’s classification). At the end of this process, 143 verbal pairs were collected.

It should be mentioned that not all of the pairs were relevant to the analysis of the present paper. In the next section, I set out the criteria according to which a verb pair can be qualified as a case of implicit multiple exponence.

3.2.2 *Criteria for the analysis of the data*

Verbal pairs should meet the following criteria in order to be characterized as a case of implicit multiple exponence:

Criterion 1: the extended form should be formed on the basis of the bare form (not vice versa). This information was checked for every pair in the

15 These sources do not discuss the semantics of the forms, since they focus on other aspects of the verbal paradigm.

Dictionary of Standard Modern Greek. When the information provided in the dictionary was not clear, the relevant pair was excluded from the dataset.

Criterion 2: both members in the pair should have the same meaning and the surplus element should not signal any aspectual difference. The meanings of the verbs from the Classical and Hellenistic (Koine) period were checked in *The Online Liddell-Scott-Jones Greek-English Lexicon*.

Criterion 3: The argument structure of the two verbs should be the same. Verbs in my dataset were checked in the corpus to examine whether they appeared in the same syntactic context.

Applying these criteria, verbal pairs were classified into different groups. Starting with the cases which are not relevant to the present analysis, in the first group, I present verbs which originally occurred with *-ιζ(ω)* [izo], but later developed a parallel form without the verbalizer:

Reduction of the verbal base

- (4) a AG σκορπίζω [skorpídzo:] ‘scatter, disperse’, MEDG σκορπώ [skorpó] ‘scatter, disperse, spend’ > MG σκορπίζω [skorpízo] ~ σκορπώ [skorpó] ‘scatter, disperse, spend’
 b σεργιανίζω [serjanízo] ‘wander’ > σεργιανίω [serjanízo] ‘wander’ ~ σεργιανώ [serjanó] ‘wander’¹⁶
 c MEDG γυρίζω [jirízo] ‘turn, go back’ > γυρίω [jirízo] ~ γυρνώ [jirnó] ‘turn, go back’¹⁷

This group is not relevant to our analysis, since the verb does not show implicit multiple exponence. On the contrary, it shows reduction of the base in the course of time.

The second group comprises cases in which the verbalizer signals a semantic/aspectual difference, in a particular a stative-causative:

Pairs with different meanings and different argument structure

- (5) a αντιστοιχώ [adistixó] ‘correspond’ vs αντιστοιχίζω [adisticízo] ‘match’
 b αποικώ [apikó] ‘settle in a foreign country, emigrate’ vs αποικίζω [apicízo] ‘colonize a place, send a colony to it’
 c βρομάω [vromó] ‘stink, be filthy’ vs βρομίζω [vromízo] ‘make something dirty’

16 The dictionary does not give any further information about the etymology.

17 The /n/ part in *γυρνώ* [jirnó] is not a suffix; rather, it can be considered a stem extension.

The third group includes pairs in which the verbalizer signaled a semantic difference at a previous stage of the language, while in Modern Greek the two verbs have semantically converged and can be interchangeably used.

Pairs resulting from semantic merging

- (6) a AG άνθῶ [antʰô:] ‘blossom, bloom’ and AG άνθίζω [antʰízo] ‘strew or deck with flowers’ > MG ανθῶ [anθó] ‘bloom, blossom, flourish’ ~ ανθίζω [anθίζο] ‘bloom, blossom, flourish’
 «Στις περισσότερες από αυτές τις χώρες **ανθούν** [PRES 3PL] η βιομηχανία κι ο κλάδος των κατασκευών.» ‘In most of these countries, industry and construction industry flourish.’
 «Σήμερα, 5 χρόνια μετά, με χαρά βλέπουμε να **ανθίζουν** [PRES 3PL] συνεργατικές προσπάθειες σε διάφορους τομείς και διάφορες μορφές [...]» ‘Today, five years later, it is with great pleasure that we see collaborative efforts in various fields and different forms flourish.’
- b ΚΟΙΝΕ καταχωρῶ [kataxoró] ‘yield or give up to a person in a thing’ and ΚΟΙΝΕ καταχωρίζω [kataxorízo] ‘enter in a register or record’ > MG καταχωρῶ ‘register, record’ ~ καταχωρίζω ‘register, record’
 «Η WIND δύναται να τηρεί και επεξεργάζεται αρχείο των προσωπικών δεδομένων που οι χρήστες/επισκέπτες οικειοθελῶς **καταχωρούν** [PRES 3PL] στην Ιστοσελίδα [...]» ‘WIND has the right to maintain and process a database with personal data that users/visitors voluntarily register on the webpage [...]’
 «Οι υπεύθυνοι των εκθέσεων **καταχωρίζουν** [PRES 3PL] σε μια βάση δεδομένων στοιχεία και επεξηγήσεις για τα έργα και τους καλλιτέχνες, αν βέβαια αυτό είναι δυνατό.» ‘The managers of the exhibitions register in a database data and details about the artworks and the artists, if possible, of course.’

Moving to the core of the analysis, in the last group of verbal pairs, I list Modern Greek verbs which originally did not have a verbalizer but developed a parallel form with a verbalizer over time. The parallel form with the verbalizer has exactly the same meaning as the form without the verbalizer, and both forms can be used in the same syntactic context.

Verbs with extra verbalizer in the present indicative¹⁸

18 Bold forms indicate verbs, while the underlined words indicate the object of the verb.

- (7) a ΜΕΔΓ αιματοκυλώ [ematociló] ‘bathe in blood’ > ΜΓ αιματοκυλώ [ematociló] ~ αιματοκυλίζω [ematocilízo] ‘bathe in blood’
 Bare stem: «Οι ίδιοι, αν και βαμπίρ, δεν **αιματοκυλούν** [PRES 3PL] τον κόσμο γύρω τους [...]» ‘Although they are vampires, they do not bathe people around them in blood [...]’
 Extended form: «[...] όλες θρησκείες που κυριάρχησαν [...] **αιματοκύλισαν** [AOR 3PL] και **αιματοκυλίζουν** [PRES 3PL] την ανθρωπότητα [...]» ‘[...] all the dominant religions [...] have bathed and still bathe humanity in blood [...]’
- b ΑΓ έξασθενῶ [eksast^henô:] ‘to be utterly weak’ > ΜΓ έξασθενώ [eksasθενó] ~ έξασθενίζω [eksasθενίζο] ‘weaken, dilute, devitalize’
 Bare stem: «[...] τα φάρμακα για τη ρευματοειδή αρθρίτιδα [...] **έξασθενούν** [PRES 3PL] το ανοσοποιητικό σύστημα [...]» ‘[...] medication for rheumatoid arthritis [...] weakens the immune system [...]’
 Extended form: «Η υπερκόπωση, το άγχος, η μόλυνση του περιβάλλοντος, η εργασία, η επίδραση από μία ασθένεια κ.α. **έξασθενίζουν** [PRES 3PL] το ανοσοποιητικό σύστημα [...]» ‘Burnout, stress, environmental pollution, work, the effects of an illness etc. weaken the immune system.’
- c ΚΟΙΝΕ δυσφημῶ [ðisfimó] ‘use ill words, esp. words of ill omen’ > ΜΓ δυσφημῶ [ðisfimó] ~ δυσφημίζω [ðisfimízo] ‘slander, defame’
 Bare stem: «[...] η προώθηση περιεχομένου, που **δυσφημεί** [PRES 3SG] μία ομάδα προσώπων.» ‘[...] promoting content that defames a group of people.’
 Extended form: «[...] ο διαπρεπής συντάκτης [...] **δυσφημίζει** [PRES 3SG] κι εμένα και την εφημερίδα σας.» ‘[...] the highly esteemed writer [...] defames both me and your journal.’
- d ΑΓ ψηλαφῶ [psɛ:ɪlap^hô:] ‘feel or grope about to find a thing’ > ΜΓ ψηλαφῶ [psilafó] ~ ψηλαφίζω [psilafízo] ‘palpate’
 Bare stem: «[...] **ψηλαφούμε** [PRES 1PL] ὥστε να εντοπίσουμε περιοχές ευαισθησίας.» ‘[...] we palpate to find tender points.’
 Extended form: «Πρέπει να **ψηλαφίζουμε** [PRES 1PL] συνεχώς το στήθος μας [...]» ‘We must palpate our breast always [...]’

- e KOINE ἐκφωνῶ [ekfɔnó] ‘cry out’ > (ἐκ- > ξε-) MEDG ξεφωνίζω > MG ξεφωνῶ [ksefɔnó] ~ ξεφωνίζω [ksefɔnízo] ‘scream, shout’¹⁹
 Bare stem: «[...] ονομάζουν τους εαυτούς τους φεντεραλιστές και **ξεφωνούν** [PRES 3PL] ενάντια στον συγκεντρωτισμό [...]» ‘[...] they call themselves federalists and shout against centralization [...]’
 Extended form: «Η πλατεία έξω έχει δροσιά, παιδιά που **ξεφωνίζουν** [PRES 3PL] [...]» ‘It’s cool outside on the plaza, children shouting [...]’

Applying these criteria above, I collected 52 verbal pairs which are qualified for the analysis of implicit multiple exponence. In these pairs, I include verbs which show at least one pleonastic form in their paradigm, be it finite verbal form or participle. Every verb was also checked on the corpus using the option “Lemma” or “Word” in order to confirm its syntactic context and how many instances it shows.

4. Analysis of multiple exponence

The analysis of multiple exponence should address certain questions, such as the motivation behind the phenomenon and the formal representation of the data. In the following sections, I discuss these issues.

4.1 Motivation behind the phenomenon

In general, the combination of partly or wholly synonymous elements may fulfill various grammatical functions and “redundant” (or pleonastic) does not entail “functionless” (Lehmann 2005: 120). Multiple exponence can be motivated by language-internal factors of language change, when the addition of the pleonastic element reflects a tendency of the system, such as the tendency to form clear exponents of grammatical categories which should be as strong as possible (McMahon 1994: 80); and/or language-external factors of language change, since in extended exponence the goal may also be to assimilate one language to another (cf. Thomason 1988; Joseph 2016). In the Greek data, language-external factors should be excluded, since the bases are native and well-integrated into the inflectional system. Thus, we need to examine language-internal factors.

The Greek verbal system has been in a constant flux, i.e. many verbs tend to shift from one inflectional class to another (inter-paradigm leveling) due to various factors (Babiniotis 1972; Mandilaras 1973: 64–65; Cole

19 The verb ξεφωνίζω [ksefɔnízo] has also the meaning ‘hoot at sb’.

1975; Browning 1983: 65–66; Katsouda 2007; Papanastasiou 2007 and Horrocks 2010). A well-described example of this process is the remodeling of the Ancient Greek contract verbs²⁰ in *-όω* [oo:] which were remodeled in *-ώνω* [ono] in Modern Greek through analogical processes. In more detail, through the phonological similarity between the aorist form of the so-called “n verbs” (verbs with a stem-final *-n*), such as ζώνω [zó:no:] ‘I gird’, which forms the aorist ἐζώσα [ézo:sa] ‘I girded’, and the aorist of the old contract verbs in *-όω* [oo:], such as δηλώω [de:lóo:] ‘I declare’, which forms the aorist δήλωσα [dé:lo:sa] ‘I declared’, the old contract verbs first acquired parallel presents in *-ώνω* [ono] and then retained only forms in *-ώνω* [ono], e.g. AG δηλώω [de:lóo:] > MG δηλώνω [ðilóno] (cf. Horrocks 2010: 305).

Regarding our pairs, Horrocks (2010: 308) mentions that in early Medieval Greek (around 6th century), many verbs in *-ᾶ* [o] (< *-έω* [eo]) were paired with new forms in *-ίζ(ω)* [izo], and others in *-ίζ(ω)* [izo] were paired with new forms in *-ᾶ* [o] (*-έω* [eo] type). This process was boosted by the phonological similarity of the two verb forms in the aorist, which ended in [isa]; that is, *-ησα* [isa] for the *-έω* [eo] and *-άω* [ao] verb type and *-ισα* [isa] for the *-ίζ(ω)* [-izo] verb type.²¹

The brief description of these processes shows that aorist plays a central role in the change of the Greek verbal system.²² Ralli (2006) has convincingly argued that the allomorphy displayed by Modern Greek verbs in the aorist can be seen as a central morphological property, which: (a) has a distributional role (i.e. distinction of inflectional classes) and (b) paves the way for paradigmatic uniformity. In other words, allomorphy is an important property of morphological formations and plays an active role in morphological change, such as paradigmatic (re-)organization and paradigmatic levelling.

In the data discussed in the previous sections, we can detect the same type of interference in the aorist. The phonological similarity of the two verbal forms, which belong to different inflectional classes, triggers the formation of a new extended form which has a pleonastic suffix. In classic terms of four-part analogy, the simple proportions are often represented as ‘C1:C2 = P:X’, in which the forms C1, C2 and P are all given, and the analogical step involves ‘solving for unknown X’ (Blevins 2006: 539). So, this process can be

20 In Classical Greek, verbs ending in *-ω* in the citation form are classified into *barytones* (uncontracted) and *contract* verbs. The latter have been called *contract* because their stem-final/thematic vowel (/a/, /e/ or /o/) fused together with the initial vowel of the inflectional ending due to a phonological rule of contraction.

21 Note that by this period there was no phonological distinction between *η* and *ι*.

22 This can be linked to the fact that the stem of the aorist is more frequent than the present stem (Mirambel 1978: 125).

represented as follows: ζωγράφισα [zoγráfisa]: αιματοκύλισα [ematocílisha] = ζωγραφίζω [zoğrafízo]: $X \rightarrow X = \text{αιματοκυλίζω}$ [ematocilízo].

The next question is whether one of the two forms (bare and extended stem) is levelled down at a certain point. There are two plausible scenarios. First, the two forms take different routes by acquiring different semantic or syntactic properties. For similar cases, Marchand (1969: 242) argues that “as there can be only one survivor [sic] of the fight, one of the two words will either be dropped or be given a specified meaning or function that distinguishes it from the original rival”. A nice example of semantic differentiation is the pair *classic* ‘having a high quality or standard against which other things are judged’ (OED) and *classical* ‘traditional in style or form or based on methods developed over a long period of time’ (OED) in English (cf. Kaunisto 2007). Second, one of the two forms will be dropped. For example, in verbal pairs the members of which do not show the same frequency in the corpora, we can assume that one of the two forms is in decline and can be “dropped” at a certain point. For example, Katsouda (2007) mentions the interesting case of the verb *δειπνώ* ‘dine’ which shows the following development: *δειπνέω* [de:pnéō]/*δειπνώ* [de:pnō] (Ancient Greek) (simple form) > *δειπνίζω* [ðipnízo] (Medieval Greek) (extended form) > *δειπνώ* [ðipnó] (Modern Greek) (simple form). Such examples show that verbs may change several times over their lifetimes. Both scenarios are possible, but they cannot be examined within the limits of the present paper. In order to test these scenarios, we need to carry out a diachronic analysis.

The question of the motivation of this process still remains. Following Harris’s (2017) typology, we have different types of multiple exponence which are based on different motivations behind the phenomenon. In the “reinforcement” type, one feature on a certain structure starts “fading” and needs to be boosted by a stronger element with similar function (Harris 2017: 55). Similarly, Haspelmath (1993: 298) argues that “evidently, speakers use affix pleonasm to improve irregular forms on the parameter of morphosemantic transparency”.

The pleonastic addition of the verbalizer in the Greek data could be explained as a tendency for analytic exponence of the “verbiness”. In other words, since Modern Greek shows a strong tendency to mark the lexical category, the addition of the pleonastic verbalizer can be seen as a clear instantiation of this tendency. In my view, we could argue in support of this view only if all other factors were excluded. A deeper analysis suggests that the solution of this problem of the motivation might be hidden elsewhere.

Bare stems belong to IC2 which is the least productive inflectional class in Modern Greek. Hatzidakis (1912: 13) argues that the strong inflectional class

tries to attract more members. Thus, the addition of the suffix could signal the paradigmatic shift of the verb and the assignment to the first inflectional class, which is the most productive inflectional class in the verbal system.

The role of productivity in language change has also been underlined by Hock (2003: 446) who argues that, although there is no readymade answer to the question of what makes a particular type of formation productive, productivity is clearly a valid concept, and plays a major role in analogical change. Gardani (2013) also argues that productivity can act as an active, organizing principle in the system, in that it serves the need to restore a synchronically motivated, stable system.

I would like to argue that Hatzidakis's (1912) view is in the right direction. Implicit multiple exponence in Modern Greek can be seen as regularization of some verbal stems by means of a "pleonastic" verbalizer. The "weak" value of the inflectional class feature has started to fade in some verbs and needs reinforcement. The addition of the verbalizer brings about this reinforcement. The information of the inflectional feature borne by the suffix *-iζ(ω)* [izo] supersedes that of the verbal stem and the new formation belongs to a more productive inflectional class. However, the addition of the verbalizer adds complexity to the formal structure of the verb, since it duplicates the lexical category, which appears both on the stem and on the suffix *-iζ(ω)* [izo] in these formations.

Before we move to the next section, we need to mention a few words about the frequency of the phenomenon. In general, multiple exponence is not always a very common phenomenon, but – as argued by Harris (2017: 54) – even one example can give us important insights. In Modern Greek, a great number of verbs belong to IC2 and do not show implicit multiple exponence. In my dataset, verbs which belong to IC2 and show multiple exponence in at least one form of their paradigm comprise approx. 7.6%. So, the phenomenon shows low frequency, but it is not uncommon.

In the final section, I will discuss how implicit multiple exponence can be accounted for within a construction-based model.

4.2 A construction-based analysis of implicit multiple exponence

The main challenges of multiple exponence for morphological models are first that a feature is duplicated within a morphological structure creating redundancy, and second that the extended form co-exists with the simple form in the lexicon. In what follows, I argue that these issues are hard to address within morphological models which take compositionality as an inviolable principle, but they can be nicely accounted for within a construction-based model.

Duplication of features is an undesirable characteristic in linguistic models which are based on the notion of economy.²³ Notably, Siddiqi (2006: 14) argues that “the most economical derivation will be the one that maximally realizes all the formal features of the derivation with the fewest morphemes”.²⁴ However, cross-linguistic research has shown that, although morphological structures with multiple exponence fall short from being ideal, multiple exponence does exist and it should not be treated as a marginal phenomenon.

Multiple exponence violates the “Compositionality Principle” which states that semantic interpretation of complex words is determined by their parts and is built through a concatenation of morphemes (cf. Harris 2017: 185). In this sense, it is a type of *morphological asymmetry* (Beard & Volpe 2005: 190; Koutsoukos et al. 2018). Morphological asymmetries are in general hard to accommodate within morphological models which see morphology as the “syntax of morphemes”. However, work in the framework of Construction Morphology has shown that schemas can easily account for patterns where the one-to-one association between meaning and form in morphological expression do not hold (see, among others, Caballero & Inkelas 2018: 136).

Let us examine more closely the representation of a Modern Greek verb which shows implicit multiple exponence:

Features of Modern Greek verbs

- (8) a ψηλαφ(ώ) [psilafó] ‘palpate’
 STEM_(V,IC2).PRES.1SG.ACTIVE
 b ψηλαφ-ίζ(ω) [psilafízo] ‘palpate’
 STEM_(V,IC2)-VERBAL_{V,IC1}.PRES.1SG.ACTIVE

We notice that in the extended form (8b) the verbal category is marked twice, both on the base and the suffix. The same happens with the feature of the inflectional class, but the value of this feature is different. The base bears IC2, while the suffix yields a verbal lexeme that is IC1.

Let us now analyze these structures from a constructionist perspective. The starting point in Construction Morphology (Booij 2010) is that each word is a linguistic sign, a pairing of form and meaning, and this idea holds for morphologically simple and complex words. The form of a word in its turn comprises two dimensions: its phonological form and its morphosyntactic properties (cf. Booij 2010; Masini & Audring 2019). Jackendoff & Audring (2016, 2019) use the notion of construction to account for cases in which the form and meaning do not show the ideal correspondence.

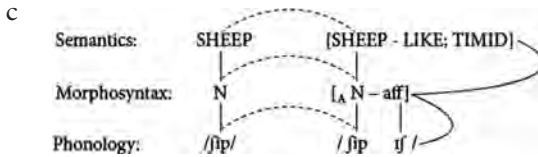
23 Cf. the discussion in Jackendoff (1997: 15-20).

24 The same type of principles is discussed in Harris (2017) and Caballero and Inkelas (2018).

In Jackendoff & Audring (2016, 2019) the lexicon is a network made up of fully specified items of all sizes with relational links among them. The three pieces of information are linked together with a co-indexing notation. The following schema shows the formal account of the lexical items *sheep* (9a) and *sheepish* (9b), while in (9c) the relation between *sheep* and *sheepish* is formulated (Jackendoff & Audring 2016: 469-470):

A Relational Morphology account of lexical items

- (9) a Semantics: SHEEP₁
Morphosyntax: N₁
Phonology: /ʃi:p/₁
- b Semantics: [sheep₁ -like; timid]₂
Morphosyntax: [_{adj} N₁ aff₃]₂
Phonology: /ʃi:p₁ iʃ₃/₂



The main advantage of the co-indexing notation is that it can formalize the fact that there is some relationship between the different schemas and at the same time it shows which parts of the two schemas are the same. Thus, it can formalize the variation in the lexicon without requiring processual (concatenative) rules.

Let us now turn to the Greek data. The schemas for the representation of the verbal formations would read as follows:

Construction of Greek verbs²⁵

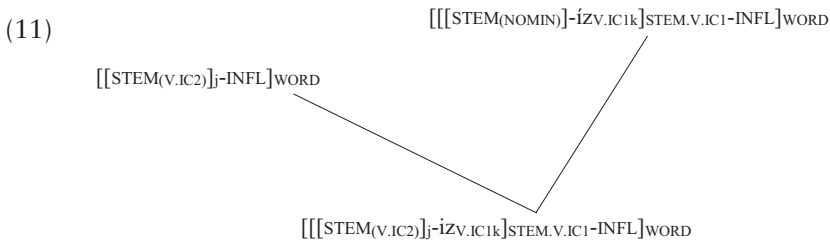
- (10) a Construction of simple verbs of IC2
[[STEM_(VIC2)]-INFL]_{WORD}
- b Construction of denominal verb formation
[[[STEM_(NOMIN)]-VERBAL_{V,IC1}]_{STEM.V,IC1}-INFL]_{WORD}
- c Construction of the implicit pleonastic structure
[[[STEM_(VIC2)]-VERBAL_{V,IC1}]_{STEM.V,IC1}-INFL]_{WORD}

25 Regarding these schemas, it is important to notice that I give only the formal structure of the verbs, not the semantic description, since I am interested in the formal properties. These constructions are non-local in the sense that they license the formation of the verbs, but they could be two different steps. One construction that forms the verbal stem feeding an inflectional one. I am giving this simplified version in order to show the change in the inflectional class in (10c).

The constructions in (10) show that inflectional suffixes do not change the category of the base in Modern Greek, but rather reflect it. The inflectional properties of the derivational suffix supersede the inflectional properties encoded on the stem and assign the stem to a new inflectional class (schema 10b).²⁶ The inflectional properties of the stem and the properties of the inflectional suffixes should match in order to give the final output (i.e. word).

The construction of the pleonastic structure can be seen as the result of the *unification* of the two constructions.²⁷ In other words, verbs which are pleonastic structures are licensed by two different constructions, the construction of the simple verbs and the construction of verbs which have the suffix *-iζ(ω)* [izo]. The use of indexes shows which part is taken from each construction. For example, the index j on the schemas shows that it is the same verbal stem that can be formed as both morphologically simple and complex (extended), while the index k shows the relation between the suffix *-iζ(ω)* [izo] in the two constructions. The use of co-indexes also implies that there is no inherent order of derivation. Both the construction for the formation of the simple bases and the construction for the formation of the pleonastic structures are equally available options for the formation of the verbs (synchronic variation). The only condition is that every verb that is formed according to these schemas should conform to the features represented on the schema in order to be produced (output-oriented schemas).

Network of relations



5. Conclusions

In this paper, I have examined cases of implicit multiple exponence in Modern Greek verbs, that is, verbal formations which take a pleonastic

²⁶ In traditional terms, the suffix would be termed the “head”. However, the notion of head in construction-based models is seen as a construction-specific property (cf. Fábregas & Masini 2015).

²⁷ Cf. Jackendoff & Audring (2016, 2019) for a detailed analysis of the notion of unification.

verbalizer and, as a consequence, the feature of the lexical category is encoded both on the stem (as an inherent feature) and by the suffix *-ίζ(ω)* [izo]. Implicit multiple exponence is a puzzling phenomenon that cannot be readily explained. The analysis of this phenomenon should be based on clear theoretical and methodological assumptions. Thus, I have proposed solid criteria for the data analysis in Modern Greek. First, we need to check that the extended stem is formed on the basis of the bare form (not vice versa), and second, we need to check that the two forms (bare and extended stem) have the same semantic and syntactic properties and the same argument structure. These criteria can filter out a number of verbal formations which are not pleonastic. Verbal pairs which show implicit multiple exponence were also checked in corpora in order to check the actual use of these forms.

The analysis of the motivation behind this phenomenon shows an interesting relation between inflectional and derivational morphology. On one hand, the addition of the verbalizer duplicates the feature of the verbal category and creates multiple exponence. On the other hand, it assigns the formation to a new inflectional class which is more productive (reinforcement of a “weak” feature). The analysis of the phenomenon also shows that a model based on constructions can account for implicit multiple exponence, since it does not *a priori* exclude multiple encoding of the same feature on the structure and provides the formal mechanism to account for the phenomenon. Within this framework, I argued that the co-indexation notation proposed by Jackendoff & Audring (2016, 2019) accounts for the fact that different patterns of verb formation co-exist in the lexicon and – at the same time – shows the links between these patterns.

The next step to take will be the examination of the correlation between the pleonastic addition of verbalizers and their polyfunctional character in other synthetic languages. A diachronic analysis might also shed light on the question of whether multiple exponence expands following certain paths in the inflectional paradigm.

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References

- Anastasiadi-Symeonidis, Anna. 1994. *Νεολογικός δανεισμός της Νεοελληνικής* [Neological borrowing in Modern Greek]. Thessaloniki.

- Babiniotis, Georgios. 1972. *Το ρήμα της ελληνικής: δομικαί εξελίξεις και συστηματοποίησης του ρήματος της Ελληνικής (Αρχαίας και Νέας)* [The verb in Greek: structural changes and systematization of the verb in Greek (Ancient Greek and Modern Greek)]. Athens: Sophia Saripoulou Library.
- Beard Robert & Mark Volpe. 2005. *Lexeme-Morpheme Base Morphology*. In Pavol Štekauer & Rochelle Lieber (eds.), *Handbook of word formation*, 188–205. The Netherlands: Springer.
- Berg, Thomas. 2014. Boundary permeability: A parameter for linguistic typology. *Linguistic Typology* 18(3). 489–531.
- Blevins, James. 2006. Word-based morphology. *Journal of Linguistics* 42. 531–573.
- Blevins, James. 2016. The minimal sign. In Andrew Hippisley & Gregory Stump (eds.), *The Cambridge handbook of morphology*, 50–69. Cambridge: Cambridge University Press.
- Booij, Geert. 2000. Inflection and derivation. In *Morphology/Morphologie*. In Geert Booij, Christian Lehmann & Joachim Mugdan (Eds. in collaboration with Wolfgang Kesselheim and Stavros Skopeteas), *Morphologie. Morphologie. Ein internationales Handbuch zur Flexion und Wortbildung. An international handbook on inflection and word formation*. 1. Halbband/Volume 1, 360–369. Berlin: de Gruyter.
- Booij, Geert. 2010. *Construction morphology*. Oxford: Oxford University Press.
- Browning, Robert. 1983. *Medieval and Modern Greek*. Cambridge: Cambridge University Press.
- Caballero, Gabriella. 2013. Multiple exponence of derivational morphology in Rarámuri (Tarahumara). In Thera Crane *et al.* (eds.), *Proceedings of the thirty-third annual meeting of the Berkeley Linguistics Society*, 45–56. Berkeley: University of California.
- Caballero, Gabriella & Sharon Inkelas. 2018. A construction-based approach to multiple exponence. In Geert Booij (ed.), *The construction of words. Advances in Construction Morphology*, 111–139. Dordrecht: Springer.
- Charitonidis, Chariton 2005. *Verb derivation in Modern Greek: alternation classes, conceptual structures, semantic fields*. Frankfurt am Main: Peter Lang.
- Cole, Stephen M. 1975. *Historical development of the modern Greek present verbal classes*. University of North Carolina PhD dissertation. (University microfilms).
- Dressler, Wolfgang U., Dziubalska-Kořaczyk Katarzyna & Rossella Spina. 2001. Sources of markedness in language structures. *Folia Linguistica Historica* 22(1/2). 103–136.
- Efthymiou, Angeliki. 2003. Προθήματα ή πρώτα συνθετικά που δηλώνουν επίταση στη ΝΕ [Prefixes or first elements denoting intensification in Modern Greek]. *Studies in Greek Linguistics* 2002. 519–528.
- Efthymiou, Angeliki. 2013. Observations on the types, productivity, and competition of the non-native suffix *-aro* in Modern Greek [Παρατηρήσεις για την πολυτυπία, την παραγωγικότητα και την ανταγωνιστικότητα του δάνειου επιθήματος *-άρω* στη Νέα Ελληνική]. In Anastasia Christofidou (ed.), *Δημιουργία και μορφή στη γλώσσα*.

- Νεολογία, ορολογία, γλωσσική κατάκτηση, διάλεκτοι* [Creativity and form in language. Neology, terminology, language acquisition and dialects], 73–89. Research Center for Scientific Terms and Neologisms: Academy of Athens.
- Efthymiou Angeliki, Fragaki Georgia & Angelos Markos. 2012. Productivity of verb-forming suffixes in Modern Greek: a corpus-based study. *Morphology* 22(4). 515–543.
- Efthymiou, Angeliki. 2018. Ο σχηματισμός των ρημάτων στη νέα ελληνική [Verb derivation in Modern Greek]. Thessaloniki: Epikedro.
- Fábregas Antonio & Francesca Masini. 2015. Prominence in morphology: the notion of head. *Lingue e Linguaggio* XIV1. 79–96
- Gardani, Francesco. 2013. *Dynamics of morphological productivity. The evolution of noun classes from Latin to Italian*. Leiden: Brill.
- Gardani, Francesco. 2015. Affix pleonasm. In Peter O. Müller, Ingeborg Ohnheiser, Susan Olsen & Franz Rainer (eds.), *Word-formation. An international handbook of the languages of Europe*, Vol. 1, 537–550. Berlin: de Gruyter.
- Harris, Alice. 2017. *Multiple exponence*. New York: Oxford University Press.
- Haspelmath, Martin. 1993. The diachronic externalization of inflection. *Linguistics* 31. 279–309.
- Haspelmath, Martin. 1996. Word-class-changing inflection and morphological theory. In Jaap Van Marle & Geert Booij (eds.), *Yearbook of morphology 1995*, 43–66. Dordrecht: Springer.
- Hatzidakis, Georgios. 1905. Περί του σχηματισμού των ενεστωτικών θεμάτων εν τη ν εωτέρα Ελληνική [On the formation of present stems]. In *Medieval and Modern Greek [Μεσαιωνικά και Νέα Ελληνικά]*, Vol. 1, 266–306. Athens.
- Hatzidakis, Georgios. 1912. Περί ανωμάτων τινών ενεστώτων [On some irregular present forms]. *Athena* 24. 11–14.
- Hock, Hans. 2003. Analogical change. In Brian Joseph & Richard Janda (eds.) *Handbook of Historical Linguistics*, 441–460. Oxford: Blackwell.
- Hoeksema, Jack. 1985. *Categorical Morphology*. New York: Garland Press.
- Hoeksema, Jack. 2001. X maar dan ook echt X!: Een geval van emfatische reduplicerende nevenschikking. *Tabu* 31. 119–140.
- Holton, David, Peter Mackridge & Irene Philippaki-Warbuton. 2004. *Greek: An essential grammar of the modern language*. London & New York: Routledge.
- Horrocks, Geoffrey. 2010. *Greek: A history of the language and its speakers* (2nd edition). Chichester & Malden, MA: Wiley-Blackwell.
- Jordanidou, Anna. 2004. *Modern Greek verbs* [Τα ρήματα της Νέας Ελληνικής] (5th edition). Athens: Patakis.
- Jackendoff, Ray. 1997. *The architecture of the language faculty*. MIT Press.
- Jackenoff, Ray. 2013. Constructions in the parallel architecture. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford handbook of Construction Grammar*, 70–92. Oxford: Oxford University Press.
- Jackendoff, Ray & Jenny Audring. 2016. Morphological schemas. Theoretical and psycholinguistic issues. *The Mental Lexicon* 11(3). 467–493.

- Jackendoff, Ray & Jenny Audring. 2019. Relational morphology in the parallel architecture. In Jenny Audring & Francesca Masini (eds.), *The Oxford Handbook of morphological theory*, 390–408. New York: Oxford University Press.
- Janse, Mark. 2009. Watkins' Law and the development of agglutinative inflections in Asia Minor Greek. *Journal of Greek linguistics* 9(1). 32–48.
- Joseph, Brian. 2016. Multiple exponence in language contact situations: a case study from the Greek of Southern Albania. In Angela Ralli (ed.), *Contact morphology in Modern Greek Dialects*, 211–224. Cambridge: Cambridge Scholar Publishing.
- Karantzola, Eleni & Konstantinos Sampanis. 2016. On the “pleonastic” usage of complement markers in early Modern Greek. *Journal of Greek Linguistics* 16(2). 202–231.
- Katsouda, Georgia. 2007. *Ρηματικοί μεταπλασμοί (Μεταδομήσεις ενεστωτικού και αοριστικού θέματος)* [Verbal recharacterizations (restructuring of the present and aorist stem)]. Athens: Sophia Saripolou Library.
- Kaunisto, Mark. 2007. *Variation and change in the lexicon. A corpus-based analysis of adjectives in English ending in -ic and -ical*. Amsterdam & New York: Rodopi.
- Kay, Paul & Laura Michaelis. 2012. Constructional meaning and compositionality. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning*, Vol. 3, 2271–2296. Berlin: de Gruyter.
- Kilgarriff, Adam, Baisa Vít, Bušta Jan, Jakubiček Miloš, Kovář Vojtěch, Michelfeit Jan, Rychlý Pavel & Vít Suchomel. 2014. The Sketch Engine: ten years on. *Lexicography* 1. 7–36.
- Koutsoukos, Nikos. 2018. Constructional change on the contentful-procedural gradient. The case of the *-idz(o)* construction in Griko. In Kristel Van Goethem, Muriel Norde, Evie Coussé & Gudrun Vanderbauwhede (eds.), *Category change from a constructional perspective* (Constructional approaches to language), 263–287. Amsterdam & Philadelphia: John Benjamins.
- Koutsoukos, Nikos, Van Goethem Kristel & Hendrik De Smet. 2018. Asymmetries, mismatches and construction grammar. An introduction. *Constructions and Frames* 10(2). 123–146.
- Lehmann, Christian. 2005. Pleonasm and hypercharacterisation. In Jaap Van Marle & Geert Booij (eds.), *Yearbook of morphology 2005*, 119–154. Dordrecht: Springer.
- Lehmann, Christian. 2008. Roots, stems and word classes. *Studies in Language* 32. 546–567.
- Lieber, Rochelle. 2004. *Morphology and lexical semantics*. Cambridge: Cambridge University Press.
- Lieber, Rochelle. 2006. The category of roots and the roots of categories: what we learn from selection in derivation. *Morphology* 16. 247–272.
- Malkiel, Yakov. 1957. Diachronic hypercharacterization in Romance. *Archivum Linguisticum* 9(1). 79–113.
- Mandilaras, Basil. G. 1973. *The verb in the Greek non-literary papyri*. Athens: Hellenic Ministry of Culture and Sciences.

- Manolessou, Ioanna. & Angela Ralli. 2015. From Ancient Greek to Modern Greek. In Peter O. Müller, Ingeborg Ohnheiser, Susan Olsen & Franz Rainer (eds.), *Word-formation. An international handbook of the languages of Europe*, Vol. 3, 2041–2061. Berlin: de Gruyter.
- Marchand, Hans. 1969. *The categories and types of present-day English word formation. A synchronic-diachronic approach* [2nd edition]. München: C.H. Beck'sche Verlagsbuchhandlung.
- Marzo, Daniela. 2015. Motivation, compositionality, idiomatization. In Peter O. Müller, Ingeborg Ohnheiser, Susan Olsen & Franz Rainer (eds.), *Word-Formation. An international handbook of the languages of Europe*, Vol. 2, 984–1001. Berlin & New York: de Gruyter.
- Masini Francesca & Jenny Audring. 2019. Construction Morphology. In Jenny Audring & Francesca Masini (eds.), *The Oxford Handbook of morphological theory*, 365–389. New York: Oxford University Press.
- Matthews, Peter. 1974. *Morphology: an introduction to the theory of word structure*. Cambridge: Cambridge University Press.
- McMahon, April. 1994. *Understanding language change*. Cambridge: Cambridge University Press.
- Mirambel, André 1978. *Η Νέα Ελληνική Γλώσσα. Περιγραφή και ανάλυση* [La langue grecque moderne: description et analyse. Translation: Spyros Karatzas]. Thessaloniki: INS (Manolis Triadaflidis foundation).
- Newman, Paul. 2000. *The Hausa Language. An Encyclopedic Reference Grammar*. New Haven & London: Yale University Press.
- Panagiotidis, Phoevos, Revithiadou, Anthi & Vassilios Spyropoulos. 2017. Little v as a categorizing verbal head: evidence from Greek. In Roberta D'Alessandro, Irene Franco & Ángel J. Gallego (eds.), *The verbal domain* (Oxford Studies in Theoretical Linguistics), 29–48. Oxford & New York: Oxford University Press.
- Pandelidis, Nikos. 2003. The active imperfect of the verbs of the “2nd conjugation” in the Peloponnesian varieties of Modern Greek. *Journal of Greek Linguistics* 4(1). 3–43
- Pandelidis, Nikos. 2006. Reanalysis in inflectional morphology: evidence from Modern Greek dialects. In Mark Janse, Brian Joseph & Angela Ralli (eds.), *Proceedings of the second international conference of Modern Greek Dialects and Linguistic Theory*, 282–297. Patras: University of Patras.
- Pandelidis, Nikos. 2010. The reshaping of the mediopassive endings: evidence from Modern Greek varieties. In Angela Ralli, Brian Joseph, Mark Janse & Athanasios Karasimos (eds.), *Proceedings of the 4th international conference of Modern Greek Dialects and Linguistic Theory*, 313–329. Patras: University of Patras.
- Papanastasiou, Georgios. 2007. Morphology: from Classical Greek to the Koine. In Anastassios-Fivos Christidis, *A history of Ancient Greek. From the beginnings to Late Antiquity*, 610–617. Cambridge: Cambridge University Press.
- Papanastasiou, Georgios. 2008. *Νεοελληνική ορθογραφία: Ιστορία, θεωρία, εφαρμογή* [Modern Greek orthography: History, theory, application]. Thessaloniki: Institute of Modern Greek Studies, Aristotle University of Thessaloniki.

- Ralli, Angela. 1999. Inflectional features and the morphological module hypothesis. In *Working papers in theoretical and applied linguistics* 6. 111–142. Thessaloniki: Aristotle University of Thessaloniki.
- Ralli, Angela. 2005. *Μορφολογία* [Morphology]. Αθήνα: Εκδόσεις Πατάκη.
- Ralli, Angela. 2006. On the role of allomorphy in inflectional morphology: evidence from dialectal variation. In Giadomenico Sica (ed.), *Open Problems in linguistics and lexicography*, 143–151. Milano: Polimetrica.
- Ralli, Angela. 2013. *Compounding in Modern Greek*. Dordrecht: Springer.
- Ralli, Angela. 2016. Strategies and patterns of loan verb integration in Modern Greek varieties. In Angela Ralli (ed.), *Contact Morphology in Modern Greek Dialects*, 73–108. Cambridge: Cambridge Scholar Publishers.
- Schwaiger, Thomas. 2015. Reduplication. In Peter O. Müller, Ingeborg Ohnheiser, Susan Olsen & Franz Rainer (eds.), *Word-formation. An international handbook of the languages of Europe*, Vol. 1, 467–484. Berlin: de Gruyter.
- Siddiqui, Daniel. 2006. *Minimize exponence: economy effects on a model of the morphosyntactic component of the grammar*. University of Arizona PhD dissertation.
- Spyropoulos, Vasillios, Anthi Revithiadou & Phoevos Panagiotidis. 2015. Verbalizers leave marks: evidence from Greek. *Morphology* 25(3). 299–325.
- Stolz, Thomas. 2010. Pleonastic morphology dies hard. Change and variation of definiteness inflection in Lithuanian. In Franz Rainer, Wolfgang U. Dressler, Dieter Kastovsky & Hans Christian Luschützky (eds.), *Variation and Change in Morphology*, 217–244. Amsterdam: John Benjamins.
- Stump, Gregory. 2001. *Inflectional morphology: a theory of paradigm structure*. Cambridge: Cambridge University Press.
- Szymanek, Bogdan. 2015. Remarks on tautology in word formation. In Laurie Bauer, Livia Körvtvélyessy & Pavol Štekauer (eds.), *Semantics of complex words*, 143–161. Dordrecht: Springer.
- Thomason, Sarah. 1988. Double marking in morphological change. In Ann Miller & Joyce Powers (eds.), *ESCOL 87: Proceedings of the Fourth Eastern States Conference on Linguistics*, 296–305. Ohio: Ohio State University.
- Triadafilidis, Manolis. 2005. *Νεοελληνική γραμματική (της δημοτικής)* [Modern Greek grammar (of the vernacular)]. Thessaloniki: Institute of Modern Greek Studies, Aristotle University of Thessaloniki.
- Veloudis, Ioannis. 2009. *-άρ(ω): τα γλωσσολογικά παρεπόμενα ενός δανεισμού [-aro: the linguistic effects of a borrowing process]*. *Studies in Greek language* 29. 74–85.

Primary sources

Dictionary of Standard Modern Greek [Λεξικό της Κοινής Νεοελληνικής] (2nd online revised edition n.d.) Thessaloniki: INS (Manolis Triadafilidis foundation). http://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/digital_b.html

Oxford English Dictionary: <https://en.oxforddictionaries.com/>

Reverse dictionary of Modern Greek [Αντίστροφο λεξικό της Κοινής Νεοελληνικής] Anastasiadis-Symeonidis, Anna 2002. Thessaloniki: INS (Manolis Triadafilidis Foundation), Aristotle University of Thessaloniki.

Sketch Engine parallel corpora: <http://www.sketchengine.co.uk>

The online Liddell-Scott-Jones Greek-English Lexicon: <http://stephanus.tlg.uci.edu/>

Woordenboek der Nederlandsche Taal: <http://gtb.ivdnt.org/search/?owner=wnt>

Nikos Koutsoukos

F.R.S.-FNRS & Université catholique de Louvain

Faculté de Philosophie, Arts et Lettres/PLIN

Place Blaise Pascal 1/L3.03.02

1348 Louvain-la-Neuve

Belgium

nikolaos.koutsoukos@uclouvain.be