'One Allomorph to rule them all':
The Single Allomorph Selection Constraint in Greek

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1. Stem Allomorphy: Introduction

1.1. Stem Allomorphy under the spotlight

Research on stem allomorphy has been revived in Aronoff (1994), whose work has led to novel approaches of inflectional and derivational phenomena in morphological research by Booij (1997), Thornton (1997), Pirrelli & Battista (2000a, 2000b), Ralli (2000, 2007), Stump (2001), Bonami & Boyé (2003), Maiden (2004) among others. Aronoff's main idea also followed by other morphologists is that the signifiant of a lexeme is not a single phonological representation, but an array of indexed stems, which may stand in relations ranging from identity through regular phonological alternation, arbitrary change to full suppletion. (cf. Maiden 2004).

1.2. Definition of Allomorphy and Theoretical Framework

Expanding the definition of Lieber (1982: 27) for allomorphy, what we define as allomoprhs are the different varieties of the same morpheme, which share such lexical information as semantic representation and argument structure, but that differ unpredictably and arbitrarily in their phonological form and in the morphological environments in which they occur (for example κύμα~ κύματ 'wave', παίρν~ πήρ~ παρ 'take'). However, we have to point out that the term is over-used in the literature, since several allomorphs do not qualify for the proper conditions of Lieber's definition.

Ralli (2000, 2007) emphasizes that stem allomorphy is included in the core of morphology and participates in all word formation processes. She suggests that it is one of the basic features for categorizing verbal inflectional classes and nominal inflectional classes.

1.3. The Allomorphic Behavior Principle

Karasimos (2001, 2011) observes that the allomorphic behavior of a morpheme / lexeme is the same in all word formation processes with the unique and systematic exceptions of the *παιδί*-type and the *τεμπέλης*-type words. These kinds of nominal morphemes participate with new or different allomorphs in derivation and compounding (compared to inflection), since the *παιδί*-type nouns have no allomorphs (e.g. *παιδί / παιδι-ά* 'child / children' in inflection and the *τεμπέλης*-type nouns participate with a different allomorph than the one(s) used in inflection (e.g, INF *τεμπέλης: τεμπελη~ τεμπελησ* vs. DER/COM *τεμπελ* 'lazy').

The morphemes that display allomorphic behavior in word formation processes seem to be depend on their behavior in the process of inflection. The allomorphic behaviour principle determines inflection as the primary field of allomorphic comparison, since most allomorphs 'were created' from morphemes reanalysis and from inactive phonological an morphological rules in inflection (see more Karasimos 2011).

(1) i.

κύμα/ κύματ-α	κυματ-ίζω[1]	κυματ-ο-θραύστης
kima/ kimat-a	kimat-izo	kimat-o-thrafstis
'wave' / 'waves'	'to wave'	wavebreaker
καφέ-ς/ καφέδ-ες	καφεδ-άκι	καφεδ-ο-πωλείο
kafe-s/ kafedh-es	kafedh-aki	kafedh-o-polio
'coffee'/ 'coffees'	'small coffee'	'coffee shop'

ii.

καράβι/ καράβι-α	καραβ-ίσιος	καραβ-ό-σχοινο
karavi/ karavi-a	karav-isios	karavo-o-sxino
'ship'/ 'ships'	'shipborne'	'headrope'
βάρ-ος/ βάρ-η	βαρ-ίδι	βαρ-ό-μετρο
var-os/ var-i	var-iδi	var-o-metro
'weight'/ 'weights'	plumb	barometer
μπακάλη-ς/ μπακάληδ-ες	μπακάλ-ικο	μπακαλ-ό-γατος
bakali-s/ bakalidh-es	bakal-iko	bakal-o-γatos
'grocer'/ 'grocers'	'grocery store'	'employee in a grocery store'
νταή-ς/ νταήδ-ες	νταηδ-άκος	νταηδ-ό-μαγκας
dai-s/ daidh-es	daidh-akos	daiδ-o-magas
'bully'/ 'bullies'	'little bully'	'bully-and-bloke'

2. Comparing the word formation processes

Comparing the word formation processes of inflection and derivation (and compounding) based on the phenomenon of allomorphy, we can observe several trends among languages. There are languages, like German (2.a), where all the allomorphs of an inflectional paradigm participate in derivation and compounding, while in other languages, such as Dutch and Greek, the above behavior is unlikely to be found.

(2) a. German

Vater ~ Väter	Vaterland	-	Vättersitte
'father' – 'fathers'	'homeland'		'ethics of ancestors'
Mutter ~ Mütter	Mutterfreuden	-	Mütterverschickung
'mother' – 'mothers'	'mother's joy'		'mothers' decharge note'
Buch ~ Bücher	Buchbinder	-	Bücherfolge
'book' – 'books'	'bookbinder'		'series of books'

(Lieber 1982)

b. Modern Greek

άνθρωπ(ος)	άνθρωπ(οι)	ανθρωπ-ισμ(ός)	ανθρώπ-ιν(ος)
anθrop(os)	anθrop(i)	anθrop-ism(os)	anθrop-in(os)
'man'	'men'	'humanism'	'human'
αυλή	αυλ(ές)	αυλ-ικ(ός)	αυλ-αία
avli	avl(es)	avl-ik(os)	avl-ea
'yard'	'yards'	'courtier'	'curtain'
βήμα	βήματ(α)	βηματ-ίζ(ω)	βηματ-άρα
vima	vimat(a)	vimat-iz(o)	vimat-ara
'step'	'steps;	'stride'	'big step'

However, analyzing data from derivation in Modern Greek, we discover that all the different forms of a morpheme are not fully available during all the word formation

[1] In these paradigms, I do not separate the inflectional suffixes from the derivational. Also in compounding words, the second component is not separated into their morphemes.

processes. For example the noun *βήμα* 'wave' displays two allomorphs *βημα~ βηματ* in inflection, it displays only one morpheme form in the process of derivation (*βηματ~*), e.g. *βηματάκι* 'small step', *βηματάρα* 'big step', *βηματίζω* 'stride'. The same allomorphic pattern of this noun is observed in the process of compounding, in examples such as *βηματοδότης* 'pacemaker', *βηματομέτρηση* 'step counting'. As it is demonstrated in the following session (3.), such allomorphic behavior is not random and is solely due to a constraint that applies to all nominal and adjectival stems and suffixes.

3. The Single Allomorph Selection Constraint

The process of derivation contains principles and constraints about the categories of stems of derived words that are combined with derivational suffixes. The most common constraint for input-type cases (input constraint) is the number of requirements of a base-stem to be chosen and combined by derivational suffixes. There are a few derivational processes that require even more limited bases. Let's take some examples from German (Riehemann 1998: 54) and Modern Greek:

(3) a. *German*

essen 'eat'	essbar	'eatable'
zahlen 'pay'	zahlbar	'payable'
halten 'hold'	haltbar	'durable'

b. *Modern Greek*

ταξί 'taxi	ταξιτζής	'taxi driver'
καφές 'coffee'	καφετζής	'coffee shop owner'
τζάμι 'glass'	τζαμτζής	'glazier'
σαπούνι 'soap'	σαπουντζής	'soapmaker'

Analyzing the above examples from German, the derivational suffix *-bar* is combined only with base-stems that are transitive verbs to form adjectives; a similar case is the corresponding suffix *-baar* from Dutch (Booij 2006: 62), which requires the same context subcategorization. For example, the word *drink-baar* 'drinkable' is derived from the transitive verb *drink* 'drink'. In Modern Greek there are few derivational suffixes which are attached to specific stems, such as the suffix *-τζη(ς)* in (3.b) which combines only with nominal bases and stems. On the other hand there are several suffixes that do not present any combinational constraints with bases, since they can attach to nominal, adjectival and verbal stems (even adverbial bases). In English the suffix *-er* is combined with verbs (*keep* >> *keeper*, *print* >> *printer*) and nouns (*Berlin* >> *Berliner*). The greek verbal derivational suffix *–ευ(ω)* combines with nominal stems (*χορ-ός* 'dance' >> *χορεύω* 'dance') with adjectival stems (*ήμερ-ος* 'meek' >> *ημερεύω* 'tame') and with adverbial stems (*κοντά* 'close' >> *κοντεύω* 'getting close').

More specifically, we maintain that the non-appearance of all the allomorphs as bases in derivation is not random, occasional or not independent from the morphological environment in which the allomorphs appear. I have previously suggested (Καρασίμος 2011a, 2011b) that nominal bases of derived words and nominal stems as first constituents of compound words allow the appearance of only one allomorph due to a constraint that takes place in the input configuration of a derived or compound word; this constraint prevents the appearance of all allomorphs of each morpheme as basis on a nominal derived word. We call this specific limitation of selection **single-allomorph selection constraint**. I have observed that the Greek derived words fall under the restrictions of this constraint and some allomorphs that participate in inflection are excluded. Since the constraints do not usually apply randomly in a language, but for a reason, I point out that the single-allomorph selection constraint ensures unique

uniformity among derived words with a common basis through the appearance of only one form of the morpheme-base.

In the present article, I suggest that the non-appearance of all allomorphs as bases in derivation does not depend on the process itself, since the phenomenon appears also in compounding. I believe that in Modern Greek the reasons for the occurrence of single-allomorph selection constraint are independent; the selection of the single-allomorph is neither random and arbitrary, nor unpredictable. In fact, this particular constraint applies mainly for morphological and phonological reasons.

3.1. Optional phonological conditions

Checking carefully the phonological structure of a derived word base, the existence of stems with a final-character consonant is statistically more significant than with a final-character vowel. According to Ralli's inflectional model (2000)[2], the nouns in Modern Greek that display allomorphs, have an allomorph that ends with a vowel and another one that ends with a consonant (4.b). The inflectional classes with no allomorphs at all have in majority stems with ending of the XC-type[3] (4.a). The only and systematic exception is the sixth inflectional class of *καραβί*-type neutral nouns (4.c, see Karasimos 2011a). On the other hand, verbs with systematic allomorphy (5.a, second inflectional class according to Ralli's model (2004)) display a stem with a final-character consonant and a stem with a final-character vowel (X ~ XV); other verbs without systematic allomorphy (5.b, first inflectional class, see above) can have all their allomorphic types with a consonant as a thematic character.

(4) a.	άνθρωπ-ος		
	anθrop-os		'man'
	δάσ-ος		
	δas-os		'forest'
	μωρ-ό		
	mor-o		'baby'
b.	πάπα-ς	παπάδ-ες	
	papa-s	papaδ-es	'priest' – 'priests'
	θάλασσα	θάλασσ-ες	
	θalasa	θalasa	'sea' – 'seas'
	κύμα	κύματ-α	
	kima	kimat-a	'wave' – 'waves'
c.	καράβι	καράβι-α	
	karavi	karavi-a	'ship' – 'ships'
	τραπέζι	τραπέζι-α	
	trapezi	trapezi-a	'table' – 'tables'
	μολύβι	μολύβι-α	
	molivi	molivi-a	'pencil' – 'pencils'

(5) a.	αγαπ-ώ	αγάπη-σα	
	aγap-o	aγapi-sa	'love' – 'loved'
	πηδ-ώ	πήδη-σα	
	piδ-o	piδi-sa	'jump' – 'jumped'
	αφαιρ-ώ	αφαίρε-σα	

[2] Ralli (2000) suggests that there are eight inflectional nominal classes in Modern Greek. The first two contain masculine nouns, the third and fourth (include) feminine nouns and the rest neutral nouns.

[3] XC-type: any kind of phoneme (X) and a consonant (C).

	afer-o	afere-sa	'remove' – 'removed'
b.	πλέν-ω	έ-πλυν-α	
	plen-o	e-plin-a	'wash' – 'washed'
	ξεχν-ώ	ξεχα-σα	
	ksexn-o	ksexa-sa	'forget' – 'forgot'
	ρουφ-ώ	ρουφηγ-σα[4]	
	ruf-o	rufiγ-sa	'suck' – 'sucked'

Structurally, over eighty percent of the derivational suffixes that combine with nouns/ or nominal bases and adjectives/ or adjectival bases start/begin with a vowel. To maintain the optimal syllabic structure CV, the base "should" have a morpheme ending with a consonant (if applicable). Therefore, although it does not form a requirement, the allomorph ending with a consonant is qualified as the only and final choice. For example, the verbal suffix *–ιζ(ω),* when combined with the lexeme KYMA 'wave' which has the allomorphs *κυμα~ κυματ*; the allomorph *κυματ* is joined with the derivational suffix and that way the optimal syllabic structure is achieved. The highly productive subclass of diminutive and augmentative derivational suffixes have all their suffixes starting with vowel, like *-άκι*, *-άρα*,*-ούτσικος*, *-ούκλα-*, *-ούλα, -ίτσα* etc, among others.

I have to clarify here that I do not maintain that the derivational suffix selects the proper allomorph, but that the phonological structure of the suffix justifies the "choice" of the specific allomorph. Moreover, there are a few derived words with their optimal syllabic structure violated in the absence of an alternative morpheme, as for example *λα(ός)* 'people' > *λα-ικ(ος)* 'folkish', *μυστήρι(ο)* 'mystery' > *μυστηρι-ακ(ος)* 'mystic', *ράβ(ω)* 'sew' > *ράφ-τη(ς)* 'tailor'. Therefore, the derivational suffix does not require a specific form of a basis-morpheme, since if that was the case, then this characteristic would constitute a universal property of all suffixes, that is to select the proper form of a basis-morpheme.

3.2. Morphological conditions

All the derived words in Modern Greek have two components, a morpheme –base or a derived stem (non-head position) and a derivational suffix (head position) that applies to the basis. In the non-head position, the morphemes with two or three allomorphs cannot display all the possible forms. Therefore, every allomorph is marked with the context information and the morphological environment to avoid the possibilities of ungrammatical derived words (e.g. **ψυχη-ισμ(ός)* instead of *ψυχ-ισμ(ός)* 'psychism', **παίρνσιμο/ * πήρσιμο* instead of *πάρσιμο* 'taking', **βαθύως* instead of *βαθέως* 'deeply'. **κονταεύω* instead of **κοντεύω* 'approach').

The derivational suffixes "adopt" the same allomorphic behavior as the stems. Therefore, we expect that the suffixes share the same context information and morphological environment with their allomorphs. More specifically, when a derivational suffix, that is going to be combined with a simple or a derived stem, is followed by an another derivational suffix, it will be placed in the second level of derivation process in a non-head position and will display only one allomorph. Derived base is called the combination of a stem and a derivational suffix, e.g. [*ανθρώπ-ιν-*] 'human.NoINF[5]', [*χορ-ευ-*] 'dance$_V$.NoINF', [*ομορφ-ότερ-*] 'more beautiful.NoINF'.

Plag (1999) and Hay & Plag (2004) claim that the basis of a derived word demands a specific allomorph of the derivational suffix; we maintain that this fact can be modified in Modern Greek derivation. More specifically, the basis demands a specific allomorph of derivational suffix *if and only if* the derivational suffix participates in another derivational suffixation process; thus it is obliged to obey the single-allomorph

[4] The type 'ρούφηξα' is created after the phonological rule of dissimilation.
[5] NoINF = absence of inflectional suffix.

selection constraint. In English, such constraints apply only to specific groups of morphemes or suffixes. On the contrary, in Modern Greek each base selects the proper allomorph of a suffix, if it is any further suffixation (6.a). A similar procedure applies in cases of suffixation in compound words, such as *χορ-ο-πηδηχ-τ-ούλης* 'gamboler', *δικτυ-ο-τρομο-κρα-τ-ικ-ός* 'cyber-terroristic', *αερ-ο-μαχη-τ-ικ-ο* 'air-fighter plane' (6.b).

(6) a.	κλαίω	κλαι~ κλα	DER	κλά-μα/ κλά-ματ-α	>> κλα-ματ-άκι
	kleo	kle~ kla		kla-ma/ kla-mat-a	kla-mat-aki
	'cry'	'allomorphs of cry'		'crying / cryings'	'short crying'
b.	αέρας (αερα~ αερ) + μάχομαι		COM	αερ-ο-μαχη-τη-ς	αερ-ο-μαχη-τ-ικ-ο
	aeras (aera~ aer) + maxome			aer-o-maxi-ti-s	aer-o-maxi-t-ik-o
	'air'	'fight'		'pilot-fighter'	'air-fighter plane'

No information for the morphological environment of a non-head position is included in languages like German. The allomorphs of/in German are characterized by Lieber (1980) as singular and plural ones; she uses inflectional terms to categorize allomorphy. This characterization is not only morphological concerning the inflectional paradigm, but it is also semantic, because it implies the meaning of the singularity (SINGULAR) and quantity (PLURAL), as it is mentioned by Lieber (2.a). On the contrary, in Modern Greek it is possible for two allomorphs to occur in the same inflectional sub-paradigm, as for e.g. the nouns of IC8 (*βήμα*-type nouns) that 'use' the "plural" allomorph-t (*βήματ-α* 'steps', *κύματ-α* 'waves', *μαθήματ-α* 'lessons') also in the singular genitive (*βήματ-ος* 'of step', *κύματ-ος* 'of wave', *μαθήματ-ος* 'of lesson'). Furthermore, the allomorphs in Modern Greek are characterized by morphological information and do not contain any potentially hidden non-morphological information, such as semantic markedness. Additional morpho-semantic information for a lexeme, such as if it/ that is an Ancient Greek relic, puristic Greek, or a calque, is not attached to its allomorphs, since this information is not helpful for the selection of the proper allomorph in derivation and compounding. According to Booij (1997), the feature [+ CALQUE] in Dutch seems to cause a different behavior in lexemes and the selection of a non-expected allomorph.

3.3. 'Counterexamples' of single-allomorph selection constraint

Drachman (2006) gives some examples from Modern Greek, which seem to form exceptions of the single-allomorph selection constraint. He introduces the term 'shared allomorphs' which 'are produced' from a basic form, have an independent status in the word formation processes involved, but are more or less related to each other, so in essence the notion of 'derived from' or 'created from' is no longer necessary.

(7) a.	κρέ-ας/ κρέατ-α	κρεατ-ερό, κρεατ-ίλα, κρεατ-ινό
	kre-as/ kreata	kreat-ero, kreat-ila, kreat-ino
	'meat'/ 'meats' 'fleshy'	'smell-of-the-meat' 'of-meat'
		κρε-ο-πώλης, κρε-ο-φάγος, κρε-ο-κοφ-τήρας
		kre-o-polis, kre-o-fayos, kre-o-kof-tiras
		'butcher' 'meat-eater' 'minching machine'
		κρεατ-ο-πωλείο, κρεατ-ο-σανίδα, κρεατ-ο-πιτα
		kreat-o-polio, kreat-o-saniδa, kreat-o-pita
		'butcher's shop' 'meat-board' 'mince pie'
	αίμ-α/ αίματ-α	αιματ-άκι, αιμάτ-ωμα
	em-a/ emat-a	emat-aki, emat-oma
	'blood'/ 'bloods'	'hematoma'
		αιμ-ο-σφαίρια, αιμ-ο-δοσία, αιμ-ο-ρραγία

em-o-sferia, em-o-δosia, em-o-rajia
'blood capsule' 'blood donation' 'bleeding'
αιματ-ο-βαμμένος, αιματ-ο-κύλισμα, γλυκ-ο-αίματ-ος
emat-o-vamenos, emat-o-kilisma, γlik-o-emat-os
'bloodstained' 'carnage' 'sweet-blood'

b. (η)μέρα ημερίσιος (*μερίσιος), ημερομίσθιο (*μερομίσθιο)
(i)mera imerisios (*merisios), imeromisθio (*meromisθιο)
'daily' 'wage'
μερόνυχτα
meronixta
'days and nights'

(ε)νοίκι(ο) νοικιάζω, ενοικιαστής (*νοικιαστής), νοικιάρης (*ενοικιάρης)
(e)nici(o) nicjazo, enicjastis (*nicjastis), nicjaris (*enicjaris)
'rent$_V$' 'tenant' 'roomer'

(ο)μιλώ μίλησε, ομιλητής (*μιλητής)
(o)milo milise, omilitis (*militis)
'spoke' 'speaker'

(Drachman 2006: 14, 19)

The examples in (7a) seems that they seem to be counterexamples of the constraint presented here; however, the truth lies somewhere in the middle. First of all, I have to underline that this constraint has no exceptions of derived words with nominal and adjectival stems. The case of the noun αίμα 'blood' with the allomorphs *αιμα~ αιματ~ αιμ*, Karasimos (2001) has exhibited its peculiar behavior in the process of compounding. The derived words from *αίμα* 'blood' use only the allomorph *αιματ~*, obeying to the single-allomorph selection constraint. The compound words from *αίμα* are divided into three groups: (a) compound words with the stem *αιματ~ as* their second component, (b) compound words with the allomorph *αιμ~ as their* first component; these words came from French, Ancient Greek or International Greek and (c) compound words with the allomorph *αιματ~ as their* first component; these words came from English or from Modern Greek. As Ralli & Karasimos (2008, 2009a, 2009b) argue for the bare-stem constraint, the compound words formed in International Greek or by non-native speakers, violate the rules, principles and constraints of the compounding process, as they are created outside of the morphological word formation processes of the Greek language. Regarding the case of the noun *κρέας* 'meat' with the allomorphs *κρεα~ κρεατ~ κρε~*, its derived words follow the constraint without exceptions, while the word participates in compounding with two allomorphs (*κρεατ~ κρε*), since it is a word from Ancient Greek with a double inflectional paradigm (see Economou 1971: 85-86); therefore the 'relic-type allomorph' *κρε~* is used into words that were created in previous phases of Greek. Furthermore, the examples (7b) are in no way allomoprhs, as the optional phonological deletion of the initial vowel, by definition, does not constitute a case of allomorphy (see Karasimos 2011a).

Finally, it is necessary to point out that the single-allomorph constraint makes no exception in the whole process of derivation and applies to all nominal and adjectival stems (we except that there will not are also no exceptions in Modern Greek Dialects) and allows us to predict which allomorph is going to be used. In languages, like German (Lieber 1981) the single-allomorph selection constraint does not exist, but we expect that languages with extended allomorphy may display this constraint.

4. Conclusion

The derivational suffix does not force the base of a derived word to participate with the proper allomorph, as this would be a universal feature of all suffixes. The single-

allomorph selection constraint applies in Modern Greek, is definitely not a universal constraint, but may apply also in other allomorphically rich languages. This constraint refers to a morphological phenomenon (allomorphy) which changes are arbitrary and unpredictable; however the constraint is characterized by predictability and regularity. Furthermore, Karasimos (2011a) claims that this constraint provides us important advantages to analyze computationally this phenomenon, to export allomorphic rules and to improve the performance of a parser through predictability of allomorph selection.

References

Aronoff, Mark 1994. *Morphology by itself*. Cambridge, Mass: MIT Press.

Bonami, Olivie and Boyé, Gilles 2003. "La nature morphologique des allomorphies conditionnès : Les formes de liaison des adjectifs en français". In B. Fradin et al. (eds.), *Les unités morphologiques, tm. 3 de Silexicale*s:. 39-48.

Booij, Geert 1997. "Allomorphy and the Autonomy of Morphology". *Folia Linguistica XXXI/1-2*: 22-56.

Hay, Jennifer and Plag, Ingo 2004. "What Constrains Possible Suffix Combinations? On the Interaction of Grammatical Processing Restrictions in Derivational Morphology". *Natural Language and Linguistics Theory 22:* 565-596

Maiden, Martin 2004. "When lexemes become allomorphs. On the genesis of suppletion". *Folia Linguistica XXXVIII*: 227-256.

Nespor Marina 1999. *Φωνολογία*. Απόδοση: Αγγελική Ράλλη. Αθήνα: εκδόσεις Πατάκη.

Nespor, Marina & Vogel, Irene 1986. *Prosodic Phonology*. Dordrecht: Foris

Pirrelli, Vito and Battista, Marco 2000a. "The paradigmatic Dimension of Stem Allomorphy in Italian Verb Inflection". *Italian Journal of Linguistics (Rivista di Linguistica) vol. 12 num. II*: 307-380.

Pirrelli, Vito and Battista, Marco 2000b. "On the interaction of paradigmatic and syntactic stem alternation in Italian Conjugation". *Acta Linguistica Hungarica 47 (1-4):* 289-314.

Plag, Ingo 1999. *Morphological Productivity. Structural Constraints in English Derivation*. Berlin/ New York: Mouton de Gruyter.

Ralli, Angela 2000. "A Feature-based Analysis of Greek Nominal Inflection". *Glossologia 11-12*: 201-228.

Ralli, Angela 2007. "On the Role of Allomorphy in Inflectional Morphology: Evidence from the Dialectal Varieties of Lesvos, Kydonies and Moschonisia". In G. Sica (ed.) *Open problems in Linguistics and Lexicography*. Milano: Polimetrica.

Riehemann, Suzanne 1998. "Type-based Derivational Morphology". *Journal of Comparative Germanic Linguistics 2:* 44-77.

Stump, Gregory 2001. *Inflectional Morphology*. Cambridge: Cambridge University Press.

Thornton, Aanne-Marie 1997. "Stem allomorphs, suffix allomorphs, interfixes or different suffixes? On Italian derivatives with antesuffixal glides". In G. Booij, S. Scalise & A. Ralli (eds.) *Proceedings of 1st Mediterranean Meeting of Morphology*. Mytilene, Greece

Καρασίμος, Αθανάσιος 2008. "Η μη-εποπτευόμενη μορφολογική μάθηση και το πρόβλημα τη αλλομορφίας στην ελληνική γλώσσα". In A. Karasimos et al. (eds.) *Proceeding of 1st PICGL:* 123-138. Patras: University of Patras Press.

Καρασίμος, Αθανάσιος 2011a. *Υπολογιστική επεξεργασία της Αλλομορφίας στην Παραγωγή λέξεων της Ελληνικής*. Διδακτορική Διατριβή. Πανεπιστήμιο Πατρών.

Καρασίμος, Αθανάσιος 2011b. "Θεματική αλλομορφία στην Ελληνική Γλώσσα: ο περιορισμός της επιλογής μοναδικού αλλόμορφου". In M. Andreou et al. (eds.) *Proceedings of 2nd PICGL*, 85-94. Πάτρα: Πανεπιστήμιο Πατρών.