A constructionist view of complex interactions between inflection and derivation: the case of SMG and Griko

A thesis by
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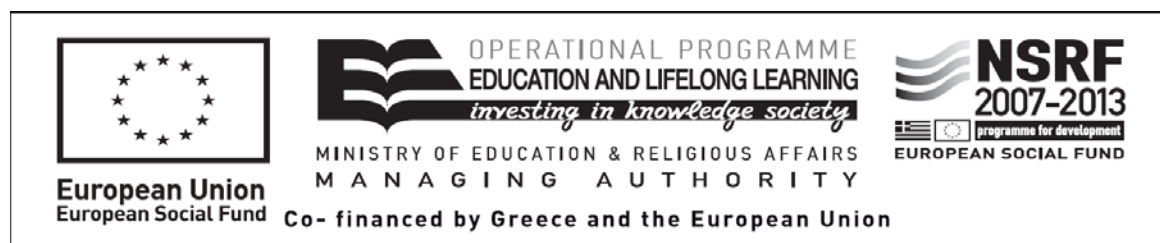
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Declaration of originality

I hereby declare that this thesis is entirely the result of my own work except where otherwise indicated. Published and unpublished work of others has been acknowledged in the text and references are given in the list.

19-12-2013

Nikos Koutsoukos

Στην οικογένειά μου

'It is completely unimportant. That is why it is so interesting.'
Agatha Christie

Summary

One of the most difficult but, at the same time, interesting questions in morphological theory is the relation between inflection and derivation. This question lies at the heart of the problem of the architecture of the morphological component and thus raises important issues such as: (a) the relation between the lexicon and the grammar, and (b) the model which best accounts for the relevant facts. In the present thesis, the aim is to examine certain morphological phenomena which reveal the close relation between the two processes, and to show that both should be accounted for in the morphological component. Three aspects of the problem are exhaustively discussed, drawing data from Standard Modern Greek and Griko, and it is shown that languages with rich inflection provide interesting data relevant to the discussion. I discuss the relation between conversion and inflectional classes in Standard Modern Greek, the evolution of derivational affixes into inflectional ones in Griko and the appearance of inflection inside derivation in both Griko and Standard Modern Greek. The analysis of the data is given within a Construction Morphology framework. In general, Construction Morphology offers important insights into the problem since it has a strong lexicalist orientation with both inflection and word formation within the lexicon, and the proposed word-formation schema (construction) is applicable to both derivation and inflection. The Construction Morphology framework provides effective solutions to the problems discussed in the relevant chapters and paves the way for the analysis of similar phenomena.

Περίληψη

Το βασικό ερώτημα που εξετάζεται στην παρούσα διατριβή είναι η σχέση μεταξύ των μορφολογικών διαδικασιών της κλίσης και της παραγωγής καθώς και η έκφανση της σχέσης τους μέσα από ένα πλήθος φαινομένων. Αυτό το ερώτημα αποτελεί ένα από τα βασικότερα ζητήματα της βιβλιογραφίας καθώς έχει άμεση σχέση με την «αρχιτεκτονική της γραμματικής» . Τα δεδομένα που εξετάζονται προέρχονται κυρίως από τη διάλεκτο Griko που ομιλείται στην Κάτω Ιταλία και την Κοινή Νέα Ελληνική (ΚΝΕ).

Η διατριβή δομείται σε πέντε ξεχωριστά κεφάλαια. Στο πρώτο κεφάλαιο εξετάζονται οι δύο διαφορετικές προοπτικές της μορφολογικής ανάλυσης, δηλαδή η *δομησιακή* (constructive) και η *αφαιρετική* (abstractive) προοπτική, ως προς συγκεκριμένα ζητήματα, όπως: (α) οι μονάδες που αποθηκεύονται στο νοητικό λεξικό, (β) η κατάκτηση των μορφολογικών κανόνων, (γ) η σχέση μεταξύ των κανόνων (computation) και της αποθήκευσης (storage) στη μορφολογική ανάλυση, και (δ) η εσωτερική δόμηση των λέξεων. Υποστήριξα ότι το μοντέλο της Construction Morphology (CM) συνδυάζει τα στοιχεία και από τις δύο προοπτικές. Στο δεύτερο μέρος του κεφαλαίου εξετάζονται τα διάφορα μοντέλα που αναπαριστούν τη σχέση μεταξύ κλίσης και παραγωγής μέσα στο μορφολογικό τομέα. Πήρα θέση υπέρ της τοποθέτησης της κλίσης μέσα στο μορφολογικό τομέα ώστε να μπορεί να αλληλεπιδρά με την παραγωγή.

Στο δεύτερο κεφάλαιο η ανάλυση επικεντρώνεται στην εξέταση των γραμματικών χαρακτηριστικών της κλίσης και της παραγωγής ως μορφολογικών διαδικασιών. Υποστηρίχθηκε ότι τόσο η κλίση όσο και η παραγωγή έχουν έναν *εγγενώς παραδειγματικό χαρακτήρα,* δηλαδή τα στοιχεία που δημιουργούνται από αυτές τις διαδικασίες σχηματίζουν ένα *δίκτυο σχέσεων* (network of relations). Αυτές οι παραδειγματικές σχέσεις μεταξύ των στοιχείων καθρεφτίζονται στον συνταγματικό άξονα της γλώσσας και ως εκ τούτου σχηματίζουν τους μορφολογικούς κανόνες (αφηρημένα σχήματα). Επίσης, αναλύονται οι βασικές θέσεις του μοντέλου της CM. Το μοντέλο της CM συνθέτει βασικές αρχές από διάφορα μοντέλα μορφολογικής ανάλυσης και διαμορφώνει ένα πλαίσιο για την ανάλυση των λέξεων. Βασική θεωρητική πρόταση της CM είναι ότι η μορφολογική δημιουργικότητα (morphological creativity) των

φυσικών ομιλητών μπορεί να αναπαρασταθεί με αφηρημένα σχήματα. Στην τελευταία ενότητα προτείνεται η εξέταση της σχέσης μεταξύ της κλίσης και της παραγωγής μέσα στο πλαίσιο της CM.

Στο τρίτο κεφάλαιο εξετάζεται η σχέση μεταξύ της *μετάπλασης* (conversion) και των κλιτικών ιδιοτήτων του *εξαγόμενου* (output) σε δεδομένα της ΚΝΕ. Δεδομένου ότι η μετάπλαση αποτελεί αντικείμενο διερεύνησης ως προς τα γραμματικά χαρακτηριστικά της, η ανάλυση ξεκίνησε από την εξέταση του ερωτήματος *αν και σε ποιο βαθμό* η μετάπλαση πρέπει να θεωρείται μορφολογική διαδικασία. Με βάση τα δεδομένα της Ελληνικής υποστήριξα ότι η υπόθεση της επανεγγραφής (relisting) δεν ευσταθεί στην ΚΝΕ και ως εκ τούτου πρέπει να αναζητήσουμε μία διαφορετική λύση. Υποστήριξα ότι μία ανάλυση της μετάπλασης βασισμένη σε μηδενικά μορφήματα είναι προβληματική και ανέλυσα τη μετάπλαση στη Νέα Ελληνική ως μία παραδειγματική σχέση. Υποστήριξα ότι η σχέση μεταξύ των διαδικασιών μπορεί να αναπαρασταθεί ως σχήματα που συνδέονται μεταξύ τους *παραδειγματικά* (paradigmatically related schemas).

Με βάση το συγκεκριμένο συμπέρασμα, τέθηκε το επόμενο ερώτημα το οποίο αφορά στη σχέση μεταξύ της μετάπλασης και των κλιτικών ιδιοτήτων των ρημάτων. Υποστήριξα ότι στα δεδομένα της ΚΝΕ η μετάπλαση παρουσιάζει στενή σχέση με την κλίση, καθώς μαρκάρει το τελικό εξαγόμενο του σχηματισμού με συγκεκριμένα κλιτικά χαρακτηριστικά. Ωστόσο, μία βασική διαφορά που εντοπίστηκε μεταξύ των συγκεκριμένων σχηματισμών και αντίστοιχων σχηματισμών που παρατηρούνται διαγλωσσικά είναι το γεγονός ότι η μετάπλαση στη Νέα Ελληνική δεν μαρκάρει το τελικό εξαγόμενο με το χαρακτηριστικό μία ενιαίας κλιτικής τάξης, αλλά προσδίδει χαρακτηριστικά μίας μεικτής κλιτικής κατηγορίας που αντιστοιχεί σε δύο διαφορετικές κλιτικές τάξεις της Νέας Ελληνικής. Στην τελευταία ενότητα προτείνεται μία ανάλυση της σχέσης μεταξύ της μετάπλασης και των κλιτικών τάξεων με βάση το μοντέλο της CM. Υποστήριξα ότι η σχέση μεταξύ της μετάπλασης και των κλιτικών τάξεων μπορεί να αναπαρασταθεί ως ένας δομικός περιορισμός πάνω στο σχήμα του ρήματος.

Στο τέταρτο κεφάλαιο εξετάζεται η ρηματική παραγωγή στη διάλεκτο Griko και αναλύονται κάποιες περιπτώσεις ρηματικών σχηματισμών που εμφανίζουν το παραγωγικό επίθημα *-idz(o)*. Το επίθημα *-idz(o)* πρωτοτυπικά παράγει ρήματα από ονοματικές βάσεις. Ωστόσο, το ζήτημα που τίθεται για το συγκεκριμένο επίθημα είναι ότι σε κάποιες περιπτώσεις οι σχηματισμοί που προκύπτουν δεν εντάσσονται στην παραπάνω κατηγορία, γιατί το επίθημα δεν πληροί τα χαρακτηριστικά του αντίστοιχου ρηματοποιητή. Σε αυτή την κατηγορία εντάσσονται ένα πλήθος ρηματικών ζευγών που εμφανίζονται τόσο ως απλές (χωρίς επίθημα) όσο και ως πολύπλοκες (με επίθημα).

Επομένως, εύλογα, γεννάται το ερώτημα ποιος είναι ο λόγος για τον οποίο το συγκεκριμένο στοιχείο εμφανίζεται τόσο συστηματικά. Για να απαντήσουμε στο ερώτημα που θέσαμε πιο πάνω σχετικά με τα κενά μορφήματα στη Griko εξετάσαμε το ρηματικό κλιτικό σύστημα και διαπιστώσαμε το εξής: οι ρηματικές κλιτικές τάξεις στο

διαλεκτικό σύστημα της Griko εμφανίζουν μεγάλη διαφορά ως προς την *παραγωγικότητά τους* (productivity) και ως εκ τούτου τα ρήματα της δεύτερης κλιτικής τάξης τείνουν να μεταπλαστούν ώστε να αποκτήσουν τη μορφή των ρημάτων της πρώτης κλιτικής τάξης. Επίσης, λόγω της στενής επαφής μεταξύ του συστήματος της Griko, με την Ιταλική αλλά και τις τοπικές διαλέκτους, μπορούμε να υποστηρίξουμε ότι οι ρηματικές τάξεις του συστήματος συρρικνώνονται ως μία στρατηγική του συστήματος απέναντι στις κυρίαρχες τάσεις των γειτνιαζόντων συστημάτων.

Συνδυάζοντας τις παρατηρήσεις για τα 'κενά' παραγωγικά επιθήματα και την αλλαγή των κλιτικών τάξεων, φτάσαμε στο συμπέρασμα ότι τα συγκεκριμένα στοιχεία λειτουργούν ως δομικά στοιχεία για να αλλάξει κατηγορία το ρήμα και να διατηρήσει την παραγωγικότητά του. Με άλλα λόγια, η προσθήκη των συγκεκριμένων στοιχείων βοηθά στην αλλαγή της κλιτικής τάξης συγκεκριμένων ρημάτων και την αναδιοργάνωση του κλιτικού ρηματικού συστήματος, εν γένει. Υποστήριξα ότι είναι δυνατό ένα παραγωγικό (derivational) πρόσφυμα να τραπεί σε κλιτικό, γεγονός που υποστηρίζει τη σχέση μεταξύ των δύο διαδικασιών σε διαχρονικό επίπεδο. Ωστόσο, ακολουθώντας προηγούμενες έρευνες, υποστήριξα ότι ένα παραγωγικό στοιχείο δεν μπορεί να αποκτήσει αμιγώς μορφοσυντακτικά χαρακτηριστικά. Όπως φαίνεται και από τα δεδομένα μας, ένα παραγωγικό στοιχείο μπορεί να αποκτήσει ιδιότητες μορφώματος (morphome), δηλαδή καθαρά μορφολογικό ρόλο. Υποστήριξα ότι μέσα στο πλαίσιο της CM η γραμματικοποίηση συμπληρώνει την έννοια της *σχηματ(ικ)οποίησης* (constructionalization), όπου ένας νέος συνδυασμός δομής-σημασίας (γλωσσικό σημείο) δημιουργείται μέσα από μια σειρά μικρών βημάτων και συνοδεύεται από αλλαγές στο επίπεδο της παραγωγικότητας και της συνθετ(ικ)ότητας.

Στο πέμπτο κεφάλαιο εξέτασα την εμφάνιση κλιτών *παρελθοντικών τύπων* μέσα σε ρηματικούς σχηματισμούς με προρρηματικά της κατηγορίας ΙΙ (class II preverbs). Ξεκίνησα από το δύσκολο θέμα της γραμματικής υπόστασης της αύξησης στη Νέα Ελληνική. Η γραμματική υπόσταση της αύξησης στη Griko δεν έχει γίνει αντικείμενο συστηματικής μελέτης. Με βάση τις γενικές υποθέσεις για τις διαλέκτους, θα περιμέναμε η αύξηση να έχει κλιτικό χαρακτήρα. Ωστόσο με βάση την εξέταση των δεδομένων αποδεικνύεται ότι η αύξηση έχει κατανομή παρόμοια με εκείνη της ΚΝΕ, δεδομένου ότι εμφανίζεται μόνο για να φέρει τον τόνο. Η παρατήρηση αυτή έρχεται σε αντίθεση με τις προηγούμενες γραμματικές περιγραφές της διαλέκτου που υποστηρίζουν τη μορφολογική υπόσταση της αύξησης. Τόσο στην ΚΝΕ όσο και στην Griko η αύξηση θεωρείται περισσότερο ως ένας κλιτικός δείκτης (inflectional marker) παρά ως ένα κλιτικό πρόθημα.

Ένα ακόμα θέμα που με απασχόλησε ήταν η γραμματική φύση των προρρηματικών της κατηγορίας ΙΙ. Πήρα θέση υπέρ της άποψης ότι τα προρρηματικά αυτής της κατηγορίας πρέπει να θεωρούνται περισσότερο ως δεσμευμένα στοιχεία παρά ως αυτόνομες λέξεις και επομένως οι σχηματισμοί με προρρηματικά πρέπει να θεωρούνται

ως παράγωγα (derivatives). Ωστόσο, όπως αποδεικνύεται και από τα δεδομένα με την αύξηση, οι δομές με προρρηματικά της κατηγορίας ΙΙ δεν εμφανίζουν πάντα τον ίδιο βαθμό συνοχής. Κάποια προρρηματικά έχουν χαλαρή σχέση με τη βάση, ενώ κάποια άλλα δείχνουν να έχουν μεγαλύτερο βαθμό συνεκτικότητας. Επίσης έδειξα ότι η βασική διαφορά μεταξύ των Ελληνικών και των άλλων ευρωπαϊκών γλωσσών είναι η εξής: υπάρχουν σαφείς ενδείξεις ότι οι δομές προρρηματικό-βάση στη Νέα Ελληνική είναι λέξεις, εφόσον τα προρρηματικά δεν μπορούν να διαχωριστούν από τη βάση και να κινηθούν σε μία κάποια άλλη θέση μέσα στη φράση, ενώ στις περισσότερες ευρωπαϊκές γλώσσες, αυτοί οι σχηματισμοί είναι στα όρια λέξης και φράσης, εφόσον το προρρηματικό (ή το μεταρρηματικό) μπορεί να μετακινηθεί σε κάποια άλλη θέση.

Με βάση τις προηγούμενες παραδοχές προχώρησα στην εξέταση της εμφάνισης της εσωτερικής αύξησης μέσα σε παράγωγους σχηματισμούς στην ΚΝΕ και τη Griko. Υποστήριξα ότι η εσωτερική αύξηση στην ΚΝΕ έχει μια σαφή κατανομή η οποία μπορεί να καθοριστεί με βάση δύο άξονες: τα σημασιολογικά χαρακτηριστικά της βάσης και ειδικότερα το χαρακτηριστικό [± λόγιο] αλλά και το βαθμό συνοχής μεταξύ των συστατικών. Στη Griko η αύξηση σε σχηματισμούς με προρρηματικά κατηγορίας ΙΙ είτε εμφανίζεται εξωτερικά είτε δεν εμφανίζεται. Σε κάθε περίπτωση δεν μπορεί να εμφανιστεί εσωτερικά γεγονός που μπορεί να ερμηνευθεί από τη διαφορετική ιστορική πορεία που ακολούθησε η διάλεκτος σε σχέση με την ΚΝΕ. Τα προρρηματικά έχουν στενή σχέση με τη βάση γεγονός που ενισχύει την άποψη ότι τα προρρηματικά αυτής της κατηγορίας είναι παραγωγικά.

Στο τελευταίο μέρος του πέμπτου κεφαλαίου ανέλυσα τους συγκεκριμένους σχηματισμούς μέσα στο πλαίσιο της CM. Η εμφάνιση της κλίσης μέσα σε παράγωγους σχηματισμούς συνδέθηκε με τη διάκριση θέμα (stem) - λέξη (word), ενώ τα διαφορετικά σχήματα δόμησης είναι ιεραρχικά δομημένα.

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Acknowledgements

This is the only part of a doctoral thesis in which one can express feelings. Thus, I would like to express my gratitude to a number of people who have been very supportive during all these years of my studies.

I consider myself very lucky since during all these years I have had the opportunity to learn morphology *straight from the horse's mouth* and to have two excellent teachers. First and foremost, I owe a great debt to my two supervisors, Prof. Angela Ralli and Prof. Geert Booij. As an anecdote, I usually say that I 'met' Prof. A. Ralli on the train from Salzburg to Munich by reading one of her papers, which opened up a new way for me and was the catalyst for my future choices. Prof. A. Ralli has been very supportive since I came to the University of Patras in 2006 and over all these years, she has trusted me and given me the opportunity to test and even stretch my academic abilities. I owe her for being so enthusiastic about my ideas –although sometimes they were very primitive!

The first time I met Prof. G. Booij was during a seminar that he taught in our department in 2007. I then had the opportunity to work with him during my Erasmus Exchange Programme LLP in 2008 and since then we have enjoyed an ongoing collaboration. He read every single page of my thesis and always made very insightful comments on my drafts. I owe him a great debt because he is constantly 'recalibrating' my linguistic knowledge and offering me moral support. Moreover, he offered me great hospitality during my extended visit to Leiden in the academic year 2011-2012.

I am also indebted to Associate Professor Claudio Iacobini for agreeing to participate in my advisory board and for kindly giving me help whenever needed. It was really a pleasure to have such an international committee. I would also like to thank Professor Zoe Gavriilidou and Assistant professor Angeliki Efthymiou for accepting our invitation to participate in my examining committee. Their comments have improved earlier drafts of this thesis.

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Glossing and abbreviations

The conventions used in this thesis for interlinear morpheme-by-morpheme glossing follow mutatis mutandis *The Leipzig Glossing Rules* (Dept. of Linguistics of the Max Planck Institute for Evolutionary Anthropology and Dept. of Linguistics of the University of Leipzig), available at: http://www.eva.mpg.de/lingua/resources/glossing-rules.php. The abbreviated category labels used for the purpose of the analysis of the data in this research are the following:

Accusative= ACC	Masculine= M
Adverb= ADV	Nominal= NOM
Aorist= AOR	Nominalizer= NMLZ
Aspectual marker= ASP	Nominative= NOMV
Augment= AUG	Noun= N
Augmentative= AUGM	Noun Phrase= NP
Collective= COLL	Neuter=NEU
Comparative= COMPAR	Standard Modern Greek= SMG
Compound marker= CM	Participle= PART
Dative= DAT	Plural= PL
Derivational suffix= DER	Possesive= POSS
Diminutive= DIM	Prefix= PREF
Duration= DUR	Relational adjective= REL
Feminine= FEM	Repetion= REP
Imperative= IMP	Singular= SG
Inflectional Class= IC	Verb= V
Inflectional suffix= INFL	Verb Phrase= VP
Locative= LOC	Verbalizer=VBZR

Transliteration system

The present thesis adopts a conventional system for the transliteration of the Greek words into the Roman alphabet (Romanization of Greek). Depending on the origin of the word (Classical vs Modern Greek) and the purpose of the transliteration (phonological transcription vs graphemic transliteration), there are several methods for the Romanization of Greek words. By convention, the words coming from the Griko dialect are usually written in the Roman alphabet in the previous literature. For Classical Greek, I use the standard transliteration system and I indicate the vowel length. For Modern Greek, since there is not a standardized method in the literature, I adopt a conventional system. The system to be followed for the transliteration of the Standard Modern Greek words and the words coming from the Modern Greek dialects adopts from both an exact letter-by-letter transliteration and a broad phonological transcription. The conventions can be summarized in the following table:

Greek form	Transliteration	Greek form	Transliteration
α	a	αι	ai
β	v	ει	ei
γ	g	οι	oi
δ	d	ου	ou
ε	e	αυ	au
ζ	z	ευ	eu
η	i	μπ	mp
θ	th	ντ	nt
ι	i	γκ	gk
κ	k	γγ	gg
λ	l	τζ	tz
μ	m	ρρ	r
ν	n	λλ	l
ξ	ks	νν	n
ο	o	μμ	m
π	p	σσ	s
ρ	r	ντρ	nd
σ/ς	s		
τ	t		
υ	y		
φ	f		
χ	x		
ψ	ps		
ω	o		

Chapter 0
Introduction

I. Theoretical premises

The present thesis addresses a vexed, but (at the same time) intriguing question, that is, the relation between inflection and derivation in the morphological component. Answering this question entails first taking a position on several theoretical issues concerning the architecture of the grammar.

The starting point of my analysis is the *Lexical Hypothesis* (LH). The LH is about the organization of grammar. As Williams (2007: 353) puts it, the lexical hypothesis 'suggests that the system of words in a language is independent of the system of phrases in a language in a particular way […]. The system of words determines what the words of a language are and what their properties are […]'. Having settled on this hypothesis, the next question concerns the basic principles of the different morphological processes and their interaction.

It is a customary in linguistic theory to assume a basic bipartite organization of the morphological component. On the one hand, we find word formation, i.e. the set of morphological processes that create new words (or lexemes) by combination of two (or more) different stems (compounding) or of one stem and affixes (derivation). On the other hand, we find inflection, i.e. the set of morphological processes that create the appropriate form of a lexeme for a syntactic context. Although the distinction between word formation and inflection seems quite clear at first glance, the relationships between the different processes have not remained undisputed. The present thesis will focus on the relation between inflection and derivation.

The grammatical nature of both inflection and derivation has been a hotly debated topic in the literature. With respect to derivation, Aronoff's (1976) seminal work on word formation provided strong arguments supporting the view that derivation is to be seen as a purely morphological process that cannot be treated in syntactic terms. Since then, with

few exceptions, derivation has been considered as the morphological process *par excellence*.

However, the grammatical nature of inflection and its position in the grammar is still an open issue. One can distinguish two different views. Under what is termed the *Split Morphology Hypothesis* (Anderson 1982, 1992; Perlmutter, 1988), inflectional processes take place in a post-syntactic component. Inflectional features are added to structures as syntactic features and these features are spelled out by the operation of some sort of formal device. In opposition to these models, a number of different theoretical approaches argue that inflection is located within the morphological component along with word-formation processes (see, among others, Booij, 1994, 1996; Ralli, 1999).

The present thesis builds on the latter assumption and seeks to find the possible ways in which the two processes interact. We accept that inflection and derivation have in principle different functions: 'Inflection is what is relevant to Syntax', in Anderson's (1982) famous quote, whereas derivation is what is relevant to the formation of new words (or lexemes). However, the analysis is based on the view that words are *syntactic atoms*, i.e. they are inserted into syntactic structure as wholes, and that their own internal morphological structure is unavailable to syntactic manipulation (Stewart & Stump, 2007).

Assuming that inflection and derivation are accounted for in the same grammatical component, the crucial question is: *how sharp is the demarcation between inflection and derivation?* Again, there are different approaches to this issue. Under what is termed a *unified account*, there is no sharp demarcation between inflection and derivation, but rather the relation between the two processes can be defined as a cline from prototypical derivation to prototypical inflection (cf. Bybee, 1985; Lieber, 1980).

In contrast to the unified account, several morphological models consider inflection and derivation as distinct morphological processes which potentially interact during word formation (cf. among others Kiparsky, 1982a,b; Scalise 1986; and Ralli, 1988). The aim of these models is to detect to what extent the two processes interact. Within the spirit of these models, the distinction between contextual and inherent inflection is crucially important (Booij 1994, 1996). In the present thesis, I support the latter view of the organization of the morphological component.

II. Aims and scope of the thesis

The present thesis does not aim to develop a new theory about the relation between inflection and derivation. It has two major aims. First, it tries to illuminate the question of the relation between inflection and derivation by focusing on some manifestations of their interaction in word formation in Modern Greek. Second, it seeks to provide a formal

model for the relation between inflection and derivation which reflects the findings of the theoretical discussion and accounts for the various phenomena.

The arguments for the analysis of the relation between inflection and derivation can be built up by developing either a *bottom-up* or a *top-down* approach. In the first case, the analysis takes as its starting point the examination of the data in languages which vary significantly from a typological point of view. Through examination of the data, the analysis results in generalizations about the relation between the two processes. In the latter case, the analysis starts from preset criteria for the demarcation of the two processes and, then, applies these criteria in order to examine their applicability. The present thesis adopts the top-down approach, that is, a number of theoretical questions related to the issue constitute the building blocks of the analysis. The argumentation built on deductive reasoning runs as follows: grounded on the assumption that derivation is a purely morphological process, the objective is to explore to what extent inflection shows a grammatical behaviour similar to derivation and what the constraints are that delimit the interaction between the two processes.

The analysis owes to a great extent to fundamental insights encapsulated in seminal works in the literature. The present thesis largely builds on Ralli's (1988, 1999, 2005) seminal work on the morphological system of Modern Greek and Modern Greek varieties. Ralli's work is of great value for two reasons: first, it lends significant support to the position that inflection should not be accounted for in a post-syntactic component, drawing data from Modern Greek; and, second, it presents the structural characteristics of the overall morphological system of Greek. In this respect, it forms the background of the whole analysis presented here.

However the analysis of the empirical facts *per se* cannot be considered as sufficient in current grammatical theory. As Jackendoff (2011: 586) puts it, 'a theory that aspires to account for language as a biologically-based human faculty should seek a *graceful integration* of linguistic phenomena with what is known about other human cognitive capacities and about the character of brain computation'. Thus, by taking into consideration, first, the aspects of the relation between inflection and derivation that have been already discussed in the previous literature and, second, the proposals of the subsequent analysis, the second aim of this thesis is to provide a construction-based approach to the relation between the two processes.

The present thesis bases its claims on theoretical models which represent the morphological component of grammar in terms of a *richly structured mental lexicon* (cf. Booij, 2010; Bybee, 1988; Jackendoff, 1975; Lieber, 1980 and Ralli, 1988). Following the fundamental tenets of *Construction Morphology*, as developed by Booij (2010), I argue that the relation between the two processes can be adequately represented by means of hierarchically ordered morphological schemas in a theory of the lexicon which predicts

that there are relations between the different parts (both schemas and words) of the lexicon.

III. Data

In his classic paper on the organization of the morphological component, Anderson states the following (1982: 572): 'the question of overlap between portions of the study of language governed by distinct sets of principles is entirely an empirical one, to be answered by investigation of the facts of particular grammars rather than by pretheoretic stipulation or arbitrary definition of the fields of interest so that they must necessarily be disjoint'. Taking this position as a starting point and moving a step further, I claim that the question of the relation between inflection and derivation finds ultimate expression particularly in cases of fusional languages where the two processes manifest themselves in the same form.

The thesis focuses on two different linguistic varieties which both have rich inflectional systems and very productive derivational patterns, namely Griko and Standard Modern Greek. One may well raise the question of why one should examine these two varieties comparatively. Griko is a dialect of Greek origin spoken by approximately 20,000 speakers in 9 neighbouring villages which are located in the centre of the Salentine peninsula (Southern Italy). Traditional descriptions of Griko have already been published, including a general description of the grammatical system as well as aspects of the diachronic evolution of the dialect (see, among others, Karanastasis, 1997; Katsoyannou 1995a,b (for Bovese spoken in Calabria); Profili, 1983; Rohlfs 1972a,b). The diachronic evolution of the dialect has garnered much attention; however, I choose to focus on a different aspect of the system, that is, the description of its synchronic morphological system, since a comprehensive treatment of the morphological phenomena is still lacking and important data remain unexplored. It is possible that the analysis of the phenomena in this thesis will have some implications for the discussion of the diachronic evolution of the language.

The present thesis takes the previous work on the dialect as a starting point and discusses a set of morphological phenomena which shed light upon the relation between inflection and derivation. The aim of this thesis is to discuss certain phenomena that have not been thoroughly examined before and to provide a comprehensive analysis of these phenomena.

With regard to the description and analysis of the basic morphological structure of Standard Modern Greek, the present thesis owes a great debt to Ralli's work (see, among other works, 1988, 2005, 2007, 2013). Ralli (1986, 1988) has already pointed out a number of interesting phenomena concerning the relation between inflection and derivation.

As has been already noted in the previous literature (cf. Ralli, 2012), Griko and Standard Modern Greek display rich and, in some respects, complex verbal morphology, with the verb typically described as consisting of a stem and a number of affixes (prefixes as well as suffixes), both inflectional and derivational. The present thesis has as its primary concern aspects of verbal morphology that show a close interaction between inflection and derivation. However, Griko diverges significantly from Standard Modern Greek in that it has been influenced by the neighbouring Standard Italian and the local Romance dialects (cf. Katsoyannou, 1999; Manolessou, 2005). Moreover, Griko 'acts more freely' since it is not under the pressure of standardization. Similarities and differences between Standard Modern Greek and Griko will be discussed throughout the analysis. Data from Griko and Standard Modern Greek will be compared to data from other languages which display the same or different typological characteristics.

IV. Organization of the thesis

This thesis is structured as follows: I start with the presentation of the basic theoretical approaches to the morphological analysis as well as the main theoretical models that have been proposed for the organization of the morphological component (chapter 1). Next, I present the grammatical characteristics of both inflection and derivation and provide the framework for the formal representation of their relation (chapter 2).

The next chapters are devoted to the examination of specific phenomena. The organization of each separate chapter reflects the aims of the thesis, that is, first I analyse the phenomena from a theoretical point of view and then I provide a formal representation in terms of Construction Morphology. I start with the issue of the relation between conversion and inflectional properties of the output words (chapter 3). I examine the well-debated claim that conversion is not a derivational process and provide arguments in favour of a paradigmatic account of conversion in Modern Greek. I also argue that conversion in Modern Greek determines the inflectional class of the output verb and thus determines its inflectional properties. The relation between inflection and conversion is formally represented in terms of paradigmatically related constructions.

The next issue to be addressed is the examination of verbal formations in Griko which display a 'meaningless' derivational element (chapter 4). Synchronically, this formative does not meet the criteria for derivational elements and thus we need to find another explanation for its appearance. I argue that this kind of formative has developed some purely morphological properties, in the sense that it flags the inflectional class of the verb. It should be mentioned that the formative has not entirely changed its grammatical status, and thus the representation of the process is more intriguing. The whole process is determined as an instance of constructional change.

The last issue to be examined is the general assumption that inflection cannot serve as input to derivational processes (chapter 5). Data suggesting that inflected forms may serve as input to prefixation is examined in order to challenge previous analyses. Central to our discussion is the morphological category of prefixes in both Standard Modern Greek and Griko. I argue that the formal and semantic properties of derivational prefixes and the semantic properties of the base play an important role for the distribution of the internal augment in these formations. These differences can be formally represented by integrating the distinction between word-based and stem-based formations with the notion of constructions.

Chapter 1
The organization of the morphological component

1.0 Introduction

The differences in the analysis of morphological phenomena derive to a great extent from the underlying theoretical assumptions about the organization of the morphological component. The first aim of this chapter is to set the stage for the analysis of the morphological phenomena in the subsequent chapters by discussing the organization of the lexical relations and presenting the notion of the hierarchical lexicon, as developed by Booij (2010). The second aim is to discuss the organization of the morphological processes within the morphological component by focusing on the relation between inflection and derivation. This chapter is intended neither as an exhaustive review of the vast literature on the topics[1] nor as a new theory about the organization of the morphological component. It rather summarizes some recent advances in this area.

1.1 Lexical relations

A broad classification of the morphological models can be made on the basis of whether the model assumes relations between lexical items: on the one hand, we find models which do not recognize relationships among the outputs of the morphological processes, whereas, on the other hand, we find models in which (co-)relation between lexical items is a key notion. The analysis of the phenomena in the present thesis shares basic characteristics with the latter approach.

In the following sections I take a critical look at the recent models which examine the relations among lexical items. The presentation is structured around some fundamental

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[1] For a comprehensive discussion of the topic, see, among others, Bauer (2004), Beard (1998), Booij (2000), Scalise and Guevara (2005).

questions such as: (a) the size of the units stored in the lexicon, (b) the learnability of the morphological rules, (c) the balance between storage and computation in word formation, (d) the issue of word-internal structure and (e) the debate of rule-list fallacy. The answers to these questions provided by the models will be evaluated in the last section of this chapter and will form the basis for the argumentation in the next chapters.

1.1.1 Full-entry theory and Tripartite Parallel Architecture

Jackendoff (1975) starts with the fundamental question of the relation between base words and derivatives and develops a model for the organization of the lexicon. Central to his theory is the assumption that the lexicon is a repository of information about all the existing words. Base words along with all derivatives must be fully specified with distinct, but lexically related entries (full-entry theory).

The full-entry theory accounts for an interesting range of phenomena; for example, words whose affixation is predictable by a rule, but whose putative derivational ancestors are not existing lexical entries, such as *aggression* and *fission* in English which lack the corresponding base forms *aggress and *fiss (Jackendoff, 1975: 645). As Jackendoff argues, these items on the one hand contain less independent information when compared to items such as the words *demise* and *soliloquy*, since they bear the suffix -ion; on the other hand, they contain more information than comparable items which are related to genuine lexical items: for example, the words *decision* and *attribution* from the bases *decide* and *attribute*, respectively. The same holds for word pairs which lack a common root, for example *retribution-retributive*, but not **retribute* (Jackendoff, 1975: 646).

A more elaborate account of lexical organization is presented in Jackendoff (1997). Jackendoff (1997: 110) proposes that a lexical item is conceived of as a triplet of Phonological Structure (PS), Syntactic Structure (SS), and Conceptual Structure (CS) and every word serves as a *correspondence rule* among the three components. A lexical item partakes of all three. In this view, the lexicon is a repository of <PS, SS, CS> triplets that enable correspondences to be established between pieces of structure derived by the three independent generative systems, the so-called *Tripartite Architecture of the Lexicon* (Jackendoff, 1997: 109).

However, as Jackendoff (2010a: 44fn.) puts it, 'in the Parallel Architecture formalism, in which rules are formalized in the same format as words, the formalization of redundancy rules as relations between two lexical items is problematic'. Therefore, Jackendoff (1997) adopts the distinction between productive and semi-productive rules: a semi-productive rule differs from a productive one in that 'one needs to know whether each particular derived form exists, as well as (in many cases) particularities of its meaning and pronunciation […] By contrast, productive processes predict the existence and form of all derived forms, which need not therefore be listed (but still may be)

(Jackendoff, 1997: 121). In this view, productive affixes are introduced as part of rules, whereas non-productive morphemes do not appear independently anywhere in the lexical component. Similarly, regular derived forms are composed on the fly, whereas semi-productive regularities must be stored in long-term memory.

1.1.2 Network morphology

In the generative linguistics enterprise the notion of language use has not been taken into consideration in formulating theories. Bybee (2001) starts with this observation and proposes a theory which combines the notion of language use with the notion of language structure. The basic aim in her theory is to explore the various ways in which language use 'affects the nature of the mental representation' (Bybee, 2001: 1).

Bybee's model shares many basic insights with the so-called *usage-based models*. These models have the following characteristics (Bybee, 2001: 6 ff.):

(i) Experience affects representation, in that, the use of forms and patterns both in production and perception affects their representation in memory.

(ii) Mental representations of lexical objects have the same properties as mental representations of other objects.

(iii) Categorization is based on identity and similarity.

(iv) Generalizations over forms are not separate from the stored representation of forms but emerge directly from them. These generalizations are expressed as relations between forms based on phonetic and/or semantic similarities. New forms can be produced through reference to existing forms, but most multi-morphemic words are stored whole in the lexicon.

(v) Lexical organization provides generalizations and segmentations at various degrees of abstraction and generality. Units such as morpheme, segment, or syllable are emergent in the sense that they arise from the relations of identity and similarity that organize representations. Since storage in this model is highly redundant, schemas may describe the same pattern at different degrees of generality.

Applying these principles to morphological theory[2], Bybee articulates a theory of lexical organization which can be conceived of as an associative network among the lexical items. In her model, different types/forms of words such as *start*, *started*, and *starting* are associated by phonological connections linking their first five segments and semantic connections linking the same portion of each word. On the other hand, words which share the same inflectional suffix such as *started*, *waited*, and *wanted* are associated by phonological and semantic connections linking [-i-d]. These parallel semantic and

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[2] Bybee develops a model for both phonology and morphology. I discuss only the theoretical implications for morphology. For an extensive review of the entire model, see Booij (2004).

phonological connections eventually give rise to morphological relations (Bybee, 2001: 97).

A core theoretical notion in Bybee's model is that of frequency effect. Bybee explores the relation between frequency of use and mental structure and claims that tokens of use map onto existing representations. In this view, high-frequency items become stronger and, therefore, are easier to access in lexical decision tasks, but little-used items are more difficult to access and, thus, tend to fade in *representational strength* (Bybee, 2001: 28 ff.). The conserving effect of high token frequency is represented as *lexical strength*.[3] Bybee also claims that high-frequency forms are not prone to regularization, since regularization only occurs when existing forms are difficult to access (*ibid.*).

Another interesting aspect in Bybee's theory is the use of the notion of *emergence*. According to her model, structures are not set in advance, but take their form from the nature of the input. In other words, structure is emergent. Regularities and similarities that are observable in linguistic items are used to structure storage (Bybee, 2001: 21).

Bybee also examines the problem of storage of forms in the lexicon. Bybee (2001: 109) claims that 'what determines the forms that are actually in memory is usage'. This means that high frequency forms are stored in memory, whereas low-frequency morphologically complex words are not. This suggests that storage of forms is independent of their structural properties. Evidence for this claim can be corroborated by the fact that irregularity can be preserved through sufficient frequency and that low-frequency irregulars either regularize, or fall out of usage and disappear from the language.

Bybee makes an interesting claim regarding the redundancy problem. She argues that 'if the lexicon is viewed as a complex network structure […], a word is not necessarily an independent unit, but is instead deeply embedded in the organizational structure. In this case, a regularly inflected word, whose stem is already present in some other word, adds no complexity to the lexicon and takes up very little "space", since all of its parts overlap with existing items' (Bybee, 2001: 29). In other words, overlapping lexical information is not repeated for every single lexical item, but instead only the piece of new information is added onto the previous structure.

As a corollary of the general theoretical claims about the structure of the lexicon, the notions of 'word' and 'morpheme' in Bybee's model take on a new definition. According to Bybee, a word is 'a unit of usage that is both phonologically and pragmatically appropriate in isolation. As such, words are plausible cognitive entities; they are units of production and perception that can undergo categorization' (2001: 30). As Bybee argues, stems and affixes show less autonomy and should not be considered as separate lexical units. This is evidenced by a number of cases in which various morpheme-like elements

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[3] See the next chapter for a discussion of the notion of lexical strength in morphological paradigms.

do not show semantic autonomy or do not recur in other words. Thus, according to Bybee (2001: 25), 'the notion of morph or morpheme can be treated as gradient, depending upon whether or not the element has meaning assigned to it and whether it recurs'.

1.1.3 Abstractive perspective

Blevins (2006) does not develop a fully fledged model for the organization of the lexicon but rather presents a comprehensive alternative to the analysis of morphological phenomena. Blevins starts with the observation that there are two main ways to approach the morphological patterns in a given language. According to his classification (Blevins, 2006: 533):

> 'One type of analysis isolates recurrent bases and exponents within a system, encapsulates each of these elements in an individual rule or entry that represents their grammatical properties, and then derives surface word forms from these simple elements by rules or other combinatoric principles. A second type of analysis treats word forms as the basic units of a system, and classifies recurrent parts as abstractions over full forms.'

In Blevins' terms, the first approach should be called *constructive approach*, whereas the latter would be the *abstractive approach*.[4]

The underlying theoretical assumption behind the idea of the abstractive approach is that the grammar can be conceived of as a set of relations between full surface forms and that the morphological analysis of a form cannot be given in isolation (Blevins, 2006: 536).[5] The core idea in Blevins' analysis is that form variation within a system can be represented by exemplary patterns or 'paradigms' and that the forms of non-exemplary items can be deduced from *principal parts* that identify which pattern a given item follows. Exemplary paradigms serve a dual role: they specify the forms of existing lexical items and at the same time provide a model for the formation of new items (Blevins, 2006: 537). In this respect, the abstractive approach can be likened to what has been traditionally referred to as the 'word-and-paradigm' model.

In Blevins' model, there are no rules in the traditional generative sense and thus new forms are created only by analogy with existing patterns. In order to deduce new forms, exemplary paradigms and principal parts provide the information required and matching the principal parts of an item with cells of an exemplary paradigm establishes a

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[4] The two approaches differ significantly in several points with respect to morphological analysis (see appendix).

[5] Blevins does not exclude the possibility of segmenting words into component morphemes, provided that these morphs are regarded as abstractions over forms, not as the 'building blocks' from which the forms are constructed (Blevins, 2006: 536)

correspondence between principal parts and their counterparts in the exemplary paradigm (Blevins, 2006: 538).

As a corollary of the basic tenets, Blevins claims that the notions of *morphological classes*, *lexical classes* and *stem syncretism* (or morphomes) are superfluous in the morphological analysis. The shape of one or more word forms tends to identify the class of an item and given a set of surface forms, it is often possible to identify the root, which in turn identifies an individual lexeme, along with stem formatives and inflectional exponents, whose distribution is associated with particular lexical classes (Blevins, 2006: 532).

1.1.4 The notion of the hierarchical lexicon

The notion of the hierarchical lexicon has been the theoretical cornerstone of Construction Morphology (Booij, 2010).[6] The idea of the hierarchical lexicon is based on the assumption that both abstract schemas and individual words must be specified in the lexicon and the lexicon is organized into different levels of abstractions (degrees of schematicity). Abstract schemas are placed at the top levels of the hierarchy, whereas individual words are placed at the bottom of the hierarchy (Booij, 2010, 2013).

The hierarchy can be construed as an *inheritance tree* and the relation between a schema and its instantiations can be modeled by making use of the mechanism of 'default inheritance': the individual words inherit all their predictable properties from their dominating schema by default (Booij, 2012). As far as derived words are concerned, in addition to inheritance of information in a lexical entry from the schemas that dominate it, there is also inheritance from the base word. The relationship between base word and derived word can be specified through *co-indexation*: the lexical index of phonological, syntactic and semantic properties of the base word appears as part of the phonological, syntactic and semantic information concerning the derived word as well (Booij, 2012).

The view of the lexicon as a 'richly structured component of the grammar' is fully compatible with the notion of paradigmatic relations in the morphological analysis. The language user starts from systematic 'form-meaning/function correspondences between sets of words' and then generalizes over these correspondences in order to create the abstract pattern (Booij, 2013). This means that the paradigmatic relationships between words are projected onto the 'syntagmatic axis' of language structure (bottom-up approach, Booij, 2004). After a pattern has been created, it can be used generatively, producing a class of partially specified possible lexical entries (top-down approach).

Words of a language are classified according to their morphosyntactic and/or morphosemantic criteria and then further sub-classified according to more specific

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[6] A comprehensive discussion of the basic tenets of Construction Morphology will be presented in the next chapter.

properties. Each individual word may form the end node of a number of such hierarchies and a semantic classification may cross-classify with a formal syntactic classification (Booij, 2010).[7] For instance, we can classify the words of a language according to their semantic interpretation.

An illustrative example can be found in the formation of agent nouns in Modern Greek. The polysemy of the deverbal masculine nouns in *-ti(s)* denoting the agent in Modern Greek can be represented as follows (Koutsoukos & Pavlakou, 2009):

(1)

[V-*ti(s)*]ₙ 'one who/which V's'

Agent of V   **Instrument of V**

Animate Agent   **Non-animate Agent**
efodias-ti(s) 'supplier'   epeksergas-ti(s) 'processor'   metri-ti(s) 'counter'

EFODIAZO 'supply'   EPEKSERGAZOMAI 'process'   METRO 'count'
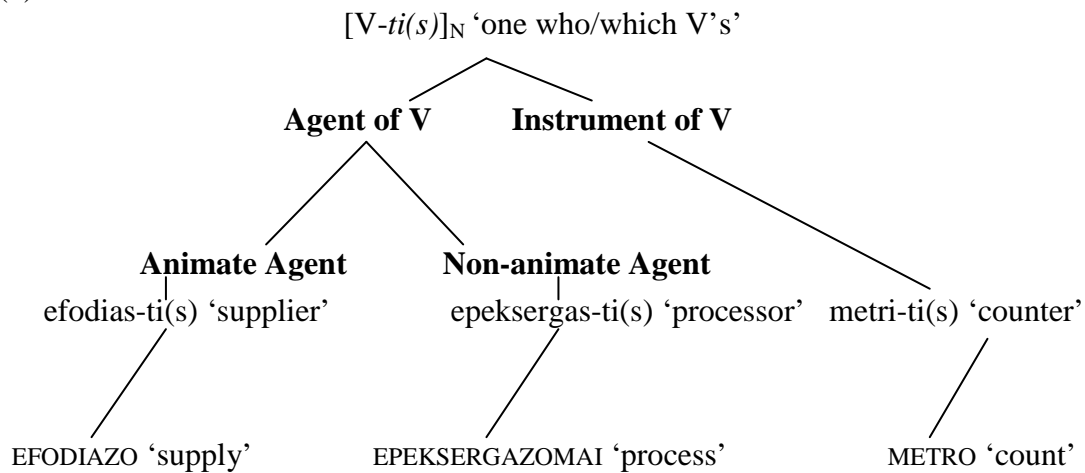
The hierarchy in (1) provides a semantic classification of all deverbal masculine nouns in *-ti(s)* and accounts for their possible semantic interpretations. Individual words in *-ti(s)* inherit properties from their dominating nodes and are co-indexed with their base. For example, the word *efodiastis*[8] inherits the semantic properties of both the agent nouns and the semantic sub-class of animate agent, and is co-indexed with the base *efodiazo*.[9]

The idea of inheritance in the hierarchical lexicon is aligned with the 'full-entry theory' defended in Jackendoff (1975) in that lexical entries are fully specified and the inheritance mechanism serves to compute how much of this information is redundant. The schemas thus provide a basis for computing the 'informational cost' of each lexical entry (Booij, 2010).

Arguments similar to those presented in Jackendoff (1975) for the 'full-entry theory' can be also found in the formation of agent nouns in Modern Greek. For example, there are several nouns in *-ti(s)* for which synchronically there is no corresponding base form,

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[7] An organization of word formation patterns on the basis of semantics is also implied in Anshen and Aronoff (1988: 653) who argue that 'it is reasonable to assume that in speech production words are accessed primarily through the semantic dimension'.

[8] Derivational morphology in Modern Greek is usually characterized by a number of morphophonological alternations of the verbal base and/or allomorphy patterns. Unless otherwise mentioned, for the sake of cohesiveness of the presentation, I will not present all the details of these changes.

[9] Inflection is obligatory in Modern Greek formations. In the present thesis, unless otherwise mentioned, inflection is indicated in parentheses. Both nouns and verbs are given in the citation form, i.e. 1SG present for the verbs and nominative singular for the nouns.

as in *peiratis* 'pirate'< *peirao[10], and nouns like [[apo[ximo]$_V$]$_V$-*ti(s)*]$_N$ 'juicer' or [[apo[nitro]$_V$]$_V$-*ti(s)*]$_N$ 'denitrificator' for which there is neither an attested verb *apoximono* or *aponitrono* nor an attested noun *ximotis* or *nitrotis*, respectively (Koutsoukos & Pavlakou, 2009). These nouns can be classified to the category of agent nouns in *-ti(s)* according to their formal similarity (they end in -ti(s)) but their morphological segmentation would be problematic.

In the hierarchical lexicon, both listing of fully specified individual words and abstract schemas are allowed. Thus, as Booij (2013: 257) puts it, 'we avoid the "rule versus list fallacy", the mistaken idea that a linguistic construct that is completely regular and hence predictable cannot at the same time be listed. *Listing* is a way of specifying the lexical conventions of a language, whereas *schemas* express the generative power of the grammar'.

Another advantage of the 'full-entry theory' which has not been discussed so far is the value of redundant information in diachronic change. The information stored in specific words may serve as the starting point for the reanalysis of existing words and, at a later stage, for the change of the abstract schema, since existing words and abstract schemas are linked together. This actually reflects the bottom-up process of the diachronic change.

The hierarchical lexicon includes all possible word-formation patterns in a specific language, but distinguishes between productive and non-productive (or semi-productive) word formation patterns. In fact, the hierarchical lexicon is based on the idea that 'there is a cline from unrestricted productivity to extension of a pattern based on a specific word as a model, the prototypical case of analogy' (Booij, 2013: 258).

1.1.5 Discussion

The models presented in the previous sections share some basic assumptions about the organization of the morphological component, but at the same time differ significantly in specific issues. In what follows, I will present a critical view of their basic points.

Let us start with Jackendoff's (1975) full-entry theory and redundancy rules. Contrary to the previous generativist tradition which assumes that the lexicon is only a repository of exceptions (see Carstairs-McCarthy 1993, for a discussion of this topic), Jackendoff presents a more structured organization of the morphological component which accounts for word formation. The postulation of the redundancy rules which connect fully specified lexical entries suggests that the lexicon is organized as a network of relations, and paves the way for later studies which elaborate the idea that paradigmatic information may play a significant role in word formation.

Let us now turn to some drawbacks of his proposition. In the generative framework, the grammar is to be conceived of as a perfect system and perfection is to be seen in

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[10] The verb *peiraomai* 'to try' was an existing verb in Ancient Greek.

terms of 'elegance', 'lack of redundancy' and 'computational efficiency' (Jackendoff, 2011: 589-590). Similarly, the evaluation of the grammatical description needs to be built 'as measures of length of grammar' (Jackendoff, 1975: 640).

The full-entry theory has been criticized mainly on the grounds that the same pieces of lexical information can be encoded in both the lexical entries and the morphological rules and thus the grammatical description is not formally optimal.[11] The answer to this criticism is nicely expressed in Booij (2013: 257) who argues that 'there is no evidence that, once a language user has acquired the abstract schema [or rule][12], information in the lexical entries for individual complex words is deleted'.

Bybee (2001) proposes a connectionist model for the organization of the lexicon. The strong point of her analysis centres upon the fact that her model has an empirically reasonable basis. For example, Bybee takes into account both regular and irregular inflectional morphology and offers important insights for a variety of cases. An additional good point in her argumentation is the fact that this model assumes paradigmatic relations among the lexical items.

However, Bybee's model presupposes a number of theoretical claims about certain morphological issues which seriously undermine the core of her theory. Following the tradition of the connectionist models, Bybee rejects the idea that morphological rules account for morphological creativity and assumes that analogy can account for *all* word-formation processes. Consequently, she assumes that there is no ordered relation between lexical items (in the sense of basic and derived words) and the only relation between different forms is a 'predictability relation'.

The question to what extent morphological creativity is 'rule-governed' or 'driven by analogy' cannot be answered out of hand (see, among others, the discussion in Bauer, 1993). The answer depends heavily on the issues under examination. For example, it is generally acknowledged that analogy plays a significant role in paradigmatic levelling in inflectional morphology. However, there is abundant evidence suggesting that in addition to analogical word formation, rules or abstract patterns should also be assumed in the morphological analysis (see, among others, Anshen & Aronoff, 1988; Booij, 2004).

Blevins (2006) presents a different perspective on the analysis of the morphological phenomena and his argumentation covers a wide range of theoretical issues which have been discussed only sporadically in the previous literature. The strong point in his argumentation lies in the fact that it provides an adequate analysis of the inflectional phenomena. It is quite true that the traditional constructive approaches to word formation face serious challenges with respect to inflectional morphology. This can be evidenced by the fact that classic constructive approaches, such as for example Aronoff (1976), have totally ignored inflectional phenomena.

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[11] Jackendoff (2010a) has refined some points of his original proposal.
[12] Explanation added.

Notwithstanding the value of this approach for the analysis of inflectional phenomena, there are some points which deserve more careful consideration. The abstractive approach mainly concerns the paradigmatic relations between the lexical items, whereas the constructive approach mainly focuses on the syntagmatic axis of the linguistic phenomena. However, one may well ask to what extent the abstractive perspective is compatible with the constructive approach. In other words, can we assume that both approaches are –in Blevins terms– 'complementary modes of combination'?

Blevins' answer to this question is negative, since, as he puts it, 'there are significant empirical differences between these perspectives, which derive from different assumptions about the basic "units of storage" in the grammatical system, and, by extension, in the speaker's mental lexicon'.

Blevins' rejection of the constructive approach commits him to several strong claims about the morphological analysis. For example, Blevins does not include in his model the possibility of having abstract patterns or rules that generatively produce new forms. It is quite true that the examination of inflectional phenomena leaves open the question of whether abstract patterns or rules can account for the morphological creativity.

However, word formation differs significantly from inflection in this respect. Booij (2004: 232) claims that 'the fact that the language learner has to learn that a specific word is a noun on the basis of regularities in its distributional patterning and morphological behaviour does not preclude that the learner will assign the formal category label noun to that word, so to speak as a handy summary of one's experience with that word'. Carstairs-McCarthy (1993), on the same issue, argues that 'overwhelming evidence suggests that the internal morphological structure of a complex word, once formed, remains accessible to the language user'. Under this view, we can assume that speakers of a language may start from the paradigmatic relations in a language and then abstract over specific sets of formations in order to create abstract schemas (or rules) that can be used generatively in word formation.

In conclusion, abstractive approaches do justice to the fact that morphological forms derived in isolation may be regarded merely as a theoretical idealization. On the other hand, constructive approaches provide the adequate formalism in order to express the idea that morphology does not only express the relations among items but also has a generative function. Thus, in the next chapters I will argue that the idea of the hierarchical lexicon, as proposed by Booij (2010), is a comprehensive approach to morphological phenomena.

1.2 Models for the relation between inflection and derivation

It is generally acknowledged that inflection and derivation have different grammatical functions: inflection concerns the creation of word forms that take part in syntactic structures, whereas derivation concerns the creation of new lexemes (cf. Booij, 2006).

The relation between inflection and derivation lies at the heart of the problem of the organization of the morphological component as well as the architecture of grammar and thus it has been a persistent topic in the recent literature. Grammatical theories which examine the relation between inflection and derivation start with the assumption that derivation is a purely morphological process and then try to solve the problem of the grammatical status of inflection. The questions that one may well raise are the following: (a) *To what extent does inflection resemble derivation?* and (b) *Should inflection be considered as part of the morphological component?*

Generative theories have formulated a number of different models that account for the relation between inflection and derivation. The aim of this section is to discuss the basic models and to define the main points of the model of grammar adopted in the present thesis. The present section is not intended as an exhaustive literature review of the topic, but rather as a presentation of the models with which the present thesis shares basic insights.

1.2.1 The unified account

Lieber (1980) was the first to raise the issue of the relation between inflection and derivation within the generative morphology framework in a principled and constrained way.[13] Previous studies mainly concentrated on defining the formal mechanisms that represent the morphological capacity.

Lieber starts her analysis with the observation that early morphological theories do not examine languages with rich inflection. On the basis of this fact, she examines data from languages with rich inflection and proposes a *unified theory* of word formation, unified in that inflectional and derivational word formation 'are accomplished within a single lexical component of the grammar in a principled and highly constrained way' (Lieber, 1980: 8).

A unified theory of the inflectional and derivational processes implies that the limits of the morphological component are expanded in a sense that includes derivation as well as inflection. The unified account of inflection and derivation is evidenced by the fact that

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[13] To the best of my knowledge Halle (1973) was the first to make the observation that inflection and derivation should be treated in a unified way. As Halle (1973: 6) puts it, 'I know of no reason why the list of morphemes should not include also the *inflectional affixes* or *desinences*, or why the rules of word formation should not also include rules for positioning the inflectional affixes appropriately or for handling such other inflectional phenomena as reduplication, stem Ablaut, etc.'

there is a range of forms which, on the one hand, are usually associated with inflectional paradigms, and, on the other hand, can feed word-formation processes.

An illustrative example comes from the examination of derived forms in Latin. As has been claimed by Lieber (1980: 49 ff.) a number of derived verbs in Latin have the following form:

(2)
augescō 'begin to grow'   <   augēre 'increase'
amascō 'begin to love'   <   amāre 'love'

What can be observed in the forms in (2) is the fact that the derivational suffix is attached to the 'theme vowel stem allomorph'. According to Lieber, this fact suggests that the inflectional forms of the verbs forms are generated (or listed) in some way in the morphological component. In other words, the word-formation processes of derivation apply to such inflectional stem allomorphs and thus inflection and other derivation should be treated in a unified way (Lieber, 1980: 49).

1.2.2 Split Morphology hypothesis

Contrary to Lieber's morphemic approach to the problem of the relation between inflection and derivation, Anderson (1982: 572) argues that 'it is the existence of a well-defined, unitary set of principles that defines a coherent field of study, rather than a unique set of objects these principles may refer to'. In his view, derivation is different from inflection, since derivation refers to the principles that govern the 'distribution of morphemes', while inflection refers to the principles that govern the 'variation of forms'.[14]

More specifically, as Anderson (1982: 573 ff.) argues, inflection is that part of morphology which is 'syntactically relevant' and comprises (a) the *configurational properties* of words which are assigned on the basis of the word in the syntactic structure, for example, the structural case of nouns, (b) the *agreement properties* of words which appear as a 'reflection' of other words in the syntactic structure, for example, the agreement between adjectives and nouns, and (c) the *inherent properties* which are not assigned on the basis of a syntactic rule but play a significant role in the syntactic structure, for example, the gender feature in nouns. Derivation, on the other hand, is not syntactically relevant and syntax cannot have access to the internal structure of words.

The difference between the two processes is reflected in the organization of grammars. As Anderson (1982: 591) argues, 'morphology is divisible into two parts: an inflectional

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[14] It is noteworthy that Anderson (1992: 185) points out that the inflectional WFR's and derivational WFR's have a certain amount of common formal characteristics and their difference is in their 'substantive specification'.

part, which is integrated (and shares theoretical primes) with the syntax, and a derivational part, which is confined to the lexicon and opaque to the syntax'.

Perlmutter (1988) follows Anderson's basic proposition about the organization of grammar. Perlmutter examines the formation of plurals and diminutives in Yiddish noun morphology and argues that this data counter-exemplifies the prediction that inflection will appear 'outside' derivation. Moreover, he argues for a cross-category distinction between two types of syntactically-relevant morphology: irregular and closed-class inflection, which is in the lexicon, and regular, productive inflection, which is extralexical. On the basis of these assumptions, he formulates the 'Split Morphology Hypothesis', which reads as follows (Perlmutter, 1988: 95):

(a) Derivational Morphology is in the lexicon.
(b) Stems are listed in the lexicon. Consequently, suppletive stems are listed in the lexicon.
(c) Irregular and closed-class inflected forms are listed in the lexicon. Consequently, suppletive inflected forms are listed in the lexicon.
(d) Regular, productive inflection is extralexical.

1.2.3 The inflection-derivation continuum

Bybee (1985) takes a more radical position on the grammatical status of inflection. Bybee assumes that it is rather difficult to find iron-clad criteria for distinguishing between the two processes and that the difference between inflection and derivation is a matter of *gradualness*.

In order to define whether a morpheme belongs to either inflectional or derivational processes we should examine the following properties/criteria (Bybee, 1985: 13 ff.): (a) its *relevance* and (b) its *lexical generality*.

According to the relevance criterion, if a morpheme attached to a base brings major semantic effects to the meaning of the base, then it should be considered as derivational, whereas in the opposite case it should be considered as inflectional. It should be noticed that in order to apply the relevance criterion to derivation, we must recognize two types of derivational morphemes: those that do not change the lexical category of the base and cause important meaning changes in the base and those that do change the lexical category of the base (Bybee, 1985: 82 ff.).

According to the lexical generality criterion, in order to define whether a morpheme (or a process) is derivational or inflectional, we should examine whether its application is restricted by different syntactic, phonological or semantic constraints. Inflectional processes apply to all members of a certain category, whereas derivational processes are subject to specific lexical constraints.

Bybee proposes a different model for the organization of the morphological component. According to this model, all the morphological processes can be placed on a continuum. On one end of this continuum one can place single monomorphemic lexical items (lexical expression), whereas on the opposite site of this continuum one can place syntactic expressions. In between, derivational, inflectional and free grammatical expressions can be found, as represented below (Bybee, 1985: 12):

(3)

    Lexical - Derivational - Inflectional - Free grammatical - Syntactic   (expression)

    ◄───

                                    Degree of fusion
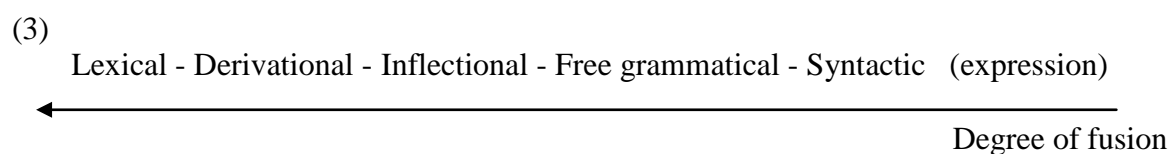
Based on this model, derivational morphemes (or processes) lie between inflection and lexical expression. Derivation resembles lexical expression in that derivational morphemes are often restricted in applicability and idiosyncratic information or meaning. It resembles inflectional expression in that two distinct morphemes are combined in a single word (Bybee, 1985: 12).

1.2.4 Level-ordered morphology

Kiparsky (1982 a,b) takes as a starting point the assumption that the lexicon has a rich internal structure and proposes a model in which both derivational and inflectional processes of English can be organized in a series of *levels* or *strata*. Each level is associated with a set of phonological rules and the ordering of levels defines the possible ordering of morphological processes in word formation.[15]

Kiparsky examines English morphology and proposes a model according to which inflection is derived at two levels: irregular morphology is derived at level 1 in order to be available to derivational processes which are placed at level 2, while regular inflection derived at level 3 and it is not available to derivational processes. His model is represented below (Kiparsky, 1982a: 4):

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[15] In this thesis we do not discuss the implications of the organization of the phonological processes.

(4)

Lexicon

| Underived lexical items |
| Level 1 Morphology ↔ Level 1 Phonology |
| Level 2 Morphology ↔ Level 2 Phonology |
| Level n Morphology ↔ Level n Phonology |

Syntax → Post-lexical phonology
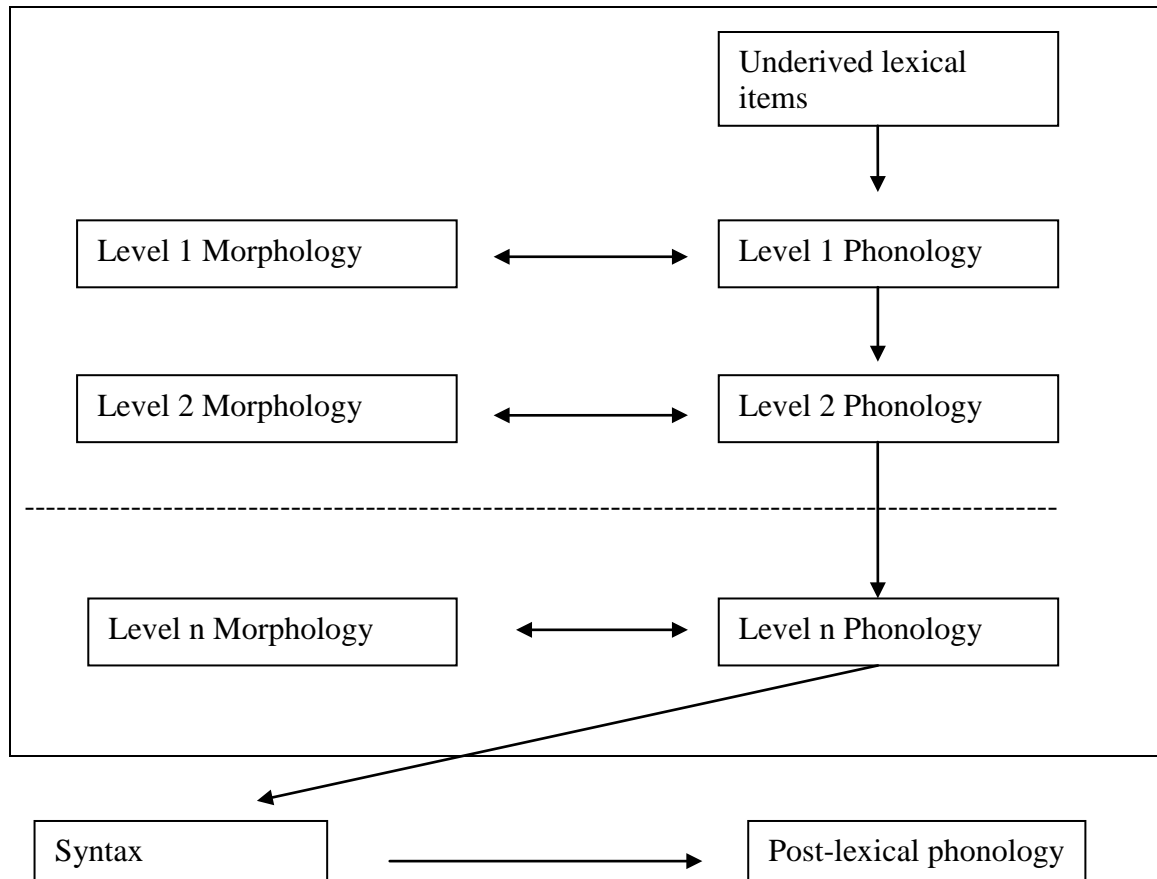
As can be shown in (4), at the end of the application of the morphological processes, a constraint forces the erasure of all word-internal bracketing and thus it follows that the syntactic processes and the post-lexical phonological rules cannot refer or apply to constituents distinguished below the word level (Kiparsky, 1982b).

Scalise (1986) proposes an organization of the morphological component similar to Kiparsky's. He argues for the *Extended Ordering Hypothesis* according to which morphological processes apply in a specific order and interaction between the different processes is allowed only to a certain degree. His model can be formally represented as follows (Scalise, 1986: 134):

(5)
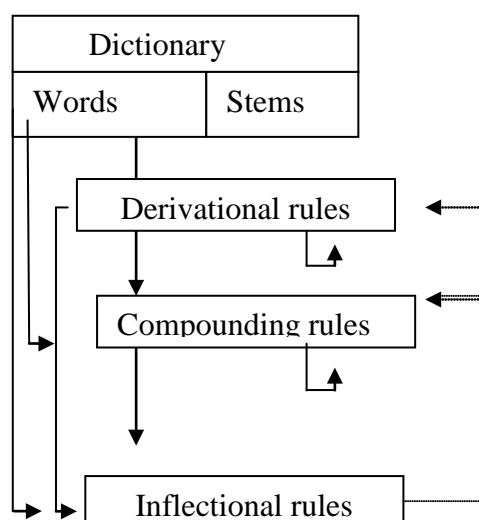
According to the schema in (5), inflection is placed inside the morphological component and can interact with other morphological processes. However, with respect to the issue of the relation between inflection and derivation, Scalise argues that inflectional rules are different from derivational rules and must be ordered after them. Inflection can interact only with compounding through the formal mechanism of *loop device*. He also examines some borderline cases, like the evaluative affixes, which often render the distinction between inflection and derivation rather blurred. He assumes that these cases should be ordered between derivational rules and inflectional rules.

1.2.5 Inherent versus contextual inflection

A closer look at the inflectional phenomena shows that a treatment of inflection as a unitary class of phenomena faces empirical and theoretical problems. Booij (1994, 1996) argues for a distinction between two different types of inflection, that is, inherent and contextual inflection. Contextual inflection is the kind of inflection that is ruled by syntax and is more relevant to the syntactic structure, whereas inherent inflection is the kind of inflection that is not required by the syntactic context, although it may have syntactic relevance (Booij, 1996: 36).[16]

According to Booij, a principled distinction between inherent and contextual inflection can be drawn on semantic grounds. Inherent inflection, like derivation, has clear semantics and can change the meaning of words. A prime example of inherent inflection is the marking of a noun as plural. Plurality in nouns cannot be predicted on the basis of the syntactic structure, but rather depends on the speaker's intention (Booij, 1994: 30). Moreover, in some cases the plural form of nouns such as *waters* in the phrase '*the river*

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[16] A similar claim is made by van Marle (1996: 68-69) who argues that derivational and inflectional dimensions of words may in principle be different, but at the same time they may constitute a continuum.

discharges its waters into the lake' expresses a slightly different meaning compared to the singular form '*water*' (Acquaviva, 2008: 1). On the other hand, contextual inflection does not have clear semantics, and only reflects certain aspects of the syntactic structure of the sentence (Booij, 1994: 30). A good example of contextual inflection is the assignment of accusative case from verbs to direct objects.

The distinction between inherent and contextual inflection has important implications for the relation between inflection and derivation. Contextual inflection can be straightforwardly demarcated from derivation, whereas the difference between inherent inflection and derivation can be gradual (Booij, 1994: 31).[17] This fact is corroborated by data in several languages in which it is only inherent inflection that can feed word formation processes (Booij, 1996: 36).[18]

1.3 The structure of the lexicon in Modern Greek

The main aim of the present thesis is to explore the relation between inflection and derivation in Modern Greek (henceforth MGr). Thus, in this section, the discussion focuses on the examination of the organization of the lexicon in MGr.

Our understanding of Modern Greek morphology has greatly benefitted from Ralli's (1988, 2005, 2007 and 2013, among others) seminal work. The analysis in the subsequent chapters adapts and adopts basic insights from Ralli's work and builds on it to a great extent.

Ralli (1988, 2005) adopts the lexicalist position, and, following Lieber (1980), argues that both word formation and inflection should be placed in the lexicon. According to Ralli, the lexicon in MGr is divided into a *static component* (permanent lexicon) and a *procedural component* (lexical structure). The permanent lexicon includes segmentally minimal forms (stems and morphemes) as well as unpredictable information of a phonological, morphological, syntactic, and semantic nature, whereas in the procedural component words are built on the basis of the stored information of the separate elements (Ralli, 1988).

In line with Kiparsky (1982 a, b), Ralli proposes that the procedural component of the lexicon contains a section for morphology and a section for word-internal phonology. The procedural component is stratified into three levels according to the productivity of the processes: the first level is responsible for less productive formations, the second level

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[17] Barðdal (2011) expresses a critical view of the assignment of structural case on the basis of a syntactic configuration.
[18] See also chapter 5 for a detailed discussion of the topic.

includes more productive formations, while the third level is the domain of inflection and the most productive prefixation and compounding (Ralli, 2005: 220).[19]

Ralli (2005, 2007) argues that morphological units in MGr can form a continuum on the basis of the boundness of the elements. Inflectional affixes and words occupy the two opposite poles of this continuum (Ralli, 2005: 316):

(6)

| words | stems | bound stems[20] | derivational affixes | inflectional affixes |

$\longleftrightarrow$

Morphological categories in MGr
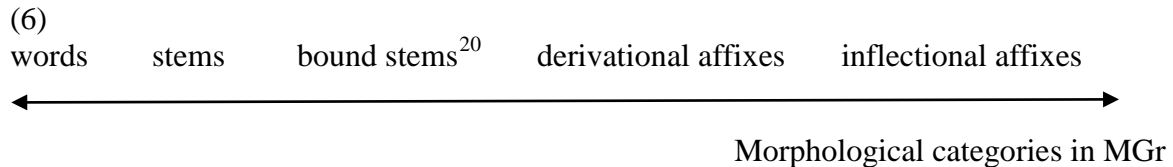
These categories can be further classified into sub-categories. For example the category of derivational affixes includes: prefixes, suffixes and preverbs coming from Ancient Greek. The position of the intermediate categories is determined by properties such as structural boundness and lexical meaning (Ralli, 2007: 156).

Morphological formations in MGr can be *stem-based* or *word-based*[21] (Ralli, 2004) and word formation is achieved by the operation of word-formation rules of the form X → Y Z (see Ralli, 2005: 232 ff.).[22]

Regarding the problem of inflection, Ralli (1998, 1999) argues that inflection belongs to morphology and adopts the division of inflection into contextual and inherent inflection, as proposed by Booij (1994, 1996). According to Ralli, inflectional features constitute the morphological expression of features inherent to human language, whose basic characteristics are governed by *feature theory* (Ralli, 1999: 111).

Ralli (1999: 119) argues that inflectional forms of words are built in morphology and then morphologically complex words are inserted into syntactic constructions where featurized information resulting from morphological structures may be selected by syntactic mechanisms. As claimed by Ralli, functional categories in syntax should be defined independently from the role that inflectional features may play in morphology.

Last but not least, Ralli (1986, 1998 and 1999) examines the relation between inflection and derivation and argues that in many cases it is difficult to draw a dividing line between inflection and derivation. Thus, she assumes that the relation between the two processes can be best accounted for by a continuum. Based on the assumption that inflectional features are seen as the morphological representation of inherent linguistic

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[19] In later years Ralli (2013) has proposed certain amendments in this model, but it is beyond the scope of this thesis to discuss them.

[20] See chapter 3 for a detailed discussion of the structural and semantic properties of this category.

[21] The distinction between word-based and stem-based morphology refers to the morphotactic units that are treated as basic for the morphological analysis, that is, word versus stem.

[22] These rules show to great extent similarities to word formation schemas, as presented in 1.1.4.

properties, Ralli assumes some of these features may be realized as either inflectional or derivational, depending on the language (Ralli, 1999: 123).[23]

1.4 Discussion

The discussion of the organization of the morphological component owes a great debt to Lieber's (1980) pioneering work. Lieber presents arguments in favour of the view that inflection should be considered as a pre-syntactic process and her basic argument consists in cases in which inflection can feed word formation processes, i.e. derivation or compounding. Although Lieber provides a comprehensive framework for the treatment of this issue, her analysis has been heavily weighted towards the examination of cases in which inflectional stem allomorphs feed word formation processes and she does not present any other inflectional exponents, such as inflectional affixes, which can have the same structural behaviour. Additionally, Lieber does not take a position regarding the difficult problem of the ordering of morphological processes.

The Split Morphology Hypothesis addresses the difficult problem of the relation between inflection and syntax, on the one hand, and the relation between inflection and derivation, on the other hand. Anderson (1982, 1992 and Perlmutter, 1988) argue that inflection is 'what is relevant to syntax' and on the basis of this fact they present a couple of arguments for the division of morphology into a *pre-syntactic* component which accounts for word formation and a *post-syntactic* component which accounts for inflectional phenomena.

This model faces two serious problems. First, it treats inflection as a unitary class of phenomena. However, as has already been argued, there are two different types of inflection, that is, inherent and contextual inflection, and both of them should be accounted for in a pre-syntactic component (see Booij, 1994, 1996; Ralli, 1999). Second, if we place inflection in a post-syntactic component, we cannot explain a number of cases in which inherent inflection appears to share a number of properties with derivation. Thus, inflection must be treated as a morphological phenomenon and must be allowed to interact with derivation.

The idea of level-ordered organization of the morphological component addresses the problem of the hierarchy of the morphological processes. Both Kiparsky (1982a, b) and Scalise (1986) state the general principle that derivational affixes are often placed closer to the stem compared to inflectional affixes, and account for the characteristics of some categories which have a mixed grammatical status, such as the evaluative suffixes, the adjectives and the participles. However, Kaisse (2005: 36) shows that Kiparsky's model makes very strong claims about affix ordering in morphological formations, while Booij

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[23] Similarly, Di Sciullo and Williams (1987) argue that inflectional and derivational morphemes are not formally different and the separation of affixes is 'a matter of interpretation and not of a form'.

(1989) argues that level ordering is not supported by the facts concerning the inflection of complex verbs in Dutch and English.

The idea of the morphological continuum principally as presented in Bybee's model has descriptive adequacy in the sense that it covers a wide range of typological data and accounts for several derivational and inflectional phenomena (see also the discussion in Aikhenvald (2007) for the wide applicability of this idea). However, the 'continuum-hypothesis' has two problematic points. First, it takes as its starting point the hypothesis that the difference between the two processes is just a matter of gradualness; thus, it does not delimit the two processes. However, both theoretical and empirical evidence have shown that prototypical inflection and prototypical derivation have major differences and thus these differences should be captured in the grammatical description in a principled way. Second, although it may be quite clear how this idea works out on diachronic grounds, it is not *a priori* clear whether we can postulate a continuum for inflection and derivation at a synchronic level.

In conclusion, the present thesis is based on the assumption that inflection should be accounted for as a presyntactic process and inflectional forms of words are built in the morphological component. Morphologically complex words are inserted into syntactic constructions as a whole. It is also assumed that inflection and derivation cannot be considered as two completely separate components of the grammar, since they can interact. However, the principles and the constraints of this interaction remain to be investigated and the main task of the present thesis is to shed light upon this issue. In the next chapter, I will present the framework for the formal representation of the relation between the two processes.

Chapter 2
The relation between inflection and derivation: a constructionist view

2.0 Introduction

In the previous chapter, I presented the different approaches to the morphological analysis as well as some grammatical models for the architecture of the morphological component. The aim of the present chapter is twofold; first, I discuss how the abstractive and constructive approaches are interpreted in the analysis of both inflection and derivation, and second, I discuss the relation between inflection and derivation within the framework of Construction Morphology.

2.1 A paradigmatic account of inflection and derivation

On the assumption that inflection and derivation belong to the same grammatical component, there is an important question to be addressed: *do both processes have the same grammatical characteristics?* In what follows, I argue that both inflection and derivation have an paradigmatic organization *in principle*, in the sense that their outputs are not derived in isolation, and paradigmatic information about the units of formations is accessible during word formation and computation. The paradigmatic relationships are projected onto the syntagmatic axis of the language structure and create the abstract word-formation schemas. Thus, I discuss, on the one hand, to what extent the notions of paradigm and paradigmatic relations are convincingly motivated within inflectional and derivational morphology and, on the other hand, what is the difference between the two domains.

2.1.1 The notion of 'paradigm'

The paradigm is a linguistic notion that has been hotly debated. Below I cite some definitions that have been proposed:

> 'A **paradigm** for a part of speech N in a language L is A PATTERN P OF INFLEXIONAL REALIZATIONS for all combinations of non-lexically-determined morphosyntactic properties associated with N such that some member of N exemplifies P.' (emphasis added, Carstairs, 1987: 48-9)

> 'A PARADIGM IS A SERIES OF MORPHOLOGICALLY RELATED FORMS which share a base or base-type. The forms in a paradigm are semantically related by more than the meaning of the base. Semantically, the forms in a paradigm differ in terms of relatively marginal features.' (emphasis added, van Marle 1994 from Bauer, 1997: 244)

> 'A PARADIGM IS A MULTIDIMENSIONAL ARRAY OF LINGUISTIC FORMS – for example, a verb conjugation, or a noun declension. A paradigm is not just a convenient way to display linguistic information; rather, it is a basic form of linguistic knowledge. It is highly language-particular, and at the same time, quite abstract in nature. Paradigmatic structure is also pervasive.' (emphasis added, Williams, 1994: 21)

It should be mentioned however that it is not *a priori* indisputable that the paradigm is 'a basic form of linguistic knowledge'. Bobalijk (2002) addresses the question of whether the knowledge of the language, i.e. grammar, includes the knowledge of paradigms themselves or merely the pieces that constitute paradigms and rules for generating them. On the basis of this question, Bobalijk makes a distinction between *paradigm-based* theories, which assume that paradigmatic structures, in addition to their contents, are part of the grammar, and *vocabulary (item)-based* theories, which maintain that paradigms are epiphenomenal, derived constructs.

In the previous chapter, I showed that the morphological analysis should include the notion of paradigmatic relations. Paradigms and paradigmatic relations are usually seen as the hallmark of inflection, whereas the notion of paradigm in derivation is still open to discussion and often related to the underlying assumptions one makes. However, both in inflection and derivation, paradigms and paradigmatic relations have proved to be a substantial notion in the analysis of various phenomena (see, among others, Booij, 1997, 2008b; Ralli, 2005 (for inflection); van Marle, 1985; and Williams, 1994).

In what follows, I will examine to what extent derivation is compatible with the notion of paradigm and to what extent derivational phenomena motivate a paradigmatic account.

2.1.2 Comparing inflection and derivation from a paradigmatic point of view

Bauer (1997) argues for a paradigmatic account of derivation and invokes a number of different criteria which prove that both inflection and derivation display a similar organizational structure. I take these criteria as a starting point and discuss the similarities and differences between inflection and derivation in what follows:

Criterion 1: Formal links within the paradigm

All the definitions mentioned in 2.1.1 state that the 'paradigm' can be conceived of as a set of related morphological forms which share a base (or base-type). It is generally true that both inflection and derivation meet this criterion in most cases. Take for example the creation of the following derivatives in Modern Greek:

(1)
 kataskeu-i[24] 'construct'
 BASE-INFL
 kataskeu-az-o 'to construct'
 BASE-VBZR-INFL
 kataskeu-as-ti-s 'construction man'
 BASE-VBZR-AGENT-INFL
 kataskeu-as-t[25]-ik-os 'sb or sth related to construction'[26]
 BASE-VBZR-AGENT-REL-INFL

The forms in (1) share the base type *kataskeu-*. However, the formal relationship between the base and the derivatives is not always as obvious as the one described above. Take for example the English words *The Netherlands* which shows a derivational relation with the word *Dutch*, since the latter expresses the inhabitant of the country.[27] In this pair, the formal relation between the two words is not apparent and semantics play a decisive role in the recognition of the relation between the two words.

Similar exceptions can be found in inflectional paradigms. A classic example is suppletion, that is, the filling of one slot of the inflectional paradigm by a synchronically phonologically unrelated form. Take for example the Aorist form of the verb ὁρῶ 'see' in Ancient Greek which is not coined regularly but it is filled by the form εἶδον.

Thus, the formal relationship between members of a pair can be assumed as a necessary but not sufficient condition for the recognition of a paradigmatic relation.

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[24] According to Ralli's (2005) analysis of inflectional classes in Modern Greek, -i in this class of nouns belongs to the stem. For the sake of presentation, conventionally I indicate -i as the inflection marker.
[25] The form -t- is an allomorph of the affix *-ti-* in Modern Greek.
[26] Since the word is formed on the basis of the agent noun, one would expect to have the following meaning: 'sb or sth related to the construction man'.
[27] I am grateful to G. Booij for pointing out this example.

Criterion 2: Semantic links among forms

The forms of a paradigm do not only share a basic form, but are also semantically linked. The members of both derivational and inflectional paradigms are primarily associated via the meaning of the base.

With respect to the question of whether formal or semantic relations are more important in the recognition of paradigmatic relations among the lexical items, Bybee (2001) argues that meaning is more important than phonological shape. According to Bybee (1985), the degree of semantic relatedness between two lexical items is determined both by the number and the nature of shared features. For example, inflected forms of the same paradigm, which share the same stem and thus lexical meaning, are very closely related to one another, since inflectional affixes tend to make very small meaning contributions. Bybee (2001) also argues that different degrees of relatedness obtain among derivationally related forms. In fact, derivationally related forms tend to move away from one another semantically to a greater extent than inflectionally related forms do. Contrary to this claim, I believe that both semantic and formal relationships among the derivatives can prove very useful for the recognition of the relation among paradigmatically related lexical items.

Criterion 3: Generalizable patterns

It is generally assumed that we can draw a dividing line between inflection and derivation on the basis of their *generalizability* (or productivity). Generalizability can be defined as the potential of a morphological process to be applicable to lexemes of different categories or to all stems of one particular semantic and syntactic category. Inflectional processes are generally considered as fully productive or generalizable. Derivational paradigms can be generalizable to a lesser extent than inflectional ones since derivational formations are more prone to lexical and semantic restrictions.

However, two points can change our view of the notion of generalizability. First, derivational processes are usually in isolation. In most studies, generalizability is usually linked with the potential of a single derivational affix to combine with bases of different categories and it is assumed that affixes display derivational gaps since their applicability is restricted by formal, lexical or semantic factors. A classic example is *blocking constraint*, that is, the constraint which prohibits 'the occurrence of one form due to the simple existence of another' (Aronoff, 1976: 43). For example, in Modern Geek the formation of the word **aɣapisi* 'love' is blocked by the existence of the word *aɣapi* (cf. Ralli, 2005: 157).

We cannot however disregard the fact that languages often have multiple affixes that have the same function or create the same kind of derived words (Lieber, 2004). For example, English has both *-ize*, *-ify* for the creation of causative verbs and the suffix *-ify*

is in (almost) complementary distribution with the suffix *-ize* (Plag, 2003: 93). Booij and Lieber (2004) and Lieber (2004) propose a paradigmatic nature for affixal semantics. They assume that there is a series of semantic classes defined for the lexicon into which affixes may themselves fall. This practically means that the different derivational processes cannot be examined in isolation but rather they should be examined altogether on the basis of the semantic or functional purposes. In this perspective, we can reinterpret the notion of generalizibility as the potential of derivational processes that belong to the same semantic class to coin a new lexeme (or word).

The second point is that generalizibility should be regarded as a phenomenon with a *gradient character* (cf. Bauer, 2001). For example, Anastasiadi-Symeonidi (2004: 44) argues that some particular affixes are quite productive in a specific semantic class of nouns, but not very productive in other semantic classes. Take for instance the suffix *-iatikos* in Modern Greek which bears the meaning 'someone related to X' and is combined only with nouns having a temporal nuance, e.g. *xeimonas* 'winter' > *xeimon-iatikos* 'winter-related' (Anastasiadi-Symeonidi, 2004: 44). Only by focusing on the specific properties of this suffix can one examine the generalizibilty of the process and speak of (possible) derivational gaps.

Criterion 4: Basic form of the paradigm

Derivational paradigms, like inflectional paradigms, are usually organized around basic forms (Bauer, 1997: 246). For example, it has been argued that in English the basic form –in most cases– is a word which also exists as a separate lexeme (see, among others, Aronoff, 1976: 6). Take for instance the derivative *driver* which denotes 'someone who drives' and takes as a base form the word *drive*. In other words, English derivation is typically 'word-based'.

However, the members of the paradigms may have various semantic or functional relations. For example, in some cases the members of a paradigmatically related set of words are not linked through the semantics of a base word but rather the meaning of one member of the pair can be defined on the basis of the other member, as in the words *communism* and *communist* in English which lack an existing common base word and thus the word *communist* can be roughly paraphrased as 'a person who adheres to communism' (Booij, 2010: 32-33).[28] Similar examples can be found in Modern Greek (cf. Ralli, 2005):

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[28] Aronoff (1976) examines these cases in English and argues for truncation rules that account for the derivation of these forms.

Table 1: Derivatives without a basic form

Base form	Derivatives	
*komoun	komoun-istis 'communist'	komoun-ism(os) 'communism'
	BASE-SUFFIX	BASE-SUFFIX
*maksimal	maksimal-istis 'maximalist'	maksimal-ism(os) 'maximalism'
	BASE-SUFFIX	BASE-SUFFIX

These derivatives lack an existing base form, which can be conceived of as the point of departure for the derivation on synchronic grounds. Some forms of the paradigm can be predicted from other forms in the same derivational paradigm. However, it is not *a priori* clear that we can have the same type of relations in an inflectional paradigm.

Criterion 5: Paradigm Structure

It has been argued that paradigms as linguistic entities have an intrinsic organization and their members are structured according to certain principles. With respect to inflection, Carstairs-McCarthy (2001) argues that in inflectional paradigms we find *implicative paradigm-structure conditions*, i.e. implicative connections between the individual forms of the paradigm. These connections can be used to represent organizational patterns of inflectional paradigms.

It should also be mentioned that not all cells of an inflectional paradigm have the same importance for the structure of the paradigm. Some cells are more prominent and function as *principal parts* that identify which pattern a given item follows (Blevins, 2006). According to Finkel and Stump (2007: 40), principal parts can be defined as follows:

'A set of principal parts for a paradigm P is a minimal subset of P's members from which all of P's other members can be deduced.'

The next step is to ask whether one can assume a similar organization in derivation. As Bauer (1997: 248) points out, exact parallels are not easy to find, but close parallels do exist. An interesting example of paradigm structure in derivational paradigms can be found in the formation of relational adjectives in Modern Greek. Relational adjectives in Modern Greek are productively formed only on the basis of agent nouns:

Table 2: Relational adjectives in Modern Greek

Base Form	Agent nouns	Relational adjectives
diakanon-iz[29]-o 'arrange' BASE-DER-INFL	(?)diakanon-is-ti-s 'arranger' BASE-DER-AGENT-INFL	diakanon-is-t-ik-os 'arranging' BASE-DER-AGENT-REL-INFL
synde-o 'connect' BASE-INFL	synde-ti-s 'connector' BASE-AGENT-INFL	synde-t-ik-os 'connecting' BASE-AGENT-REL-INFL
kalopiz-o 'beautify' BASE-INFL	kalopis-ti-s 'beautifier' BASE-AGENT-INFL	kalopis-t-ik-os 'beautifying' BASE-AGENT-REL-INFL

In the data above we observe that the formation of the agent is a prerequisite for the formation of relational adjectives. This fact can hardly be explained on the basis of formal or semantic relations between the two categories: first, the meaning of the relational adjective does not relate to the agent noun, and second, there is no formal restriction which prohibits the direct suffixation of the formative *-ik(os)* on the verb. We can thus conclude that this fact is related to some kind of paradigmatic relation between the two derivational categories.

Another interesting aspect of paradigmatic structure is the notion of paradigm pressure which plays a crucial role in language change (cf. Halle, 1973). Bauer (1997: 250) argues that instances where paradigm pressure can be seen to be more potent are those in which a morphological process is quite productive and thus new forms can be coined quite 'automatically'. For example, Bauer (*ibid.*) mentions the formation of English nouns in -*ation* which are derived from the verbs in -*ize* such as the noun *industrialization* from the verb *industrialize*. As Bauer argues, once the speaker forms the verbs in -*ize*, noun formations are coined in an automatic way and are not considered as neologisms.

Criterion 6: Analogy

Analogy in models which assume a paradigmatic organization has been defined as the major mechanism behind morphological creativity.[30] The most recent and elaborate approach to the relation between word formation and analogy can be found in Blevins' (2006) abstractive approach. According to Blevins (2006: 539) new forms can be obtained by extending the relation between exemplary cells and principal parts to other cell/form pairs, by using *proportional analogies*. The most familiar type of analogy is a 'four-part analogy', in which the simple proportions are often represented as

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[29] The formative -*iz*- has an allomorph -*is*-.
[30] As has been already observed in section 1.1.5, the balance between analogy and symbolic rules in morphological creativity is open to debate. We have already argued that in addition to analogical word formation one may assume abstract patterns of word formation.

'C1:C2=P:X', in which the forms C1, C2 and P are all given, and the analogical step involves 'solving for unknown X' (*ibid.*).

A nice example of the analogical force within a derivational paradigm is *back-formation*, the word-formation process whereby 'a new word is created by removing a real affix or a chunk of the word that is re-analysed as an affix' (Katamba, 2006: 642). A classic case of back-formation is the formation of the English verbal compounds on the basis of N-N compounds. For example, the verbal compound *babysit* can be analysed as a back-formation derived from the nominal compound *babysitter* by removing the derivation affix *-er* which denotes the agent, but this is a rare phenomenon.

2.1.3 Summary

A number of criteria can be invoked for detecting paradigmatic relations in both inflection and derivation. It has been shown that both processes have an paradigmatic character *in principle*, but they are not identical. Derivation does not behave in precisely the same way as inflection, since derivation displays correlations among the lexical items, but derivational paradigms cannot be conceived of as prototypical paradigms. Moreover, apart from the differences between inflection and derivation with respect to their paradigmatic nature, there might be distinctions to be drawn among the different languages on this point. As Williams (1994) puts it, paradigms are language-particular patterns which are structured in language-particular ways.

2.2 Construction Morphology and the relation between inflection and derivation

As Jackendoff (2002: 39-40) puts it, the ultimate goal of a theory of linguistic competence is to model the lexicon and the grammar. In this section, I address the fundamental question of what is the best way to represent the native speakers' capacity for analysing existing formations and coining new words in their native language.

A number of different models of word formation have been developed in recent decades aiming to answer this question. These models can be divided into two groups on the basis of the cognitive mechanism one assumes for the analysis of morphological creativity. On the one hand, we find *rule-based models*, that is, models which represent morphological capacity in terms of Word Formation Rules (WFR's). This type of rule has been developed by Aronoff (1976) in a well-articulated framework of word formation, and since then they have been elaborated in a number of different studies. On the other hand, we find *schema-based models*, that is, models which represent morphological capacity in terms of schemas (or patterns). The most comprehensive model of word formation based on schemas (or patterns) has been developed by Booij (2010).

The present thesis aims to balance the theoretical discussion of the relation between inflection and derivation with the formal representation of the relevant phenomena. Therefore, in this section, I discuss the framework that underlies the analysis of the morphological phenomena. I argue that Construction Morphology, as developed by Booij (2010), provides a comprehensive model for the analysis of the morphological phenomena and is formally superior to rule-based models.

The discussion starts by contrasting rule-based and schema-based models in morphological analysis. Since many different models employ the notion of schema, we should also compare CM with other schema-based models. Last but not least, I discuss how the relation between inflection and derivation is to be construed in CM. Based on the theoretical assumptions discussed in the previous sections, that is, (a) the assumption that the morphological analysis of both derivational and inflectional phenomena should integrate insights from both an abstractive and a constructive perspective, and (b) the claim that Inflection and Derivation are *in principle* different processes which potentially interact, the basic question to be addressed is: *what are the basic insights offered by CM for the discussion of the relation between inflection and derivation?*

At this point, it should be clarified that the present thesis does not treat inflectional and derivational phenomena separately, but rather the focus is on the relation between inflection and derivation. The evidence in favour of this model is not all presented here, but is developed in subsequent chapters, since this section is intended to provide a frame of reference for proposals discussed later in this thesis.

2.2.1 Schema-based versus rule-based morphological analysis

In early generative studies, mainly due to the influence of the generative syntactic models, morphological competence was mainly represented in terms of rules. In more recent studies, the comprehensive alternative to this tradition is schema-based models in which the notion of schema (or pattern) is the cornerstone of morphological analysis.

The differences between rules and schemas have been described in a number of studies (cf. among others Booij, 2010; Bybee 1988, 2001; Stump, 1997). The basic points of these differences can be summarized as follows:

(a) Schemas are organizational patterns which emerge from the individual lexical formations and remain linked with these formations after their creation. In contrast, rules are not immediately linked with the forms to which they apply and they are assumed to belong to a component which is separate from the component which includes individual formations.[31]

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[31] For example in Halle (1973) the morphological component is conceived of as two separate modules: one module includes the abstract morphological rules and the other module includes a list of words which have

(b) In a rule-based model, productivity[32] can be conceived of only as a *categorical value*. In other words, a rule can be either productive or non-productive. Schemas differ significantly from rules in that they allow for the formal representation of intermediate degrees of productivity. However, it remains to be explored how we can formalize the different degrees of productivity on the schemas.

(c) Schemas are output-oriented patterns in the sense that they require specific constraints to be satisfied in order to turn into actual words. Rules, on the other hand, apply to categories as a whole and thus can be conceived of as input-based.

(d) In schema-based models, we can recognize intermediate levels of abstraction (different degrees of schematicity/specificity). In contrast, rules are discrete in their behaviour.

With respect to the analysis of the morphological phenomena, both rule-based and schema-based models operate successfully in the representation of the 'canonical' phenomena (see Corbett 2009, 2010). Canonical in morphology can be generally defined as the optimal combination of one-to-one correspondence between form and meaning (or function).

However, such cases are unlikely to be frequent. This ideal is not achieved in natural human languages, not even in highly agglutinative language types (Stewart & Stump, 2007: 387). Once we examine the morphological phenomena more closely, it is less clear that form invariably follows semantics (or function).[33] For instance, there are a number of cases in which the absence of any affix may contrast paradigmatically with the presence of a given affix (zero morphemes) or cases in which a form has morphosemantic or morphosyntactic properties that cannot all be attributed to a single instance of its morphotactic units (empty morphs). Thus, the difference between schema-based and rule-based models should be sought in their ability to analyse these non-canonical (or deviating) cases.

This type of non-canonical derivational phenonenon will be extensively discussed in the subsequent chapters. As a general remark, it should be mentioned that schema-based morphological analyses provide a more natural account for such cases, since templates (or constructions) have *holistic properties* (cf. among others Stump, 1997; Booij, 2013). In other words, affixes are considered as building blocks of the morphological formations and schemas may have additional properties that cannot be derived by the properties of

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some kind of idiosyncrasy. In a similar vein, Lieber (1980) introduces the distinction between *permanent lexicon* and *dynamic lexicon*.

[32] As a general definition, a morphological pattern (or rule) is productive if in principle new words can be coined according to this pattern unintentionally (Booij, 2002: 10).

[33] Stump (2012) presents a nice overview of this kind of phenomenon in inflectional morphology.

the individual morphemes (the whole is not the sum of its parts). As will be shown, rule-based models are hard-pressed to accommodate such cases.

Relevant to the discussion of rule-based and schema-based models is the distinction between template and layered morphology and the implications of this distinction for the relation between inflection and derivation. Following Stump (1997: 217), template morphology can be defined as the type of morphology in which the ordering of the affixes follows not from the properties of the individual affixes themselves (or of the rules introducing them), but from independent stipulation about the ordering of these affixes, whereas layered morphology can be defined as the type of morphology in which the ordering of affixes is simply an effect of the properties of the individual affixes themselves (or of the rules introducing them).

It is generally acknowledged that inflectional morphemes usually have a fixed position on the formation and occur in a specific order. Moreover, inflectional processes do not recur. On the other hand, derivational morphemes do not have a fixed position in the formations and usually derivational processes exhibit recursive behaviour. Stump argues that while a distinction may exist between templatic and layered derivation, all inflection must in fact be reckoned as templatic. Manova and Aronoff (2010: 114) argue that languages tend to profit from a combination of both types of morphological organization and inflectional morphology may be templatic and semantically organized (layered) at the same time.

2.2.2 Construction Morphology

2.2.2.1 Basic premises

Within the framework of Construction Grammar there are various approaches.[34] The present thesis follows the basic tenets of Construction Morphology, as developed by Booij (2010). Construction Morphology (henceforth CM) shares with Construction Grammar the assumption that constructions, i.e. form-meaning (or function) pairs, are the basic units of the description and analysis of the linguistic phenomena. Nevertheless, CM also integrates basic insights from other grammatical theories, such as the Tripartite Parallel Architecture of grammar (Jackendoff, 1997).

CM provides a fully articulated model for the organization of the morphological component and the analysis of word-formation phenomena. The key idea behind the model proposed in CM is that there are systematic form-meaning correspondences between lexical items and these systematic relationships between sets of words form the starting point for the morphological analysis. In this respect, CM is similar to other constructionist models which assume that the grammatical creativity of language users

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[34] The interested reader may refer to Goldberg (2013) for an exhaustive presentation of the different approaches.

can be accounted for using a network of relations between different lexical items (cf. Goldberg, 2006). However, in contrast to other models which also assume paradigmatic relations (for example, Bybee, 2001), in CM patterns which represent the morphological creativity of the language user coexist with the individual formations within the same (morphological) component.

Morphological patterns are abstracted away from the comparison between members of lexical pairs. These patterns 'express predictable properties of existing words, indicate how new ones can be coined and give structure to the lexicon[35] since complex words do not form an unstructured list but are grouped into subsets' (Booij, 2010: 4).

CM assumes that each word is a pairing of form and meaning. The form of a word in its turn comprises two dimensions: its phonological form, and its morphosyntactic properties.[36] The structure of each component is generated independently and words form the 'correspondence' between the different levels of representations (Booij, 2010: 7).

Let me now present a concrete example of a morphological construction.[37] In English, we find a large set of deverbal adjectives ending in the suffix *-able*, such as *accept-able*, *afford-able*, *approach-able*, *believ-able*, and *do-able*. All these examples have a meaning that can be generally described as 'can be V-ed' (V stands for the meaning of the base verb). The formal and semantic properties of this set of adjectives as well as the set of corresponding verbs are projected onto the syntagmatic axis; that is, they form an abstract schema that expresses a generalization about the form-meaning correspondences that hold for these adjectives (Booij, 2013: 255):

(2)
$$[V_i\text{ -able}]_{Aj} \leftrightarrow [[\text{CAN BE SEM}_i\text{-ed}]_{PROPERTYj}]$$

The double arrow in (2) shows that there are correspondences between (parts of) the formal and semantic representation which are formally indicated by the co-indexation. The information codified in the schema in (2) is not exhaustive. The information embodied in the construction can differ according to the analysis that we want to carry out (see Rhodes, 1992 and Riehemann, 2001). For example, we can state that the verb must have the syntactic feature [+TRANSITIVE].

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[35] It should be noticed that the issue of the structure of the lexicon is not 'a question of parsimony' (in Riehemann's 2001 terms), but it is very important since the organization of the lexicon reflects the morphological knowledge of language.

[36] CM can be likened *Head-driven Phrase Structure Grammar* (HPSG) framework which assumes that the basic units of the linguistic analysis are signs which allow for parallel representation of phonological, syntactic, semantic and other information (Riehemann, 2001: 8).

[37] I cite the analysis of this example from Booij (2010).

Since CM is relatively new with respect to the Greek data, I will now present an example that shows the formation of agent nouns in Modern Greek.[38] There is a large set of nouns formations which denote the male agent ending in the suffix -*ti*(s):

Table 3: Agent nouns in SMG

Verb	Agent noun
organon-o 'organize' BASE-INFL	organo-ti-s 'organizer' BASE-DER-INFL
tragoud-o 'sing' BASE-INFL	tragoudis-ti-s 'singer' BASE-DER-INFL
thermain-o 'heat' BASE-INFL	thermas-ti-s 'boilerman' BASE-DER-INFL
diafimiz-o 'advertize' BASE-INFL	diafimis-ti-s 'advertizer' BASE-DER-INFL

On the basis of the comparison between the set of words in table (3), the language speaker concludes that there is a formal difference which corresponds systematically to a meaning difference. This comparison can therefore give rise to an abstract schema which expresses the general meaning of the complex words in -*ti(s)*:

(3)
$[V_i$ -*ti(s)*$]_{Nj} \leftrightarrow [[$a person who V_i's$]_{AGENT_j}]$

The schema in (3) expresses that there is a class of words ending in -*ti(s)* which have the general meaning 'a person who V's'. Moreover, it indicates the formal and semantic correspondences between the members of the two sets. However, agent nouns in -*ti(s)* do not share only a general meaning. All formations of this set are nouns of masculine gender which are inflected according to the 2nd inflectional class (cf. Ralli, 2005). These morphosyntactic properties can also be expressed in the abstract schema as follows:

(4)

$[[X]_V$ - *tis* $]_N$ 'one who V's'

                                    |
                                    [Gender:M]
            [IC: 2nd]   [IC: 2nd]

The construction in (4) may be qualified as *constructional idiom*, i.e. an abstract morphological construction in which one terminal node is specified as containing a

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[38] See also Koutsoukos and Pavlakou (2009) for the analysis of agent nouns within a CM framework and Ralli (2005) for the analysis of the whole category of agent nouns in Modern Greek.

specific morpheme. It represents the general meaning of the complex words in *-ti(s)* on a par with their formal properties.

Both CM and the Tripartite Parallel Architecture model are *constraint-based*. As Jackendoff (2010b: 587-588) puts it, 'in the Tripartite Parallel Architecture of grammar the relation between the different components cannot be conceived of as a sequenced derivation but rather, as possibly violable constraints, which establish (or license) well-formed links among different kinds of structure. The basic computational operation is *unification* which creates the union of the features of two units, including their hierarchical structure, if any'.

Similarly, in CM every complex word is linked to output-oriented schemas which codify the phonological, morphological and semantic restrictions of word formation. The formal operation of word formation is unification. Through the interpretation of the variables, the schema turns into a lexical entry. If word formation does not meet the constraints, unification will fail.

We now turn to the question of what the relation is between patterns and existing words. It has already been argued that the morphological component can contain a certain amount of redundancy (see chapter 1) and we do not have to address the problem of the so-called 'rule-list fallacy'. In CM existing words and abstract patterns of word formation are stored in the lexicon. Moreover, abstract patterns are formally related to the individual words via *inheritance*. As Booij (2012) puts it, 'the notion "inheritance" has to be reinterpreted as "motivation": a word formation schema motivates an individual complex word to the extent that it predicts its properties.'[39]

Following the basic tenets of Construction Grammar (see Kay & Fillmore, 1999), CM assumes that there are different degrees of specificity/schematicity in word formation. The constructions presented in (3) and (4) are considered as intermediate levels of abstraction between the abstract schemas that dominate a specific word-formation process and the individual instantiations of this process, i.e. individual forms. Returning to the example of agent nouns in Modern Greek, the constructional idiom of *-ti(s)* formations is dominated by an abstract constructional schema. This abstract constructional schema represents the pairing of the formal structure to the semantic structure of *all* suffixed words:

(5)

  $[[a]_X \, b]_Y$ 'Y with relation R to X'

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[39] There is a long discussion about the formal mechanism of inheritance and the balance between inheritance and redundancy of the stored information. See Booij (2012) for an exhaustive presentation of the topic.

The variables *a* and *b* stand for arbitrary sound sequences, whereas the variables x and y for lexical categories. The template shows schematically that suffixes are *category-determining* and at the same time *modifiers* from a semantic point of view.[40]

The relation among all levels of word formation can be represented as an *inheritance tree* with the abstract constructional schema as the dominating node and individual words as the lowest nodes of the tree. A complete representation of the inheritance tree of the Modern Greek agent noun *organotis* 'organizer' is the following:

(6)

$[[X]_X\ Y]$ 'Y with relation R to X'

$[[X]_V$ - *tis* $]_N$ 'one who V's

[Gender: M]   [Gender: M]
[IC: 2nd]   [IC: 2nd]

$[[organo]_V\ tis]_N$ 'one who organises'

$[ORGANONO]_V$ 'ORGANISE'
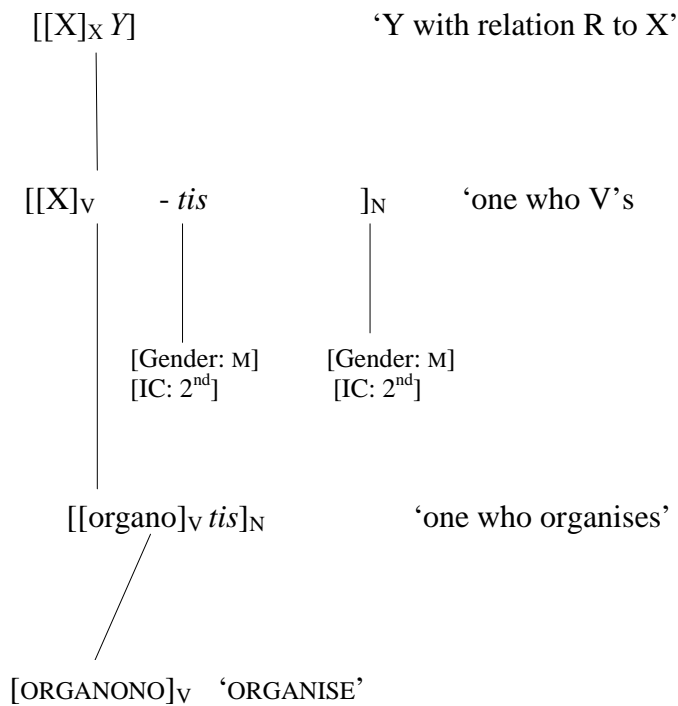
At this point it should be clarified that constructions which account for the different word-formation phenomena are not isolated, but rather form a complex network of relations and, as Goldberg (2006: 18) puts it, 'this network of constructions captures our grammatical knowledge of language'. Moreover, formations are cross-classified according to various properties and stems in turn are part of inflected words.[41]

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[40] However, in certain cases, the categories of base word and output word may be the same, and thus, the indices will be identical.

[41] See Riehemann (1998, 2001) for a nice illustration of the formation of *bar-adjectives* in German.

2.2.2.2 The relationship between CM and other morphological models

Since CM offers a new perspective on morphological analysis, the question naturally arises as to what distinguishes CM from other models of word formation.[42]

On the one hand, we find models which consider word formation as a matter of selection and concatenation of morphemes (the so-called Item-and-Arrangement).[43] The basic computational operation in these models is a sequenced derivation. Morphemes bear a meaning and are inherently specified as for their morphosemantic or morphosyntactic properties. The morphosyntactic properties and the meaning of the morphemes are appended to the formation at each step of the derivation via the formal mechanism of *percolation*. It should be mentioned that in this kind of model affixes have separate lexical entries in the lexicon and in this respect they are similar to stems. However, affixes differ from stems in that they have as part of their lexical entries frames indicating the category of items to which they attach (sub-categorization frames) as well as the category of items produced. This kind of analysis has been proposed by Lieber (1980) and has been effectively elaborated in Greek data by Ralli (1988, 2005).

On the other hand, we find models in which word formation is considered as set of operations (or rules) which change the morphosyntactic and/or morphosemantic properties of the base word (the so-called Item-and-Process models). Within this approach, however, morphologists disagree about the grammatical status of morphemes. Aronoff (1976) argues that affixes cannot be considered as linguistic signs, that is, form-meaning pairs is the classic notion. Affixes are only part of rules and rules turn one word into another. Anderson (1992) proposes a more radical idea and argues against the existence of morphemes (A-Morphous morphology). He claims that there is no word-internal structure but only rules which operate on words in order to derive other words.[44] In Anderson's view, rules are ways of relating one word to another.

Morphological phenomena clearly show that morphological structures form a scale between simple concatenation of morphemes and A-Morphous morphology. For example, compounding can be considered as the ideal case of concatenation, whereas the relation between form and meaning in derivational formations is, most of the time, not as straightforward as in compounding. CM stands in-between these two poles and assumes that there is gradualness in the complexity of the morphological structure. CM shares with the I-and-A models the idea that there is word-internal structure and thus morphemes should be considered as units of the linguistic analysis. However, it differs from this approach in two points. First, in CM affixes do not have separate lexical entries, but

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[42] The general assumptions of CM about the organization of the morphological component and the morphological capacity have been discussed in chapter 1. The differences between rule-based and schema-based morphological analysis have been discussed in section 2.2.1.

[43] In the discussion, I follow Hockett's (1954) traditional classification of morphological models.

[44] Anderson's model is extensively criticized in Carstairs-McCarthy (1993).

rather form part of constructional idioms which express the formal and semantic properties of the affixes and the correspondences between the affixes and the bases (secondary status of affixes). Thus, the subcategorization frame and the categorical information of the affixes are embodied as part of the construction.[45] Second, in CM affixes cannot be assumed as heads of the formations (see the relevant discussion in Booij, 2005).

Since affixes are part of the construction, the formal representation of affixes in CM can be likened to Aronoff's WFR's. However, there are two basic differences. First, word formation schemas, unlike rules, provide a representation of form in tandem with the meaning. In Aronoff's model the representation of meaning requires the postulation of additional rules similar to those of the formal representation. Second, rules are *a priori* of absolute nature and thus in several cases face serious empirical problems. For example, Riehemann (1998, 2001) examines the bar-adjectives in German and claims that the classic rule-based approach cannot account for this data since 'there does not seem to be a single generalization that is general enough to encompass all existing and possible *bar-adjectives* and at the same time specific enough to exclude impossible examples.' Similarly, Booij (2005, 2010) argues that in a number of cases there is co-occurrence of two derivational processes. These cases seriously challenge the classic rule-based models in that only *one* rule can be applied at each step of derivation. Constructions can solve both problems since they allow for various degrees of generalizations at different levels of abstraction and for combination of different formal processes, such as template unification.

Last but not least, we need to say a few words about how the different models account for the ordering of affixes, that is, the ordering of the morphological processes.[46] In inflectional morphology we need to assume that the morphemes have a fixed position (templatic nature of inflection). Item-and-Process models treat inflectional phenomena by assuming *blocks of rules* which apply in a disjunctive order (see Anderson, 1992). In a constraint-based account, Aronoff and Xu (2010) account for the ordering of inflectional morphemes by assuming a set of constraints that are hierarchically ordered. The ranking of these constraints reflects the organization of the inflectional processes and 'derives' the output form. The Item-and-Arrangement models shift the syntax (the ordering) of morphemes onto the morphemes themselves and assume that ordering of morphemes can be handled by specifying a clear subcategorization frame for those morphemes.

In schema-based models, such as CM, the ordering of affixes that is semantically motivated follows not from the properties of the individual affixes themselves or from the

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[45] Rhodes (1992) presents a nice illustration of the notion 'morpheme' within the Construction Grammar framework.

[46] There is a vast literature on the topic. It is beyond the scope of the present thesis to discuss the specific constraints that may condition the position of affixes in morphological formations. For an exhaustive presentation of the literature see Manova & Aronoff (2010).

postulation of blocks of rules, but from *independent stipulation*[47] about the ordering of these affixes.[48] In contrast, the templatic nature of inflectional morphology finds a natural account in a CM model. Under this view, CM can account for the different characteristics of both inflection and derivation. This will be the topic of the next section.

2.2.3 Inflection-Derivation and CM

The basic –and most challenging– aim of the present thesis is to provide evidence that the relation between inflection and derivation is adequately represented in terms of CM. It should be clarified that the present thesis is intended neither as a model of inflection nor as a model of derivation separately. It aims to examine the relation between the two processes within the CM framework.

Before examining this question, we first need to ask the question: what is the motivation for a constructionist approach to treating derivation and inflection separately? As has been already argued, derivational morphology is characterized by strong regularities as well as subregularities and exceptions. A large number of derivational formations are not fully predictable from their meanings and there are partial similarities between exceptional and non-exceptional patterns. Thus, derivational morphology in CM can be considered as a network of complex patterns with sub-patterns. These patterns structure the large inventory of regular as well as exceptional or idiosyncratic formations, explain sub-regular productivity and describe word formation that is analogical and not strictly rule-governed (Riehemann, 2001). In other words, a CM approach to derivational morphology gives a complete picture of the derivational morphology of a language.

Now the question that arises concerns the motivation for a constructionist approach to inflection. Inflection is strongly paradigmatic in nature and in most cases inflectional forms have an intricate relation between form and function. All these features can be adequately formalized within a constructionist framework. As Booij (2013) argues, constructions have holistic properties and in this respect they can account for cases in which there is no one-to-one correspondence between form and meaning in inflectional forms. Moreover, the paradigmatic nature of inflection can be readily adapted in this model.

We now turn to the relation between inflection and derivation. Construction Morphology has a view of grammar in which there is no strict modularity. As has been already argued, inflectional and derivational morphology have some common grammatical characteristics. First, in both cases we need to assume paradigmatic relations

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[47] See, for example, Aronoff and Fuhrhop (2002: 452) who assume that suffixation in English and German is restricted by morphological complexity in both languages and in neither case is there any need for negative restrictions on individual word-forming suffixes.

[48] Another solution would be to assume macrotemplates that pre-specify the ordering of all affixes. However, this solution cannot account for the cases of recursion and thus should be considered as very static.

between the different forms. Second, in both inflection and derivation we find formations in which the segmentation of the formations is highly problematic, that is, the grammatical or semantic properties of a word form cannot be fully attributed to its parts. Last but not least, both inflection and derivation show sub-regularities in the productivity of their patterns. As a matter of fact along with the regular patterns of word formation we find sub-patterns and sub-generalizations. All these characteristics can find a natural explanation in a CM framework.

Constructions that arise out of the analysis of inflection and derivation have many similar properties, but they are, to a certain extent, different. In both cases morphological units can be represented as *correlations*. In the case of inflection we speak of *form-function pairs* whereas in the case of derivation we speak of *form-meaning pairs*. The difference between the two is not based on aprioristic principles or formal preset criteria but rather on other considerations, such as the productivity or the semantic transparency (cf. Rhodes, 1992). In other words, the difference between the two stands in their substantive specification.

In nutshell, a constructionist perspective on word formation can provide natural explanations and adequate solutions in a number of problems related to both derivational and inflectional phenomena. Moreover, CM provides a solid theoretical basis for the examination of the relation between inflection and derivation, since the output schema form is adequate for both inflection and derivation. The evidence in favour of this model is not all presented here, but rather is developed in later chapters, since this chapter is intended to provide a frame of reference for proposals discussed later in the thesis.

Chapter 3
Morphological conversion and inflectional classes in SMG

3.0 Introduction

It is generally acknowledged that morphological processes do not always clearly mark their effects on the base with a morphotactically distinct morphological element. Aronoff (1994) has shown that sometimes the assignment of an abstract morphological property will be the *only* morphological effect of a rule; the clearest and most dramatic among the abstract morphological properties that may be assigned by a rule of lexeme formation is Inflectional Class (IC) (Aronoff, 1994: 127).[49] This observation is directly connected to the issue of the relation between inflection and derivation.

In the present chapter, I take this position as the starting point in order to examine the relation between conversion and inflectional properties of the output formation in Standard Modern Greek (henceforth SMG). The aim is to examine whether Aronoff's hypothesis is confirmed with respect to the SMG data.

Conversion can be defined as change in the category or in (some of) the inherent features of the base without a concomitant change in its phonological form (Booij, 2002).[50] As the definition itself suggests, conversion does not resemble canonical (or prototypical) derivational processes. Thus the topic of the present chapter entails first taking a position regarding the questions of (a) whether conversion should be treated as a derivational process similar to other derivational processes, and (b) how best to formally represent the relation between form and meaning in conversion pairs.

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[49] IC is not assigned only by rule, but it can also be inherently specified in the lexical item, as for example in morphological simple stems.

[50] The term *conversion* is not uncontroversial. Most of the definitions do not describe the phenomenon, but rather reflect some theoretical proposals. For a discussion of the various names that have been attached to the phenomenon, see Don *et al.* (2000).

Since the nature of conversion is still a matter of debate, I review the approaches to conversion that have been put forward in the previous bibliography and take a position in favour of the view that conversion should be regarded as a directional process and the asymmetry between the form and the meaning in conversion pairs should be computed as part of the relation between the two lexical items.

The data from SMG reinforces the hypothesis that conversion is a directional process. I argue in favour of the view that conversion should be analysed a set of paradigmatically related constructions and the relation between the two members of the conversion pair is the *locus of interpretation* of the morphosyntactic and morphosemantic properties of the output. At this point it should be mentioned that I examine data only from SMG, since in Modern Greek dialects conversion is not a productive process. This is partly due to the fact that conversion is limited to compounds with bound stems, which are scarcely attested in Modern Greek dialects, and partly due to the historical interconnection between SMG and Classical Ancient Greek via Katharévousa ('purifying langauge').[51]

The discussion regarding the grammatical nature of conversion should also include a less studied aspect of the problem, that is, the appearance of conversion in languages with rich inflection. It has been a general assumption that conversion is rampant only in languages with restricted (or poor) inflection, such as English, whereas in languages with rich inflection conversion is very limited. In SMG conversion is indeed very limited, but it does appear.

On these assumptions, I discuss another aspect of conversion in SMG that has not been thoroughly discussed before; that is, the relation between conversion and inflectional classes of the output verb. I show that the inflectional properties of the output are the only mark of the conversion process in SMG.

It has been claimed that converted formations are inflected according to the default inflectional class (Thornton, 2004: 503). However, converted verbs in SMG do not belong to a uniform inflectional class, but rather their inflectional pattern is a synthesis of two different inflectional patterns. Under this view, SMG data does not validate the hypothesis that converted verbs are associated with the default conjugation class of the verbal system.

In the last part of the chapter, the discussion centres upon the formal representation of the process. The proposed paradigmatic account of conversion is developed in a fully-fledged Construction Morphology (CM) account that connects paradigmatically related constructional schemas, instead of words in existing conversion pairs. I show that a CM account offers new insights into the discussion of (a) the grammatical nature of conversion and (b) the relation between conversion and

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[51] *Katharévousa* (lit. 'Purifying language') is an artificial form of the Modern Greek language conceived of in the 19th century as a compromise between Ancient Greek and Dimotiki (lit. 'People's language') of the time. The term Katharévousa implies a purification of Greek from external influences.

inflectional classes since it avoids the problematic solutions assumed in a zero-affixation or a rule-based analysis.

3.1 Describing the problem

Word formation in SMG can be defined as mainly stem-based, i.e. morphological constructions are built on stems, without excluding the possibility of having word-based morphological constructions (cf. Ralli, 2004 for the relevant discussion). SMG is a language with a rich inflectional system and, like other languages with rich inflectional systems, stem constituents need inflectional affixes in order to be minimal free forms (Ralli 1988, 2004, 2005):

Table 4: Stem-based constructions in SMG

Type of process	Constituents
Simple word	andra-s
	man(M)-INFL
Derivation	andr-ik-os
	man(M)-REL-INFL
Compounding	andr-o-gynaika
	man-CM-woman(FEM).INFL

Stems are lexically specified as to their lexical (or syntactic) category (Ralli 1988, 2004, 2005). It should also be noted that stems in SMG display various shapes in word formation (allomorphs) which are either phonologically or grammatically conditioned (Karasimos, 2011; Ralli, 2005).

It is generally acknowledged that the difference between lexical and grammatical formatives can be considered as being of a gradual nature and thus morphological categories form a continuum. At one end of this continuum one can place the elements which have a purely lexical meaning (regular stems), whereas at the opposite end of this continuum one can place the elements which a have purely grammatical function (inflectional affixes).

Ralli (2005) introduces this continuum for the morphological analysis of SMG constructions. Following her analysis, alongside regular stems, we should also recognize an additional morphological category, the so-called *bound stems*. With respect to their structural properties, bound stems in SMG can be considered as borderline cases situated between compounding and derivation which resemble what are called *combining forms* (in the terminology of Bauer, 1983).[52] Bound stems have an argument structure and a lexical meaning, like stems, but they cannot be minimal free forms after the addition of

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[52] The morphological status of these elements has been examined by, among others, Booij (2005) and Iacobini (1999, 2004b) and Iacobini & Giuliani (2010).

inflectional affixes and are of finite number, like affixes (cf. Petropoulou, 2011; Ralli, 2007, 2008 and 2013).

As has been claimed by Ralli (2008, 2013), formations with bound stems have been in use throughout the development of Greek and many of the SMG formations originate in Ancient Greek.

Since bound stems constitute an intermediate category, it depends on the language under discussion whether they should be classified as types of stems or as types of affixes. The morphological status of bound stems in SMG is still hotly debated. One line of research builds the argumentation based on the bound character of these elements and assumes that bound stems have an affix-like grammatical behaviour (cf. Anastasiadi-Symeonidi, 1986; Giannoulopoulou, 2000, 2006). Under this view, bound stems should be called *confixes*. In contrast to these analyses, Ralli (2007, 2008 and 2013) has persuasively argued that, although these bound elements display a number of characteristics which are typical of affixes, they should be classified as a particular type of stem.

Following Ralli, significant evidence for the stem-like grammatical nature of bound stems can be adduced from the following:

(a) Bound stems become bases to prefixed words;
(b) They bear a lexical meaning;
(c) They impose an argument structure on their output word.

The question that comes next concerns the lexical category of the bound stems. Ralli has argued that bound stems are nominal formations derived from verbal bases. The following characteristics of bound stems suggest that bound stems have a nominal status (Ralli, 2007, 2008, 2013):

(a) The vast majority of bound stems display a derivational process:

Table 5: Derivation of bound stems

Input	Output (Noun)	Type of Process
leg-o 'speak' VERB-1SG	-log-os 'one who talks about' BOUND STEM-NOMV.SG	**Ablaut**
graf-o 'write' VERB-1SG	-graf-os 'one who writes' BOUND STEM-NOMV.SG	**Conversion**
den-o 'tie' VERB-1SG	-de-ti-s[53] 'one who ties' BOUND stem-NMLZ-NOMV.SG	**Suffixation**

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[53] *de-* is an allomorph of the base *den-*.

(b) Bound stems can be preceded by adjectival stems, e.g. -graf-os 'one who writes' BOUND STEM-NOMV.SG > kalli-graf-os 'calligrapher' ADJECTIVE-BOUND STEM-NOMV.SG.

In sum, alongside genuine (or regular) stems in SMG we find the intermediate category of bound stems. This category displays characteristics that are more likely to be found in the category of stems rather than affixes and it is specified as to the lexical category of nouns.

Bound stems in SMG participate in both derivational and compounding processes, but they can be mostly found in compound formations of the following pattern: [[stem+bound stem]-Infl] (from Ralli, 2007):

Table 6: Constructions with bound stems in SMG

Type of Process	Output
Prefixation	ypo-log-os[54] 'responsible' PREF-BOUND STEM-NOMV.SG
Compounding	the-o-log-os 'theologian' STEM-CM-BOUND STEM-NOMV.SG

Table 7: Compounds with bound stems in SMG

Output	Formatives: stem+bound stem
arthrografos 'columnist'	arthr-o-graf-os column-CM-one_who_writes(N)-NOMV.SG
glosologos 'linguist'	glos-o-log-os language-CM-one_who_talks_about(N)-NOMV.SG
theoritikologos 'theoretician'	theoritik-o-log-os theoretical-CM-one_who_talks_about(N)-NOMV.SG
etymologos 'etymologist'	etym-o-log-os origin-CM-one_who_talks_about(N)-NOMV.SG
kairoskopos 'opportunist'	kair-o-skop-os opportunity-CM-one_who/which_targets(N)-NOMV.SG
kerdoskopos 'profiteer'	kerd-o-skop-os profit-CM-one_who/which_targets(N)-NOMV.SG

What is particularly interesting about compound formations with nominal bound stems is the fact that these formations can be input to conversion. Consider the following examples:

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[54] The bound stem *log-* should not be confused with the word *log(os)* 'speech'. As mentioned by Ralli (2008), in many cases of this category we find homonyms; that is, bound stems which are similar to autonomous inflected words.

Table 8: Conversion pairs in SMG

Input (Noun)	Output (Verb)
arthr-o-gráf-os[55] 'columnist' STEM-CM-BOUND STEM-NOMV.SG	arthr-o-graf-ó STEM-CM-BOUND STEM-1SG 'perform the activity of a columnist'
kerd-o-skóp-os 'profiteer' STEM-CM-BOUND STEM-NOMV.SG	kerd-o-skop-ó STEM-CM-BOUND STEM-1SG 'perform the activity of a profiteer'
kair-o-skóp-os 'opportunist' STEM-CM-BOUND STEM-NOMV.SG	kair-o-skop-ó STEM-CM-BOUND STEM-1SG 'perform the activity of an opportunist'
glos-o-lóg-os 'linguist' STEM-CM-BOUND STEM-NOMV.SG	glos-o-log-ó STEM-CM-BOUND STEM-1SG 'perform the activity of a linguist'
theoritik-o-lóg-os 'theoretician' STEM-CM-BOUND STEM-NOMV.SG	theoritik-o-log-ó STEM-CM-BOUND STEM-1SG 'perform the activity of a theoretician'
etym-o-lóg-os 'etymologist' STEM-CM-BOUND STEM-NOMV.SG	etym-o-log-ó STEM-CM-BOUND STEM-1SG 'perform the activity of an etymologist'

As shown in table (8), conversion turns the nominal bound stems (left-hand column) into verbs (right-hand column) without an overt phonological marking. Members of the same pair do have the same structural complexity, but they differ significantly with respect to their *semantic compositionality*; verbs always include the meaning of the corresponding noun. We therefore claim that there is an asymmetry between form and meaning which has several theoretical implications that will be thoroughly examined in the next section.

3.2 Approaches to the grammatical nature of conversion

Languages display a tendency towards *isomorphism* between units of content and units of form in the morphological structure, the so-called *one-form-one-meaning principle*, usually attributed to von Humboldt (cf. Vennemann, 1972). In English, for example, the attachment of the verb-forming *-ify* to the base in cases like $[\text{pure}]_A > [[\text{pur}]_A\text{-}ify]_V$ signals the derivation of a verb from an adjective, as well as the directionality[56] of the process in terms of formal and semantic compositionality.

This ideal, though, is rarely met in human languages. In fact, a word's morphological form may undermine its morphosyntactic or morphosemantic content.[57] Becker (1993: 4)

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[55] In the SMG writing system, the stress mark on words is obligatory, but it is a common practice not to indicate the stress mark in transcribed data. Contrary to this notational convention, I indicate the stress mark in some data when I want to underline the difference in the stress pattern (penultimate versus final stress).

[56] The principle of *directionality* recognizes a relationship between two morphological items (a base and a derived word) in which one is characterized on the basis of the other (Iacobini, 2000).

[57] An extensive discussion of the relation between form and meaning in morphological constructions can be found in Zwanenburg (2000).

claims that 'signs can be related without the differences between them being signs themselves'.

A prime example of deviation from this ideal is the morphological process of *conversion*. According to Marchand (1969), Sweet (1900) was the first to use the term conversion: 'When we talk of "the whiteness of the snow" instead of saying "the snow is white", we make the adjective white into the noun whiteness by adding the derivative ending *-ness*. But in English, as in many other languages, we can often convert a word, that is, make it into another part of speech without any modification or addition, except, of course, the necessary change in inflection, etc. Thus, we can make the verb walk in "he walks" into a noun by simply giving it the same formal characteristics as other nouns, as he took a walk, three different walks of life. We call *walk* in these two collocations a converted noun, meaning a word which has been made into a noun by conversion.'

Since conversion falls far short of the ideal of isomorphism and is a case *par excellence* of form-meaning asymmetry in morphology, it raises a number of important issues which contain, among others, the problems summarized in the following: (a) *Should conversion be considered as a derivational process?* (b) *How can we best account for the asymmetrical relation between form and meaning in conversion pairs?*

These issues have been a matter of discussion in the literature. With regard to the first question, one may distinguish between two main approaches. Under what is termed the *Relisting Hypothesis* (RH), conversion is not regarded as a derivational process, but rather as a process of simple relisting of a lexical item in the lexicon (Lieber 1980, 1981). The alternative to this approach treats conversion as a morphological process with clear formal and semantic directionality. Within the latter approach, however, morphologists disagree about the type of analysis to be followed for the representation of the asymmetrical relation between form and meaning.

The analysis provided depends on the underlying assumptions one makes regarding the nature of morphological derivation in general. Following the classification outlined in Beard (1998), one can distinguish three different accounts concerning this issue. First, derivation can be considered as a matter of *Lexical Selection* (in Beard's terms), the selection of an affix and the process of copying it into a word-level structure (affix-based models). The affix bears a meaning and is inherently specified as to its morphosyntactic properties. These morphosyntactic properties and meaning are added to the base in order to build the structure required. Second, derivation can be considered as a *rule* (or operation) which changes the morphosyntactic and/or morphosemantic properties of the base word (rule-based models). In this respect, a derivational morpheme is not an object to be selected, but consists of the processes of affix insertion itself. Finally, derivation can be considered as a set of *paradigmatic relations* which connect items in a hierarchical lexicon (paradigmatic models). These relations are established by the speakers of a

language on the basis of the linguistic evidence at their disposal, and are considered as the *locus of interpretation*[58] of the derivational relations.

With regard to the second question, one may distinguish two main models. In affix-based models, the asymmetry between form and meaning in conversion is resolved by the postulation of a zero-affix, which is added to the morphological structure by means of either a lexical selection process or a feature-changing rule.[59] On the other hand, in paradigmatic models the asymmetry between form and meaning in conversion is computed as part of the relation between lexical items. In what follows, I will discuss the differences between the models and will argue for a paradigmatic account of conversion.

3.2.1 Conversion as relisting in the lexicon

The asymmetry between form and meaning in conversion pairs has been a matter of considerable discussion throughout Lieber's (1980, 1981 and 2004) seminal work. Lieber was the first to draw a separating line between affixational processes and conversion on the basis of the criterion of directionality. The basic difference between the two types of word formation can be identified as follows. In any sort of affixational process the addition of an affix signals the derivation of a new item and, at the same time, the directionality of the process with respect to formal as well as semantic compositionality. In conversion, however, there is no addition of a discrete, intrinsically meaningful element and, thus, the directionality of the process cannot be determined *a priori*. On the basis of this difference, Lieber argues that conversion cannot be regarded as an affixational process and, going a step further, that it cannot be regarded as a grammatical process at all. Instead, conversion should be expressed as a *redundancy relation* in the permanent lexicon. The core of her proposal reads as follows (1980: 198):

> 'Conversion would be defined as a relation R such that lexical terminals X and Y satisfy R if and only if they differ only with respect to their category class membership.'

As the definition itself implies, this account does not entail a formal representation of conversion. Instead, the creation of a converted item can be ascribed to a copying process in the lexicon. Lieber's RH can be illustrated by the following example of conversion pair in SMG (from Ralli, 1988: 147):

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[58] I borrow this term from Lee (2007).
[59] For a thorough discussion of the full range of existing theoretical proposals, see also Bauer and Valera (2005).

(1)

Lexical entry 1   **Lexical entry 2**
Odig(os) 'driver'   Odig(o) 'drive'
Lexical category: N   Lexical category: V

$R = [\text{Odig(os)}]_N \leftrightarrow^{60} [\text{Odig(o)}]_V$

Each member of the conversion pair in (1) has a separate lexical entry, specified individually as to its lexical class and category membership, and a relation R relates the two members of the pair. On this account, neither member of the conversion pair should be considered as basic.

In later work, Lieber (2004) examines the semantic aspects of conversion and provides further argumentation in favour of the RH. According to Lieber, a rigorous examination of verbal conversion in English, when compared to a semantic analysis of the genuine verb-forming affix *-ize*, demonstrates that the semantic range exhibited by converted verbs is larger than those of *-ize* verbs, and the patterns into which converted verbs fall are quite different to those of *-ize* forms. These facts suggest that conversion does not parallel genuine affixational processes and, in fact, should be treated differently.

3.2.2 Conversion as a directional derivational process

3.2.2.1 Zero affixation analysis

Marchand describes conversion as follows (1969: 356): 'By derivation by a zero morpheme I understand the use of a word as a determinant in a syntagma whose determinatum is not expressed in phonic form but understood to be present in content, thanks to an association with other syntagmas where the element of the content has its counterpart on the plane of phonic expression'.

Marchand compares derivatives employing the suffix *-ize*, like *legalize*, *nationalize* and *sterilize*, with verbs like *clean*, *dirty* and *tidy*, and observes that the syntactic and semantic properties of the formations are the same in both groups; a verb is derived from an adjective and has the meaning 'render sth <adjective>'. However, in the first group the content element is expressed by the overt morpheme *-ize*, while in the second group the content element has no counterpart in the phonic expression. He therefore claims that the derivational morpheme is zero-marked in the second group.

Marchand's description is based on the assumption that a linguistic unit is a two-faceted linguistic entity and hence that semantics play an important role for the analysis of these pairs. The asymmetry between formal and semantic structure in conversion pairs is accounted for by the postulation of a zero affix which changes the category of the base

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[60] The double arrow represents the bidirectionality of the redundancy relation.

and the heuristic principle for the analysis of conversion pairs is the comparison of these formations with other derivational pairs displaying the same properties.

3.2.2.2 Conversion as a process

An alternative approach to conversion can be found throughout Don's (1993, 2004 and 2005) work. Don (1993) provides an analysis of conversion which, in many respects, represents a compromise between affix-based and rule-based models. His model essentially consists of two parts: a *Lexicon* which accounts for the 'paradigmatic' mismatches found across the inventory of morphemes within a specific language, and an *Engine* which takes the form of *Finite State Transducer* (FST). This FST performs the mapping between the formal and semantic level of representation and accounts for the 'syntagmatic' mismatches.

According to Don, conversion constitutes a case of syntagmatic mismatch, since there is an affix at the morphosyntactic level, but there is no phonological material expressing the content of this affix. In Don's analysis, the English converted noun [walk]$_N$ has the following representation (1993: 99-100):

(2)
```
              N
            /   \
        WALK      NOM(inalizer)
          |
        Walk
```
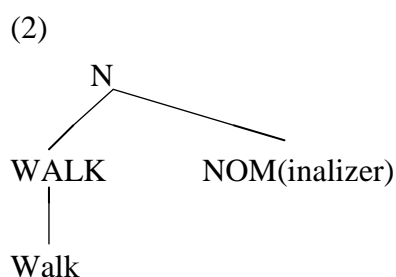
The representation in (2) shares many features with the traditional affix-based models: for example, at the morphosyntactic level the affix is considered as the head of the converted word. However, it differs from them in that it assumes a second level of abstraction for the morphosyntactic properties of the affixes (represented in capital letters in (2)). According to Don, a basic advantage of assuming two levels of representation lies in the fact that it allows for the existence of a more complex form at the morphosyntactic level, but a simpler form at the morphophonological level, and thus gives a more straightforward explanation for the asymmetry found in cases of conversion.

Don also addresses the question of the grammatical nature of conversion and convincingly argues that conversion should be analysed as a directional morphological process. Crucial evidence for the directionality of a derivational process can be adduced by the examination of the lexical-class properties of the output. According to the criterion of uniformity of the output-class, if the outputs of conversion always fall into the same lexical class, conversion should be considered as a type of affixational process.

However, uniformity of the output-class is not always observed in instances of conversion. An illustrative example of deviation can be seen in these Dutch conversion pairs (Don, 1993: 150):

Table 9: Conversion pairs in Dutch I

		Verb	Noun
Group A (V→N)		bouw 'build'	de bouw 'the construction'
		loop 'to walk'	de loop 'the walk'
		strijd 'to fight'	de strijd 'the fight'
		trap 'to kick'	de trap 'the kick'
		trek 'migrate'	de trek 'the migration'
		val 'to fall'	de val 'the fall'
Group B (N→V)		deel 'divide'	het deel 'the part'
		feest 'to party'	het feest 'the party'
		huis 'live in'	het huis 'the house'
		water 'to water'	het water 'the water'
		werk 'to work'	het werk 'the work'
		pen 'write'	de pen 'the pen'
		stoel 'be based on'	de stoel 'the chair'
		vloer 'bring down'	de vloer 'the floor'
		bal 'play with a ball'	de bal 'the ball'

The data in table (9) shows that a number of verbs in Dutch have phonologically identical corresponding nouns and form conversion pairs. The nouns in the right-hand column fall into two different classes: those taking the definite article *de*, and those taking the definite article *het*.

Let us now turn to the potential analyses logically available in response to this problem, as presented by Don. If we analyse all nouns as derived from verbs, this would imply the existence of an affix, i.e. a (NOM)inalizer, which derives nouns and subcategorizes verbs. On this account, we would expect to find the same value of gender in the outputs of the affixational process, according to the criterion of uniformity of the output class. This solution, however, proves to be problematic; nouns in group A have a [-neuter] gender value, while nouns in group B may have either [-neuter] or [+neuter] gender value.

An alternative would be to assume the opposite direction of derivation; that is verbs are derived from the corresponding nouns. In this case, we would derive verbs by an AFFIX which we may call VERB(alizer) and the two different types of nouns, which serve as input to the derivational process, would no longer be problematic. This solution however also faces problems, since the verbs involved seem to belong to two different

classes: the 'strong verbs' like *loop-liep-gelopen* with irregular inflection and the 'weak verbs' like *feest-feestte-gefeest* with regular inflection. Thus, this analysis has the same problems as the analysis based on the nominalizing affix.

Don's solution to this problem cuts across the two options presented above. In cases where the outputs of conversion do not fall into the same class, Don claims that we can assume one morphological derivation which results in two (or even more) different AFFIXATIONS. He claims that the data in group A is formed on the basis of verbs and the nouns are derived by an affix NOM, while the data in group B is formed on the basis of nouns and the verb is derived by an affix VERB. This solution accounts for the fact that nouns in group A fall into the same class with respect to gender value, while verbs in group B all exhibit regular inflection.[61]

In later work, Don (2004, 2005) examines data from English, Dutch and German, and provides a more elaborate version of his earlier proposal concerning conversion. By examining this data, Don argues that conversion is subject to several grammatical constraints, a fact which suggests that conversion is a grammatical process and not a simple relisting in the lexicon. Don claims that besides the logical option of assuming a direct relation between the two members of a conversion pair, we can also assume an alternative solution which is based on two different construction sites. The two alternatives below represent the two different options for the construction of conversion pairs (Don, 2005: 10):

(3)
(a) $A_X \rightarrow A_Y$
(b) $A \;\;\; \rightarrow A_X$
$\;\;\;\;\;\;\;\;\; \rightarrow A_Y$

In (3a) both members of the conversion pair have a categorial label and are linked together, while in (3b) the members of a conversion pair are two different uses of an un(der)specified source, which are linked together only indirectly via the same source. According to Don, some roots can be combined with both a verbal head without any phonological spell-out and a nominal head, again, without any phonological effect. This would correspond to a non-directional analysis of the type (3b). It is also possible that a root first combines with a categorial head (below category-assignment), and only after that (above category-assignment) does it combine with another categorial head. Such an analysis would correspond to a directional analysis as in (3a). In the latter case,

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[61] Don's (1993) analysis is also reviewed by Booij (1995).

conversion applies to words, since the input of the conversion process already has a categorial label.[62]

3.2.3 Conversion as a set of paradigmatic relations

Unlike classic constructive (either affix-based or rule-based) models which assume that individual forms are derived in isolation from other forms in a grammatical system, paradigmatic models assume that derivation can be conceived of as a set of paradigmatic relations. In this view, conversion can be interpreted as the correlation between members of word sets which have the same degree of morphological complexity but differ with respect to their meaning or their morphosyntactic properties. This correlation is established by the speakers of a language on the basis of the linguistic evidence available to them, and can be considered as the locus of interpretation of the properties of the converted elements.

An elaborated paradigmatic account of conversion can be found in Booij (1997). Booij examines the relation between conversion and gender assignment in Dutch and shows that, although in many cases the gender value of a complex noun in Dutch is determined by one of its constituents, there are also many cases in which the gender value cannot be predicted in this way. The following table summarizes a set of illustrative data (from Booij, 1997):

Table 10: Conversion pairs in Dutch II

Verb	Noun
raad[63] 'advise'	de raad 'advice' [common gender]
be-raad 'deliberate'	het beraad 'deliberation' [neuter gender]
ver-raad 'betray'	het verraad 'betrayal' [neuter gender]
roep 'to call'	de roep 'call' [common gender]
be-roep 'to call'	het beroep 'profession' [neuter gender]
zet 'put'	de zet 'the push' [common gender]
ont-zet 'relieve'	het ontzet 'relief' [neuter gender]

The data in table (10) implies that gender assignment correlates with the formal complexity of the verbal base. In cases such as *raad* 'advise', in which a simple verb is converted into a noun, the gender value is [common], while when the same verbal base is prefixed, such as *beraad* 'deliberate', the conversion results in nouns with the gender value [neuter]. In this respect, the gender value of the noun cannot be interpreted as the contribution of a particular morphotactic unit of the morphological structure. Instead, the

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[62] It should be mentioned that Don follows the basic tenets of D(istributed) M(orphology) (Halle & Marantz, 1993) in which roots (or stems) do not have any categorical specifications. However, in the present thesis we assume that stems are lexically specified as to their category (cf. Ralli, 2005).

[63] Verbs are presented in the stem form and not in the citation form, i.e. without the infinitival marker *-en*.

gender value of the converted nouns is predicted only by making use of information about the corresponding verb.

Now the question that arises concerns the formal process that accounts for this difference in gender assignment. Based on the assumption that the relation between the two items is the locus of interpretation of the properties of the converted noun, the systematic difference in gender can be considered as part of this relation. A (provisional) representation of this paradigmatic relation reads as follows:

(4)
$<$zet$_i$ 'put'$>$ $\approx$ $<$[zet$_i$]$_{N[\text{COMMON GENDER}]}$ 'the push'$>$
$<$[ont-zet $_i$] 'relieve' $>$ $\approx$ $<$[ontzet $_i$]$_{N[\text{NEUTER GENDER}]}$ 'relief'$>$

Words are form-meaning pairs and the symbols $<$ $>$ demarcate the construction. The symbol $\approx$ represents the paradigmatic correlation between sets of words which have the same degree of morphological complexity but differ with respect to lexical category and gender value. Since the same correlation holds for a number of different sets of words in Dutch, we can represent conversion as a relation between abstract schemas:

(5)
$<$V$_i$$>$ $\approx$ $<$[V$_i$]$_{N[\text{COMMON GENDER}]}$$>$
$<$[prefix-V$_i$] $>$ $\approx$ $<$[prefix-V$_i$]$_{N[\text{NEUTER GENDER}]}$$>$

The schemas in (4) and (5) represent the correlation between conversion pairs, i.e. pairs of words that have the same morphological make-up, but differ with respect to their meaning and morphosyntactic properties. These schemas abstract over sets of existing words in Dutch, and at the same time form the pattern according to which new words may be coined. A basic advantage of these schemas lies in the fact that the gender of converted nouns is determined by the nature of the corresponding verb. Put differently, one may predict the gender value of the converted noun on the basis of the relation between the noun and the verb.

3.2.4 Assessment of the models

Derivational processes which display an isomorphic relation between form and meaning can be considered as *Canonical Derivation* (cf. Corbett, 2010). Canonical derivation is compatible with several theoretical approaches. However, conversion deviates significantly from the isomorphic ideal of one-to-one correspondence between form and meaning and, as a non-canonical phenomenon of derivation, it is a challenge for the various theoretical proposals.

Thus far, I have presented the various models for the representation of the grammatical properties of conversion. In what follows, I compare these models on the basis of certain criteria, and argue that an analysis based on paradigmatic relations is to be preferred.

The first issue to be addressed concerns the relation between form and meaning in conversion pairs. The Relisting Hypothesis is based on the assumption that form and meaning are, in principle, separate in morphological structures. With respect to conversion, Lieber claims that 'an analysis of the semantics of conversion is, in principle, independent of our syntactic analysis of conversion, and in particular that the semantic analysis can involve directionality without arguing in any way against the non-directionality of the syntactic analysis' (1980: 203). The same idea can be found in Don's analysis, which assumes two different separate levels in morphological structures. This type of analysis tackles the problem of the asymmetry between form and meaning by separating derivation from affixation, contrary to the traditional assumption of one-to-one correspondence between form and meaning in morphemes.

However, following the line of research which claims that words are to be seen as form-meaning pairs, I assume that the morphological analysis should treat formal structure on a par with semantic structure. As has already been observed, there are many examples in which conversion pairs display a clear directionality in terms of semantic compositionality. I thus claim that semantics along with the formal properties of structures can serve as a valuable test for the direction of derivation.

Based on these premises, the next question to be addressed is: *what is the best way to allocate the asymmetry between form and meaning in conversion pairs?* Marchand's zero-affixation approach solves the problem of the asymmetry between form and meaning, by introducing a rather disputable solution in the analysis of conversion, namely zero morphemes. The question that naturally arises concerns the grammatical characteristics of zero affixes in the morphological analysis.

The basic criterion for the recognition of zero derivational relations has been the existence of appropriate analogues involving overt morphological marking of the same derivational function, the so-called *overt analogue criterion*. Sanders (1988) claims that the overt analogue criterion can be construed as a useful heuristic principle and even as a sufficient condition for the recognition of zero derivation relations, but it cannot be construed as a necessary condition for the recognition of such relations in all cases. Sanders proposes a definition of the overt analogue criterion, which reads as follows (1988: 164-165):

Generalized version of the analogue criterion
'Zero, or the absence of a form, is a member of a set of (meaningful) linguistic elements (only) if:
(a) There are other elements in the set;

(b) At least one of the other elements is not a zero element; and

(c) Zero is related to each of the other elements in the set in the same way that each of the other elements is related to each of the other elements in the set.'

Although this criterion is clear, there might be distinctions to be drawn on this point. On the basis of Swahili verb morphology and English derivation, Stump (1997) argues that a distinction exists between derivational and inflectional morphology with respect to zero morphemes (or *significative absence* in his terms), since in many cases of inflectional morphology the forms are distinguished by the absence of any affix, while in derivational morphology there is nothing strictly comparable to significative absence. On the basis of Greek data, Ralli (1988) argues that we can assume zero morphemes mostly in inflection.[64]

Similarly, among others, Booij (2002) and Lieber (1980) claim that the positing of zero affixation as a derivational process raises a number of insurmountable problems. In many languages, such as English, the bases that form input to conversion processes do not fall into a uniform lexical class, and a proliferation of zero morphemes for the different categories of the bases is thus an unavoidable consequence of such a move. Moreover, there is an inherent difficulty in defining the formal and semantic properties of zero morphemes, since there is no independent evidence for their combinability properties, their position in the formation (prefix or suffix), or their selectional properties. I therefore claim that, although the postulation of zero morphemes may be useful in the analysis of inflectional phenomena, it is not clear that zero morphemes are of any analytical value in the realm of derivational morphology. In most cases, there is no independent motivation for the postulation of zero morphemes in derivation and, thus, the sole rationale behind this choice would be to force the morphology to fit the position that every morphological structure approaches the ideal of one-to-one correspondence between form and meaning.

The critical question with regard to conversion concerns the directionality of the process.[65] Don's analysis of conversion provides robust evidence in favour of the view that conversion is a directional process, but, as discussed earlier, the drawbacks of his analysis centre upon the development of his theoretical proposal. Don (2005) argues for the postulation of an alternative based on roots which are underspecified as to their categorial label. At this point, Don follows one of the basic tenets of Distributed Morphology (Halle & Marantz, 1993), namely the assumption that stems are categoryless roots which receive category only by virtue of being merged with functional projections

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[64] Ralli (2005) argues for a very limited use of zero morphemes in derivation and claims that they should be generally avoided –unless necessary.

[65] Significant evidence for the directionality of conversion and its grammatical similarity to affixation has been also provided by Bauer, Valera and Díaz-Negrillo (2010) on the basis of diachronic data.

of various sorts. The idea of underspecified roots has been heavily criticized in the literature. Lieber (2006) claims, above all, that intrinsic properties of the affixes, such as their ability to select the lexical category of the base, pose serious problems to theories which assume categoryless roots. Following this line of argumentation, I claim that Don's solution for the representation of the form-meaning asymmetry is not a step in the right direction.

The analysis proposed here supports the view that conversion should be considered as a set of paradigmatic relations between the lexical items. These relations are established by the speakers of a language on the basis of the linguistic evidence at their disposal. In this view, the problem of directionality finds a straightforward account; the formal along with the semantic correspondences in the conversion sets can be formally represented by means of co-indexation. Moreover, the paradigmatic relation between the two members is considered as the locus of interpretation of the formal and semantic properties of the output. We can thus adequately account for the asymmetry between form and meaning without making use of additional machinery, such as zero affixation, which has no independent justification and it is hard to define in terms of formal characteristics.

3.3 Conversion in SMG

In the previous section, I examined the grammatical nature of conversion and discussed the alternatives regarding the formal representation of the process. I argued that analyses which assume that conversion is a directional process –and thus similar to affixation– are superior to analyses which regard conversion as a simple relisting in the lexicon. In this section, I look in more detail at the data concerning conversion in SMG (briefly presented in section 3.1.2).[66]

The aim of the present section is twofold: first, to continue the discussion of the grammatical nature of conversion by examining data that has not been discussed before, and second, to provide further evidence in favour of the position that conversion should be analysed as a set of paradigmatic relations. At this point it should be mentioned that the discussion is mainly focused on the examination of SMG data, since Modern Greek dialects (including Griko) do not display the process of conversion.

3.3.1 Compounds with bound stems and conversion

Conversion in SMG is a productive process which can change nominal bases, (either simple bases or compound formations), into verbs. I start with the analysis of the compound formations since conversion is more productive in this type of formation. I repeat the data from table (8) for convenience:

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[66] An earlier version of this section has been published in Koutsoukos (2013).

Table 11: Conversion-compounds

Nominal formation	Verbal formation
[[arthr-o-gráf]ₙ-os]ₙ 'columnist' STEM-CM-BOUND STEM-NOMV.SG	[[arthr-o-graf]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of a columnist'
[[kerd-o-skóp]ₙ-os]ₙ 'profiteer' STEM-CM-BOUND STEM-NOMV.SG	[[kerd-o-skop]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of a profiteer'
[[kair-o-skóp]ₙ-os]ₙ 'opportunist' STEM-CM-BOUND STEM-NOMV.SG	[[kair-o-skop]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of an opportunist'
[[glos-o-lóg]ₙ-os]ₙ 'linguist' STEM-CM-BOUND STEM-NOMV.SG	[[glos-o-log]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of a linguist'
[[theoritik-o-lóg]ₙ-os]ₙ 'theoretician' STEM-CM-BOUND STEM-NOMV.SG	[[theoritik-o-log]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of a theoretician'
[[etym-o-lóg]ₙ-os]ₙ 'etymologist' STEM-CM-BOUND STEM-NOMV.SG	[[etym-o-log]ᵥ-ó]ᵥ STEM-CM-BOUND STEM-1SG 'perform the activity of an etymologist'

In merely descriptive terms, table (11) implies that while verbs have the same structural complexity as the corresponding nouns, they differ with respect to semantic compositionality (note that inflection should not be taken into account).

It should be mentioned that cross-linguistically, conversion appears mostly in simple bases. Van Marle (1985: 161) has argued that 'conversion on the basis of a complex starting-point is by far the most exceptional: "normally" conversion takes the simplex words of a word-class as its starting point.' The Greek data falsifies this claim, since conversion is a very productive process in compound formations.[67] Van Marle's claim is not completely borne out by Germanic and Romance data either, but for these languages it seems to constitute at least a good statistical approximation. For example, in Dutch the nominal compound *voetbal* 'football' can be converted into the verb *voetballen* 'to play football'.

Let us now focus on the formal and semantic properties of the nominal and verbal formations in conversion pairs. Conversion of nominal formations with bound stems has a clear direction of derivation, namely that nominal formations are considered as the input of the conversion process, whereas verbal formations are to be seen as the result (output) of the conversion process. In what follows, I will discuss the criteria that can prove very useful for the analysis of the directionality in conversion pairs.

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[67] This raises the issue of whether compound formations are stored in the lexicon and then form input to other processes or whether they are composed on the fly. However, I will not discuss this issue since it goes beyond the scope of the present thesis.

According to Ralli (2007, 2008), robust evidence comes from the fact that nominal formations always appear earlier than the corresponding verbal formations during the history of Greek (historical precedence). More evidence can be adduced by the accentual pattern of the verbal stems. As Ralli observes, in every conversion pair there is a movement of the stress towards the last syllable of the verb which suggests a kind of derivational process, e.g. [glosológos]$_N$ 'linguist' > [glosologó]$_V$ 'perform the activity of a linguist'.[68] Since this stress pattern is very systematic, one may well assume that the derivational process is expressed by a change in supra-segmental information (the stress pattern).

A notable property of the converted verbs that has not been discussed is the semantic compositionality of these formations. As observed on the basis of the data in table (11), the verb always 'contains' the meaning of the noun, not vice versa. For example, the verbal formation [glosologó]$_V$ has the interpretation of 'perform the activity of a linguist'. In this view, we can assume that the meaning of the verbal compounds with bound stems can be defined in relation to the meaning of the corresponding noun.

We now turn to the question of what the formal mechanism is that accounts for the form-meaning asymmetry in these formations. There are two possible answers to this question. The first is to assume a feature-changing rule which adds a zero affix on to the structure. This zero affix, like overt derivational affixes, would change the category of the input and assign specific semantic features to the output.

It is true that directionality constitutes a strong argument for the postulation of a process which adds morphological material on to the base. However, as I have already discussed, the postulation of zero affixes in the analysis of derivational phenomena raises a number of empirical and conceptual problems, since it lacks independent evidence (see discussion in section 3.2).

The alternative to this problem is to assume that the relation between the conversion members is the *locus of interpretation* of their formal and semantic properties. Put differently, since the relation is more than just the sum of its parts, the specific properties of the formations are considered as part of the combination of the two elements.

I turn now to the elaboration of this alternative in the data under examination. Conversion in SMG is modelled in terms of a paradigmatic relation between the members of the conversion pair, which can be (provisionally) formulated as follows:

(6)

<[[glosológ]$_N$-os]$_N$ 'linguist$_i$'> ≈ <[[glosolog]$_V$-ó]$_V$ 'perform the activity of SEM$_i$'>[69]

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[68] Ralli's analysis can be likened to the analysis of the English conversion pairs where a stress shift is observed, e.g. [cóntrast]$_N$ versus [contrást]$_V$.

[69] Inflection is indicated as part of the schema only for the sake of presentation. Inflection does not participate in the change in the category of the base and it is added only after the derivational process has taken place.

The schema in (6) represents the relation between form and meaning in both the input and the output formation and between the two members of an existing conversion pair. Each pair is indicated by means of angled brackets. However, from this as a starting point we can abstract away a schema which forms the basis for the coining of new words. Thus, the schema that models conversion is reformulated as:

(7)
$\langle N_i \leftrightarrow \text{profession}_j \rangle \approx \langle [N_i]_v \text{ 'perform the activity of } [N_j]' \rangle$

Nouns and verbs in conversion pairs in SMG display similar semantics which can be represented on a par with the formal structure. The grammatical relation between nominal and verbal formations should be considered as bidirectional, in the sense that both items are underived and are linked to each other by a non-directional redundancy rule.

However, one cannot disregard the fact that conversion in SMG displays a clear direction in terms of formal and semantic structure and if we assume a bidirectional relationship between the members of the conversion pair, the problem of directionality still remains open. Booij (1997) introduces the use of a formal mechanism of indices in order to show (a) the correspondences between the formal and semantic relations, and (b) the correspondences between the members of the two conversion pairs. The use of indices gives a straightforward account of the fact that there is a correspondence between two sets of words which have the same degree of morphological complexity, but which display a kind of semantic dependency. We can thus claim that the use of indices opens the way for a reinterpretation of the notion of semantic directionality in conversion as the correspondence between specific formal and semantic aspects of the two lexical items, instead of a productive rule. The schema in (7) will be further elaborated within the framework of CM, since both the input and the output display formal and semantic properties which should be represented on the schema (see 3.7).

3.3.2 Simple nominal bases and conversion

Although conversion is pervasive in compound formations with bound stems, it can also be found in morphologically simple nominal bases (cf. Ralli, 1988).[70] Some conversion pairs with simple bases are presented in the following table:

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[70] An examination of the data shows that in Modern Greek there are no more than 30 conversion pairs of this type.

Table 12: Conversion–simple bases

Noun	Verb
pygmáx-os 'boxer' STEM-NOMV.SG	pygmax-ó 'perform the activity of a boxer' STEM-1SG
nomárx-is 'prefect' STEM-NOMV.SG	nomarx-ó 'perform the activity of a prefect' STEM-1SG
dikigór-os 'lawyer' STEM-NOMV.SG	dikigor-ó 'perform the activity of a lawyer' STEM-1SG

The conversion pairs in table (12) display the same formal and semantic characteristics as compound formations with bound stems: (a) asymmetry between form and meaning, since they display a change in the category of the base without an overt morphological marker, and (b) the same stress pattern, i.e. stress on the final syllable. In most cases, these conversion pairs display a dependency relation between their constituents in terms of semantics. However, in some examples, the semantic relationship between the members of the conversion pair cannot be defined without avoiding circularity in the interpretation, e.g. *odigos* 'driver' versus *odigo* 'drive'. Thus this relationship cannot be considered as an essential criterion for all cases of conversion pairs with simple bases.

3.3.3 Summary

The analysis of conversion pairs in SMG shows that the process is characterized by directionality. Given the theoretical shortcomings of the zero-affixation analysis, I argue that conversion in Modern Greek can be formalized as a set of paradigmatically related schemas. This solution is superior to the other formal representations and paves the way for the analysis of the relation between inflectional classes and conversion in the subsequent sections.

3.4 Conversion and inflection

Thus far, I have discussed the grammatical nature of conversion and I have presented the properties of conversion pairs in SMG. I have argued that conversion in SMG should be considered as a paradigmatic relation between the input (noun) and the output (verb) which means that the formal and semantic properties of the converted verbs should be computed as part of this relation. The main focus of the present chapter is a particular aspect of conversion in SMG; i.e. the relation between conversion and the inflectional properties of the converted verbs.

3.4.1 Conversion and typological features of the language

It has been claimed that there is an *ad hoc* connection between the appearance of conversion and the type of inflectional systems of the languages; that is, conversion is usually assumed to be a common phenomenon *only* in languages with weak (or restricted) inflectional systems. As an illustrative example, it has been claimed that in English the loss of inflectional markers gave rise to derivation by means of zero morpheme. Jespersen (from Marchand, 1969: 363) claimed that 'as a great many native nouns and verbs had…come to be identical in form…, as the same things happened with numerous originally French words'.

Marchand however casts doubt on this claim and argues that conversion existed in English when it was still a more amply inflected language and inflectional differences were more in evidence. As Marchand puts it: 'Derivation by a zero-morpheme is neither specifically English nor does it start, as Jespersen's presentation would make it appear, when most endings had disappeared'.

From a synchronic perspective, although it cannot be denied that conversion is very productive in languages with restricted inflection, this is not necessarily the case, since conversion can be productive also in languages with strong (or rich) inflection. In what follows, I discuss some typical cases of conversion in languages with rich inflection.

3.4.2 Conversion in languages with rich inflection: the case of Slavic

Slavic languages are generally characterized by their rich inflectional morphology and display conversion. In this section I discuss two analyses of conversion in Slavic languages aiming to find parallelisms between these analyses and the analysis of conversion in SMG.

Manova (2011) provides an analysis of conversion in Slavic languages with special focus on Bulgarian, Russian, and Serbo-Croatian. Manova claims that morphological processes can form a cline from the most to the least prototypical one. Based on this theoretical assumption, Manova defines conversion as follows (2011: 59):

> 'Conversion is understood as being parallel to the most natural type of morphological change, i.e. that of addition, the latter representing also the most salient type (prototype) of a morphological change'.

Manova assumes a strict parallelism between addition (affixation) and conversion in terms of morphosemantics. As she puts it, by postulating this morphosemantic parallelism between conversion and affixation (addition), we abandon an analysis of conversion based on structural criteria and we can argue that conversion should be recognized as derivational process, since it displays a considerable and regular change in meaning, which is typical for a derivational process.

According to Manova, we can consider the English examples which do not involve any intervention of inflection to be prototypical conversion. However, conversion in Slavic languages may apply to words which already display some sort of inflectional marking. In that case the inflectional marker is substituted or deleted. In other words, the derivational process of conversion can change the category (or some of the morphosyntactic properties of the base), *even after* the inflectional marking. However, this should not be considered as prototypical conversion:

(8)
Russian: učitel' 'teacher' > učitel'-it' 'work as a teacher (colloq.)'

In the data above we observe that conversion results in change in the lexical category and, thus, resembles very much the English examples in 3.2.1. However, the addition of the inflectional suffix renders this type of conversion less prototypical than the English one. Even less prototypical should be considered data from Russian which does not display a change in the category of the input:

(9)
Russian: [[matematik]-a]$_N$ 'mathematics' > [matematik]$_N$ 'mathematician'

According to Manova, both the input and the output of the conversion process presented in (9) have the same category and are semantically related. However, they differ with respect to their inflectional paradigms. For such cases, where there is no change in the lexical category, Manova uses the term *non-prototypical conversion*.

The theoretical appeal of Manova's analysis is the exhaustive discussion of conversion data in languages with rich inflection. She provides arguments in favour of the view that conversion should be analysed as a derivational process with clear direction of derivation, since it displays compositionality in terms of semantics. In this respect it resembles the analysis of the Greek data. Manova also assumes that conversion takes place only after the deletion of the inflectional material, when needed, and in this respect inflection does not have any derivational properties. However, she does not answer the difficult question regarding the relation between the two processes and whether inflection may apply twice; that is, before and after conversion.

Szymanek (2010) discusses conversion,[71] drawing on data from Polish. Consider the following example (Szymanek, 2010: 234):

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[71] Szymanek uses the term 'paradigmatic derivation' instead of conversion.

Table 13: Conversion pairs in Polish I

	Input (A)			Output (N)
	ZŁY 'bad, evil'			ZŁO 'badness, evil'
	Masculine	**Feminine**	**Neuter**	
Nominative	zł-y	zł-a	zł-e	zł-o
Genitive	zł-ego	zł-ej	zł-ego	zł-a
Dative	zł-emu	zł-ej	zł-emu	zł-u
Accusative	zł-y / zł-ego	zł-ą	zł-e	zł-o
Instrumental	zł-ym	zł-ą	zł-ym	zł-em
Locative	zł-ym	zł-ej	zł-ym	zł-um

According to Szymanek, this is a typical example of conversion in Polish in which we observe that there is a change in the lexical category of the base, without a concomitant change in the formal make-up of the output, apart from the fact that the lexemes select distinct sets of inflectional endings (they belong to different paradigms of declension). These examples should be regarded as cases of conversion.

As Szymanek observes, conversion in Polish does not always result in a change in the lexical category of the base (Szymanek, 2010: 235):

Table 14: Conversion pairs in Polish II

Input (N)	Output (N)
Noun [+feminine]	**Noun [+masculine]**
fizyk-a 'physics'	fizyk 'physicist'
logic-a 'logic'	logic 'logician'
Noun [+masculine]	**Noun [+feminine]**
markiz 'marquis'	markiz-a 'marchioness'
kum 'godfather'	kum-a 'godmother'

Formations on the right-hand column do not differ from formations on the left-hand column with respect to the lexical category of the base. As Szymanek observes, conversion pairs in table (14) display a difference with respect to the gender value (shift from feminine to masculine gender value, or vice versa). However, this is not the only change. As can be observed in the data set (A), the output of the conversion process differs from the input with respect to meaning. Conversion changes the meaning of the formation from an abstract noun to a personal noun.

Szymanek claims that the difference *per se* in inflectional paradigms can be held responsible for the change from the base to the derivative and, thus, it is obviously redundant to invoke the notion of zero-morpheme in such derivations. Hence, the zero-morpheme can be dispensed with in Polish word formation in general. This observation is in accordance with the Greek data presented in the previous sections and constitutes strong evidence in favour of a paradigmatic account of conversion.

3.4.3 Conversion or inflection with derivational properties?

As shown in section 3.3, conversion in SMG concerns a change in the category of the base before the addition of the inflectional material. In this section I discuss an alternative, that is, the possibility of assuming that inflectional material may have derivation-like properties.

Melissaropoulou and Manolessou (2011) examine the evolution of the morphological process of augmentative suffixation in Greek data. Consider the following examples:

Table 15: Augmentative derivation in Greek

Neutral Form [neuter gender]	Augmentative [feminine gender]
maxaír-i[72] 'knife' STEM-INFL	maxaír-a 'big knife' STEM-INFL
varél-i 'barrel' STEM-INFL	varél-a 'big barrel' STEM-INFL
kolokíth-i 'pumpkin' STEM-INFL	kolokíth-a 'big pumpkin' STEM-INFL

The forms in the right-hand column in table (15) should be considered as deriving from those in the left-hand column, since they express the notion of augmentation.[73] Emphasis should however be placed on the fact that the outputs of the derivational process do not differ from the input with respect to their formal make-up but only with respect to their gender value (a uniform value in all examples).

Melissaropoulou and Manolessou (2011) argue against an analysis based on the formal mechanism of reanalysis, since, as they claim, reanalysis involves a change in the underlying structure, which in morphological terms corresponds to word or morpheme boundaries, something which does not occur with the morphemes in question. They assume that augmentation is triggered by inflectional restructuring while the gender value changes according to the differentiation of (a) [± animate] and (b) the neutral form versus the augmentative.

According to their analysis, in Ancient, Koine and Medieval Greek the suffixes -a and -s were involved in inflectional, but not derivational processes. These elements, while maintaining their original inflectional function, have acquired an additional grammatical function. The inflectional suffixes -a and -os should be regarded as *quasi-inflectional suffixes*, marking certain inflectional classes.

With respect to the same set of data, Ralli (2005) is sceptical of an analysis based on inflectional endings with derivation-like properties. As Ralli points out, inflectional nominal paradigms in Modern Greek have several different types which express several morphosyntactic properties, such as case. If one assumes derivational properties for some

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[72] According to Ralli's (2005) classification, -i belongs to the stem. However, for reasons of clarity, I indicate -i as a separate inflectional suffix.

[73] Beard (1998) refers to this type of derivation as *expressive derivation*.

of these types, then we are forced to assume that the whole paradigm has derivational properties. However, this solution suggests that there is no principled distinction between inflection and derivation.

I take a position in favour of Ralli's analysis and I would like to argue that inflectional endings cannot be considered as derivational elements. As claimed by Marchand (1969: 363), 'stems are immediate elements for the speaker who is aware of the syntagmatic character of an inflected form'. Derivational processes apply to stems (before the addition of the inflectional material) and may have the potential to determine the inflectional properties of the output, as will be shown in what follows, but inflectional marking takes place at a later stage in order to express the morphosyntactic properties of the words.

3.4.4 Conversion and inflectional properties of the output in SMG

It has been generally argued that conversion may show an interaction with inflection, since conversion may be connected with specific inflectional properties of the output. Thornton (2004: 503) has argued that converted formations are inflected according to the default inflectional class. In this section, I examine whether this hypothesis is confirmed by the Greek data.

The formal correlation between conversion and inflectional properties of the output can be more evident in languages with rich inflection. A classic example comes from Italian. In Italian almost each word belongs to an inflectional class expressed by the endings in (nearly) all paradigm slots (Gardani, 2009: 97). Nouns formed by conversion are inflected according to two maximally productive subclasses (Dressler, 2003):

(10)

Verbs   **Nouns**

Degrad-are 'degrade'   →   il degrad-o 'degradation'   i degrad-i (Italian)
STEM-INFL   STEM.M-INFL   STEM.M-INFL.PL

Revoc-are 'revoke'   →   la revoc-a 'revocation'   le revoch-e (Italian)
STEM-INFL   STEM.FEM-INFL   STEM.M-INFL.PL

In SMG, conversion only partially reinforces the hypothesis regarding the relation between conversion and inflectional classes. In SMG, the verbal inflectional system is organized on the basis of two (major) inflectional classes. According to Ralli (1988, 2005), the key feature for the classification of the verbal inflectional classes is the *pattern of stem allomorphy*. Verb stems belonging to the second inflectional class (IC2) display a systematic pattern X(a) ~ X(i/e)[74] (recall that X represents part of the stem and the vowel in parentheses is the stem-final vowel), whereas the absence of this pattern characterizes

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[74] According to Ralli X(a) is related to X(e/i) with a morpholexical rule indicated by the symbol ~ between the two allomorphs.

verb formations belonging to the first inflectional class (IC1) (see tables 17 and 18 below). IC2 can be further divided into two minor inflectional classes IC2a and IC2b, according to the stem-final vowel:

(11)
IC2a: X(a) ~ X(i/e/a)
IC2b: X ~ X(i/e)

(12)

agapa-o 'love'   ~   agapi-s-a (**IC2a**)

STEM-INFL   STEM-ASP-INFL

diair-o 'divide'   ~   diaire-s-a (**IC2b**)

STEM-INFL   STEM-ASP-INFL

trex-o 'run'   ~   e-trek-s-a (**IC1**)[75]

STEM-INFL   AUG-STEM-ASP-INFL

IC1 is a very productive inflectional pattern which is considered to be the default conjugation in SMG, since the vast majority of the verbs in SMG are inflected according to this pattern and it can be extended to new cases (Ralli 1988, 2005):

Table 16: SMG IC1

	Present	**Aorist**
1SG	trex-o	etrek-s-a[76]
2SG	trex-eis	etrek-s-es
3SG	trex-ei	etrek-s-e
1PL	trex-oume	trek-s-ame
2PL	trex-ete	trek-s-ate
3PL	trex-oun	etrek-s-an

IC2 encompasses mainly verbs which originate in Classical Ancient Greek; the so-called contract verbs and new verbal formations[77] rarely follow this pattern of inflection (from Ralli 1988, 2005):

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[75] The change from -x- to -k- in the verb stem is a fully predictable morphophonological change (see Ralli, 2005).

[76] For the appearance of the augment -e- see the discussion in chapter (5).

[77] Except for the compound formations with bound stem which will be discussed in the next section.

Table 15: SMG IC2

	IC2a: X(a) ~ Xi		SMG IC2b: X ~Xe	
	Present	**Aorist**	**Present**	**Aorist**
1SG	agap(á)-o	agápi-s- a	diair-ó	diaíre-s-a
2SG	agapá-s	agápi-s-es	diair-eís	diaíre-s-es
3SG	agapá (-ei)	agápi-s-e	diar-eí	diaíre-s-e
1PL	agapá-me~agap-oúme[78]	agapí-s-ame	diair-oúme	diairé-s-ame
2PL	agapá-te	agapí-s-ate	diair-eíte	diairé-s-ate
3PL	agapá-ne~agap-oúne	agápi-s-an	diair-oún	diaíre-s-an

An important difference between the two patterns should be mentioned. IC2b displays a tendency to reshape its inflectional pattern in favour of IC2a (Ralli 1988, 2005). This fact suggests that IC2a is a more productive inflectional class than IC2b.

   Converted verbs in SMG are not inflected according to the most productive (and in that sense default) IC1, but rather they are associated with some inflectional properties that uniquely characterize this kind of word-formation process. The following is an illustrative paradigm of a converted verb:

Table 16: Inflectional patterns of converted stems

	ACTIVE VOICE			
	Present, Future [- perfective]	**Imperfect**	**Aorist**	**Future [+perfective]**
1 SG	glosolog-ó (θa)	glosolog-oús-a	glosológi-s-a	glosologí-s-o (θa)
2 SG	glosolog-eís (θa)	glosolog-oús-es	glosológi-s-es	glosologí-s-eis (θa)
3 SG	glosolog-eí (θa)	glosolog-oús-e	glosológi-s-e	glosologí-s-ei (θa)
1 PL	glosolog-oúme (θa)	glosolog-oús-ame	glosologí-s-ame	glosologí-s-oume (θa)
2 PL	glosolog-eíte (θa)	glosolog-oús-ate	glosologí-s-ate	glosologí-s-ete (θa)
3 PL	glosolog-oún (θa)	glosolog-oús-an	glosológi-s-an	glosologí-s-oun (θa)
	IC2b		**IC2a**	

As the data in table (18) suggests, in Present, Future [-perfective] and Imperfect tense forms, converted stems display the pattern of allomorphy which corresponds to IC2b, whereas in Aorist and Future [+perfective] tense forms they display the pattern of allomorphy which corresponds to IC2a. In other words, converted verbs display a pattern of allomorphy which can be considered as a *synthesis* of the two major patterns of allomorphy; this kind of phenomenon has generally been described as *heteroclisis* (cf.

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[78] In particular cells of the inflectional paradigm there is allomorphic variation. The distribution of the allomorphs of these cells is not governed by strictly grammatical principles (Ralli, 2005).

Maiden, 2009). The pattern of converted verbs can be schematically represented in the following:

Table 19: Allomorphy patterns in SMG

INFLECTIONAL PARADIGM	PATTERN OF ALLOMORPHY
IC2A	$X(a)^{79}$ ~ Xi
IC2B	X(e) ~Xe
Converted stems	X(e)~Xi

It should be mentioned that a number of simple bases also follow this inflectional pattern. For example, the verb *tilefono* 'to call', in Present, Future [-perfective] and Imperfect tense forms display the pattern of allomorphy which corresponds to IC2b, whereas in Aorist and Future [+perfective] tense forms it displays the pattern of allomorphy which corresponds to IC2a. This fact may suggest that IC2b is the least productive inflectional class in SMG and verbs belonging to this class are in the process of moving to another inflectional class. The basic difference between simple bases and compound formations is that the latter are systematically connected to this pattern, whereas the former are not.

The examination of the inflectional properties of the output shows that conversion in SMG behaves similarly to other languages with rich inflection, in that it shows an interaction with the inflectional class of the output. However, converted verbs in SMG are not inflected according to the default inflectional class and thus the claim that conversion is connected to the default inflectional class is falsified.

A possible counterargument to this analysis would suggest that some verbs which synchronically belong to the class of 'converted verbs' and descend from Ancient Greek may still keep some inflectional properties of their Ancient Greek antecedent. For example, the verb *filosofo* 'talk about philosophy' which synchronically belongs to the class of converted verbs, can also be found in Classical Ancient Greek. In this view, one may well assume that the pattern of allomorphy that corresponds to the Aorist and Future [+perfective] tense forms is not the pattern of the IC2a, but a relic from Ancient Greek verbal paradigms. In contrast to this claim, it should be mentioned that conversion is not restricted only to formations coming from Ancient Greek, since we find converted verbs which are not attested in Ancient Greek. For example, the verb *glosologó* is a newly coined formation which was not attested in Ancient Greek as a compound.

As a side remark, it should be mentioned that although IC2b is not very productive in Standard Modern Greek, it keeps (or reinforces) its productivity in converted formations from nominal bases. Productivity should be regarded as a phenomenon with a *gradient character* (cf. Bauer, 2001). Lieber and Baayen (1993) have argued that an affix which is

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[79] These vowels in the parentheses originate in thematic vowels in Ancient Greek conjugation, but synchronically they should be considered as allomorphic variation of the stem.

not very productive may in fact gather strength in some well-defined subset of formations and reemerge as highly productive there.

The question that then follows is how best to represent the inflectional properties of the output verb. One may well assume that the inflectional properties of the verb can be considered to be inherent lexical information from the converted formations. However, this is a questionable assumption since converted verbs do not correspond to a uniform inflectional pattern of the system.

The inflectional characteristics of the converted verbs can be regarded as a property which stems from the relation between the two members and are represented as an output constraint that has to be specified on the schema of the verb:

(13)

$\langle N_i \leftrightarrow \text{profession}_i\rangle \approx \langle [N_i]_{V[IC:2a/b]}$ 'perform the activity of a SEM_i'$\rangle$

In the next section, I will present a fully-fledged analysis of the relation between conversion and formal properties of the output within a CM framework.

3.5 A construction-based account of the relation between conversion and ICs

In the preceding sections, I have argued that in SMG conversion not only changes the lexical category of the input, but also assigns specific inflectional properties to the converted verb. Both of these formal properties, i.e. the change in the category and the assignment of the inflectional properties, should be analysed as part of the relation between the members of the conversion pair. In this section, I show that a construction-based analysis accounts for the formal and semantic properties of each member of the conversion pair and solves the problem of the asymmetry between form and meaning in conversion. I start with the formal representation of each member of the conversion pair as an output-oriented schema (section 3.7.1) and then I argue for the representation of conversion as a set of paradigmatically related schemas (section 3.7.2).

3.5.1 Conversion pairs as output-oriented schemas

In the framework adopted here, words and abstract schemas of word formation can be conceived of as a triplet of *Phonological Structure* (PS), *Syntactic Structure* (SS), and *Conceptual Structure* (CS) (Jackendoff 2002, 2013) and the formal model that accounts for word formation should capture all these aspects of words. In Construction Morphology (henceforth CM), constructions at the word level are multidimensional formal units which codify phonological, semantic and morphological properties of the words (Booij, 2010).

Moreover, as expressed by Jackendoff (2010b), in a parallel architecture model the interface relation between different components cannot be a sequenced derivation, since structures in different components often stand in a many-to-many relation. Rather, the interface components must be treated as *constraints* (possibly violable), which establish (or license) well-formed links among different kinds of structure.

Let us now turn to the discussion of conversion pairs and examine how a construction-based analysis accounts for conversion. As has already been argued, the formal and semantic properties of the noun and the verb in paradigmatically related conversion pairs are projected onto the syntagmatic axis; that is, they form part of abstract constructions.

In SMG, the input of conversion is always a noun, either a simple base or a compound formation with a bound stem,[80] whereas the output of the process can only be a verb. In compound formations with a bound stem, the stems bear a specific lexical meaning which cannot stand alone, as would happen for example with independent lexemes, but rather always needs to be complemented.

It is also worth mentioning that, unlike other languages with similar morphological categories, bound stems in SMG have a fixed position in the construction; that is, they mostly appear on the right-hand edge of the compound formation (Ralli, 2007, 2008, 2013) and their position can be predicted by neither the lexical characteristics of the elements (since they do not appear on the left) nor any language-specific constraints.

Booij (2005, 2010) has argued that similar borderline morphological constructions can be represented by means of constructional schemas of varying degrees of abstractness. Under these assumptions, compound formations with bound stems can be represented by means of a *constructional idiom*, that is, a form-meaning pair. A (provisional) formal representation is the following:

(14)
$<[[X_i] \text{-o-}[graf]_N \text{-os}]_N$ 'one who writes X_i'>[81]

This schema represents the constructional idiom of the nominal formations with the bound stem *-graf(os)* 'one who writes'.[82] The variable X indicates that the first part of the compound can be unified (or fulfilled) by various lexemes, while the co-indexation (signalled by the subscript variable *i*) indicates the correspondence between the two parts of the formation. The angle brackets indicate the whole formation (pair).

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[80] Although much of what I have to say relates to both compounds and simple bases, I will concentrate on compounds, where the elaboration of the idea is often more complicated.

[81] Compounds with bound stems include the compound marker (or linking element) -o- which is obligatory for compounds in SMG (Ralli, 2007, 2013).

[82] Bound stem *-grafó* should not be confused with the verb *gráfo*, which displays a different accentual pattern.

Let us now turn to the advantages of a construction-based account of conversion pairs. First, within a CM account the position of the bound stem can be analysed as a context-dependent property.

Another interesting aspect of these formations which has not yet been discussed concerns the specific semantic restrictions imposed on the process of conversion. Semantic restrictions on word-formation rules can also be observed cross-linguistically. For example, Marchand (1969: 368) argues that there are no names of flowers, trees and plants in English (with the exception of moss and mushroom) that form bases to zero-derivation.

Hüning (2009) makes a cross-linguistic comparison and observes that conversion in Dutch does not show the same grammatical behaviour when compared with the same process in the genetically related languages German and English. More specifically, although German, English and Dutch show a relatively high productivity in the formation of verbs from corresponding nouns by means of the conversion, it is only Dutch that shows high productivity in the restricted area of sports, and in Dutch almost every name of a sport can be used as a verb:[83]

(15)
[voetbal]$_N$ 'football' > [voetbal]$_V$ 'play football'
[golf]$_N$ 'golf' > [golf]$_V$ 'play golf'
[tennis]$_N$ 'tennis' > [tennis]$_V$ 'play tennis'

Hüning (2009) argues that word-formation processes often show *semantic fragmentation*[84] and, over time, develop *semantic niches*, i.e. groups of words (subsets of a morphological category) kept together by formal and semantic criteria. Conversion in SMG displays a similar kind of semantic fragmentation; that is, conversion is not applied blindly to all nominal formations.

Nominal formations with bound stems have the interpretation of either [+animate agent] or [-animate agent]. For example, the formation *arthrografos* 'columnist' has the interpretation of [+animate agent], whereas the formation *tomografos* 'tomograph' has the interpretation of [-animate agent] and this semantic feature can be analysed as part of the constructional schema:[85]

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[83] Hüning observes, accurately in my view, that these semantic niches may have gone unnoticed if we did not compare languages, since even allegedly equivalent word-formation processes often differ with respect to the probability of their use in historically related languages.

[84] Rainer (2003) introduces the term semantic fragmentation in order to describe the process according to which a once semantically homogeneous word-formation process is split into a series of different processes in the course of time.

[85] The semantic feature [-animate agent] has been extensively discussed by Booij (1986).

(16)

<[[arthr]-o-[graf]$_N$-os]$_N$ [+ANIMATE AGENT] 'a columnist>

(17)

<[[tom]-o-[graf]$_N$-os]$_N$ [-ANIMATE AGENT] 'device for tomography'>

The question that naturally arises is what the motivation for the representation of this feature is. The process of conversion in Modern Greek seems to be restricted by the semantic features of the input formations. The following examples are illustrative:

Table 20: Selectional restrictions on conversion

Nominal formation [+animate agent]	Verbal formation
arthrográf-os 'columnist'	arthrograf-ó 'perform the activity of a columnist'
glosológ-os 'linguist'	glosolog-ó 'perform the activity of a linguist'
Nominal formation [-animate agent]	**Verbal formation**
tomográf-os 'device for tomography'	*tomograf-í 3SG[86] 'producing an image of the inside of the human body or a solid object using X-rays or ultrasound'
logográf-os 'device for recordings'	*logograf-í 3SG 'performing recordings'

The data in table (20) implies that compound formations with the semantic feature [-animate agent] cannot be subject to conversion.[87] This fact provides corroboration for the assumption that this semantic feature should be analysed as part of the constructional schema.

The last point to be discussed in the present section concerns the phonological and semantic properties of the verb. As has been observed by Ralli (2008, 2013), in every converted verbal formation the stress moves towards the final syllable, e.g. [glosológ-os]$_N$ 'linguist' versus [glosolog-ó]$_V$ 'perform the activity of a linguist'. This phonological pattern cannot be predicted by a language-specific rule. At this point one may raise the question of whether the final stress of the verbal compound is a property of the constructional schema or a lexically specified property of the verb. Important evidence in answering this question can be adduced from the examination of specific minimal pairs. Take, for example, the verbal formation *arthrografó* 'perform the activity of a columnist', which has final stress whereas the verb *gráfo* 'write' has penultimate stress (see Ralli, 2007). This example shows that the stress cannot be analysed as a lexically-specified property. In this view, the stress properties of the verb are analysed as a phonological feature of the constructional schema.

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[86] I am using 3SG person instead of the standard citation form, i.e. 1SG, since I am refering to devices.

[87] Except for the formation *kinimatografos* 'cimena' > *kinimatografo* 'to film'.

Last but not least, as has been already discussed, converted verbs display a kind of semantic dependency, i.e. the meaning of the verb 'includes' the meaning of the noun.[88] Since this is not an exclusive feature of some particular verbs, but a characteristic of the whole category, this type of information should be represented in the schema:

(18)
$[[[X_i]\text{-o-}[graf]_{Nj}]_V\text{-ó}]_{V[+\text{final stress}]}$ 'Perform the activity of SEM$_j$'

It can be argued that in some cases the meaning of the verb does not include the meaning of the noun. For example, the verb *glosologó* 'perform the activity of a linguist' can have the meaning of 'speaking like a linguist' or 'doing linguistics' and not just 'perform the activity of a linguist'. I would like to claim that the first option is not a possible one since this meaning is usually attributed to verbal formations which have the formative *-iz(o)*. For example we can have the verb *glosolog-iz(o)* which has the meaning of 'speaking like a linguist'.

The second option is more possible but only for particular formations. For example, we can assume that *glosologó* can have the meaning of 'doing linguistics' which suggests that the schema of the output verb is not connected to the input noun $<[[glos_i\text{-o}]\text{-}[log]_N\text{-}os]_N$ 'one who talks professionally about language$_i$'>.

To sum up, I have argued that the formal and semantic properties of both the noun and the verb in conversion pairs can be represented as constructional schemas. The advantages of this approach are the following:

(a) The semantics of the verb are defined in relation to the meaning of the corresponding noun.
(b) Semantic restrictions imposed on the process are represented as semantic features on the output schema of the input word.
(c) There is a natural explanation for the position of bound stems in compound formations.
(d) The productivity of the process in a specific type of compound formations, i.e. compounds with bound stems, can be explained by the postulation of a specific sub-schema.

3.5.2 Conversion as paradigmatically related schemas

Thus far, I have argued that conversion in SMG should be analysed as the paradigmatic relation between members of word sets. I have also shown that this relation can be considered as the locus of interpretation of the morphosyntactic and semantic properties

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[88] The semantics of the examples in SMG is also interesting from a broader perspective, since the meaning 'work as N' is not freely available in many other languages, cf. in English *architect* but **to architect*, *linguist* but **to linguist*, *policeman* but **to policeman*.

of the converted elements. However, in addition to providing an account of the empirical facts of language, a theory should aim towards model that predicts new formations (neologisms). In other words, we need to see how these paradigmatic relations are formulated in such a way that they actually predict the output of the conversion process.

In the previous section, I argued that the properties of both the noun and the verb should be projected onto the syntagmatic axis and should be represented as output-oriented constructions. The aim now is to show how these output-oriented constructions can be related in order to provide the formal representation of the conversion.

In Construction Morphology, word formation is conceived of as a network of paradigmatic relations among schemas of varying degrees of abstraction which are hierarchically ordered (cf. Booij 2010, 2013). Under this view, conversion can be represented as paradigmatically related schemas. The properties of these schemas are abstracted from existing conversion pairs and projected onto the syntagmatic axis:

(19)

$<[[X_i\text{-}o]\text{-}[graf]_N\text{-}os]_{N[+\text{ANIMATE AGENT}]}$ 'one who writes X_i'$>_y \approx [[[X_i\text{-}o]\text{-}[graf]_N\text{-}ó]_{V[+\text{final stress}]}$ 'Perform the activity of SEM_y'

This schema implies that the constructional idioms of the conversion members are linked by means of a paradigmatic relation. This link takes the notational form of $\approx$. Every member of the conversion pair is a form-meaning pair and the correspondences between the formal and semantic structures of the noun and the verb are indicated by the use of indices.

The assumption that conversion can be considered as a set of relations between lexical items can be likened to the Relisting Hypothesis since both are based on the idea of the relation between the two members of the conversion pair. However, a significant difference between the two models should be noted. The model of paradigmatic relations goes beyond the assumption that conversion is as a static relation between existing words of the vocabulary of the language, and assumes that paradigmatically related schemas act as an active grammatical pattern which forms new sets of words. In this respect, abstract schemas form the basis for coining new words.

This analysis has advantages at two different levels. First, it provides an adequate representation of the formal properties of its member of the set, i.e. stress properties, the correlation between the meanings of the formations, the semantic restrictions imposed on the process, and the change in the category of the conversion pairs. Second, it provides a representation of the semantic interrelations between the parts of the conversion pairs.

As has been already argued, converted verbs are associated with some inflectional properties which uniquely characterize conversion. In other words, the inflectional properties of the verb cannot be considered as an inherently specified lexical property, but

rather as a property which stems from the relation between the two elements. This is the most dramatic formal property which stems from conversion and thus this property should also be considered as a construction-level property:

(20)
$<[[X_i\text{-}o]\text{-}[graf]_N\text{-}os]_{N[\text{ANIMATE AGENT}]}$ 'one who writes X_i'$>_y \approx$ $[[[X_i\text{-}o]\text{-}[graf]_N]_{V[\text{IC:2a/b}]}$-ó$]_{V[\text{IC:2a/b}][+\text{final stress}]}$ 'Perform the activity of SEM$_y$'

In order for a speaker to acquire the verbs in this set of structures, a noun must meet the formal and semantic requirements of the input structure and a verb must meet the formal and semantic requirements of the output structure, with the same interpretation of the variables. Through the interpretation of the variables (unification) the output structure turns into a lexical entry. If the two elements do not meet the relevant formal and semantic requirements, unification will fail.

It is important to mention that each of these constructions can start life on their own. In other words, it is not *a priori* necessary that the schema for the nominal formations should always connect to the schema for the verbal formations. For example, in SMG there are some verbal formations without a corresponding nominal formation as shown below:

Table 21: Verbal compound formations without the corresponding noun

Noun	Verb
(???) ix-o-gráf-os 'a person who records' STEM-CM-BOUND STEM-NOMV.SG	ix-o-graf-ó 'to record' STEM-CM-BOUND STEM-1SG
(???) katalog-o-gráf-os STEM-CM-BOUND STEM-NOMV.SG 'someone who makes lists'	katalog-o-graf-ó 'to list' STEM-CM-BOUND STEM-1SG
(???) epixeirimat-o-lóg-os STEM-CM-BOUND STEM-NOMV.SG 'someone who argues'	epixeirimat-o-log-ó 'argue' STEM-CM-BOUND STEM-1SG

In this table we notice that a number of verbs formed according to the schema in (20) exist without the corresponding noun. This fact suggests that the schema of the 'output' verb has independence and may form the basis for coining new words.[89]

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[89] One could suggest that the corresponding nouns are possible, but not attested words. However, this does not seem likely, since the nouns are highly questionable formations.

3.6 Conclusions

In the present chapter, I have discussed the relation between conversion and inflectional classes. This is no easy task since a number of issues are raised by the grammatical nature of conversion.

I have argued that conversion in SMG is a very productive process within a limited domain, i.e. compound formations with bound stems. The analysis of the data shows that conversion cannot be considered as a simple relisting in the lexicon since it has a clear directionality, the existence of which is proved by formal and semantic criteria. Regarding the question of what is the best way to formally represent the relation between form and meaning in conversion, I have shown that, although the postulation of zero morphemes may be useful in the analysis of inflectional phenomena, it is not *a priori* plausible that zero morphemes are of theoretical value in the realm of derivational morphology. In most cases there is no independent motivation for the postulation of zero morphemes in derivation and, thus, the sole rationale behind this choice would be to allow the morphology to fit the position that every morphological structure approaches the ideal of *one-to-one correspondence* between form and meaning. I have provided arguments in favour of the view that conversion is a systematic paradigmatic relation between two lexical items and this relation is the locus of interpretation of the form-meaning asymmetry.

Conversion in Modern Greek is associated with inflectional properties that *systematically* characterize this class of formations. The inflectional properties of the output can be considered as the *only* mark of the conversion process. However, conversion does not lead the output to the default inflectional class. Verbs derived by conversion in SMG do not belong to a uniform inflectional class, but rather their inflectional pattern is a synthesis of two different inflectional patterns, which are not in general very productive. In this view, SMG does not validate the hypothesis that converted verbs are associated with the default conjugation class of the verbal system.

The last issue addressed concerns the insights offered by a CM analysis into the discussion of the relation between conversion and inflectional classes. A CM account goes a step beyond the paradigmatic analysis and represents conversion as a set of paradigmatically related schemata.

With respect to the Greek data, a CM analysis (a) gives a more straightforward account of cases in which semantic restrictions limit the process of conversion (semantic fragmentation), (b) represents the fixed position of the bound stem, (c) shows the change in the grammatical category as part of the relation between the noun and the verb, and (d) represents the inflectional properties of the verb as part of the output schema. In conclusion, a CM account represents the relation between the two members of the

conversion pairs without resorting to the problematic solutions of the zero affixation analysis.

Chapter 4
Derivational markers and paradigmatic levelling in Griko

4.0 Introduction

In an ideal view of word structure there is a symmetric relationship between the formal structure and the meaning/function of the formation. This implies that there is a one-to-one relationship between the different parts of the form and the different elements of the meaning (Zwanenburg, 2000). In this chapter, I examine a case study in Griko which can be considered as exception to this general tendency.

I focus on formations with the formative *-idz(o)* which is a productive verb-forming suffix in Griko. This suffix attaches to nominal bases in order to form verbs. However, the examination of the data reveals that in some formations *-idz(o)* does not have the features of the original suffix and thus it could be considered to be redundant.

In Griko we find a significant number of verbal pairs with and without the verbal suffix which do not show any semantic opposition or difference in the valency and thus we are forced to go beyond the classic explanations and to seek another explanation. I raise the question of what the grammatical status of this formative in this type of formation is, and how these formations arise in the first place. In Griko we notice a cross-paradigmatic levelling which leads to the merging of the inflectional paradigms. Verbs of the second inflectional class reshape in favour of the first inflectional class. It is claimed that the formative *-idz(o)* plays an important role in this change. At this point, the notion of *morphomes*, as developed in Aronoff (1994), comes into play. I propose that *-idz(o)* has lost its original derivational status in some formations and has acquired a more stem-forming (morphomic) status. I argue that the appearance of *-idz(o)* on specific verbal formations signals the change in the Inflectional Class. In other words, *-idz(o)* as part of a specific verbal formation has shifted to an operator-like function.

This leads us to the issue of what the grammatical procedure behind this functional change is. It is not *a priori* clear whether one can assume that such a functional change is predicted by grammaticalization. A well-studied case of grammaticalization in word formation is the relation between compounding and derivation. However, less attention has been paid to the relation between derivation and inflection in the development of languages. The question that naturally arises is the following: *can we assume a transition between derivation and inflection in the course of time?* The aim of this chapter is to discuss this question. At this point, it should be mentioned that the present chapter is not intended as a diachronic study, but rather the focus is on a case-study that shows the synchronic situation of a change in progress. In other words, I examine whether and how grammaticalization is reflected in the synchronic grammar. I argue that although a derivational element can hardly ever become an inflectional one, it is not impossible to find some cases which falsify this claim. In other words, we can assume an interaction between inflection and derivation, but this process is not unrestricted. In the light of data analysed in this paper, I would like to propose that if a derivational element is to be grammaticalized, a possible developmental path to follow is to acquire a morphomic status, that is, a purely morphological status.

In the last part of the present chapter I address the question of how we can analyse and formally represent this type of formations. In other words, *should we assume that we have one or two affixes?* There are two important issues that we need to take into consideration: (a) *-idz(o)* formations show a great variation at a synchronic level, and (b) the grammaticalization process of the *-idz(o)* formations has affected the synchronic grammar. I argue that this type of change can be considered as a type of constructional change in the sense that a new pattern, which is part of the general pattern of the *-idz(o)* formations, has been created.

The chapter is structured as follows: I treat, first, the range of variation in the derivative formations (4.1) and describe the peculiar formations which display the element *-idz(o)* (4.2). After that, I give a brief sketch of the inflectional system of Griko (4.3) and present the notion of empty morphemes (4.4). I examine the change of *-idz(o)* in specific word forms and I argue that *-idz(o)* has acquired a more inflectional status. Finally, I address the formal representation of the process (4.5).

4.1 Setting the stage

4.1.1 Verb forming suffixes in Griko

Griko has a great number of derivational affixes (both prefixes and suffixes) which are still productively used. However, since these affixes differ significantly in their semantic content and function, we need to classify them.

Bybee (1985: 82 ff) argues that we must recognize two types of derivational morphemes: those that change the syntactic (or lexical) category of the word to which they apply, and those that do not.[90] Bybee claims that large meaning changes are characteristic of derivational processes which do not change lexical categories and that derivations that change the syntactic category of a word result in varying amounts of semantic change, depending on how much semantic content they contribute along with the category change.[91] Some morphemes may bring a category change but add little further meaning, and thus border on inflection.[92] A classic example is the English suffix -*ly* that is added to adjectives to produce adverbs. This suffix does not change the quality described by the adjective, although it does add the meaning that the word describes the manner in which the event took place.

In a similar vein, Hopper and Traugott (2003 [1993]) mention that many derivational formatives add meaning without affecting the category in question. For example, the *un-* of the adjective *unhappy* adds to the adjective *happy* the meaning 'not' but it does not change the adjectival status of the word (2003 [1993]: 5); such derivational morphemes can be called 'lexical derivational morphemes'. Other derivational formatives not only add meaning but also serve to indicate the grammatical category; thus, they can be considered to play a role between content and grammatical form. These elements can be called 'grammatical derivational morphemes'. An example of this category is the English suffix -*er,* as in *swimmer*, which derives a noun from the verb *swim* (Hopper & Traugott, 2003 [1993]: 5).

The focus of the present section will be on the verb-forming suffixes in Griko. In Greek we find a number of derivational suffixes that have as their principal function the formation of verbs, the so-called *verbalizers* (see Ralli 1988, 2005). These suffixes attach to nominal, adjectival or adverbial bases to form verbs, but they differ with respect to the degree of their productivity and the formal and semantic restrictions that they impose on the base. Functionally, the appearance of a verbalizer in a formation flags the verbal category, defines the inflectional class, and allows the item to receive a Greek inflectional ending (Ralli 1988, 2005). Consider the following examples from Standard Modern Greek (SMG):

(1)

psar-eu-o 'to fish'   <   psari 'fish'

STEM-VBZR-INFL   N.NOMV.SG

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[90] Beard (1995) also distinguishes between derivations reflecting a change in lexical class only, such as *dry* (A) → *to dry* (V) versus derivation reflecting a change in both the lexical class and the grammatical function, such as *recruit* (V) → *recruiter* (N).

[91] Lieber (2004: 38) argues against this idea and claims that even transpositional affixes have semantic content in the form of semantic features.

[92] Bybee assumes a continuum along which morphemes are placed according to their semantic characteristics (see also chapter 1).

kont-eu-o 'to approach'   <   konta 'close'

STEM -VBZR-INFL   ADV

afr-iz-o 'to foam'   <   afr-os 'foam'

STEM-VBZR-INFL   N-NOMV.SG

kamak-on-o 'catch with a fish spear'   <   kamaki 'fish spear '

STEM-VBZR-INFL   N.NOMV.SG

zest-ain-o 'heat up'   <   zest-os 'warm'

STEM-VBZR-INFL   N-NOMV.SG

Similarly, Griko has a number of Greek-based verb-forming suffixes, among which only -*idz(o)*[93] and -*eu(o)* are productive. The verb-forming suffix -*eu(o)* attaches mostly to nouns and adjectives to form both transitive and intransitive verbs:

(2)
xor-é(u)-o 'to dance'   <   xor-ós 'dance'

NOM-VBZR-INFL   N-NOMV.SG

klat-é(u)-o 'chop off'   <   klatí 'branch'

NOM-VBZR-INFL   N.NOMV.SG

alatr-é(u)-o 'to plough'   <   álatr-o 'plough'

NOM-VBZR-INFL   N-NOMV.SG

Note that -*eu*- is subject to phonological reduction in which case it is pronounced as -e (Karanastasis, 1997: 34).

The suffix -*idz(o)* is a form variant of the SMG verb-forming suffix -*iz(o)*. This suffix attaches mostly to nouns and adjectives to form both transitive and intransitive verbs[94] (Karanastasis, 1997: 34):

(3)
θer-idz-o 'reap'   <   θer-os 'reaping'

NOM-VBZR-INFL   N-NOMV.SG

koššin-idz-o 'to sift'   <   koššin-o 'sifter'

NOM-VBZR-INFL   N-NOMV.SG

The derivational morpheme -*idz(o)* has a free variant, that is, -*iadz(o)*, which appears with the same bases as *idz(o)*. Consider the following examples:

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[93] The inflectional suffix is indicated in parentheses.
[94] The same suffix can be found in some Italo-Romance dialects and, as Maiden (2003) argues, there are some grounds to link this element directly to an iterative-intensive meaning.

(4)

adynat-idz-o 'lose weight'	*and*	adynat-iadz-o	'lose weight'
STEM-VBZR-INFL		STEM-VBZR-INFL	
vaθar-idz-o 'drain'	*and*	vaθar-iadz-o 'drain'	
STEM-VBZR-INFL		STEM-VBZR-INFL	

As has been argued by Ralli (2012), both *-eu(o)* and *-idz(o)* become involved in the accommodation of verbal loanblends and show an interesting distribution. Ralli argues that *-eu(o)* is the suffix that is called into play for the accommodation of verbs which display an Italian/Romance root, whereas in cases of Greek bases the suffix *-idz-* is used (Ralli, 2012: 122):

(5)

nat-e-o[95] 'swim'	<	NATARE 'swim'	Italian (Salentine dialect)
BASE-VBZR-INFL			
akkout-e-o 'pay'	<	QUITARE 'pay'	Italian (Salentine dialect)
BASE-VBZR-INFL			
versus			
koššin-idz-o 'sift'	<	koššin-o 'sifter'	Greek
N-VBZR-1SG		N-NOMV.SG	

To conclude, Griko has two different derivational suffixes that have as principal function to form verbs from nominals (nouns or adjectives): *-idz-o* and *-eu(o)*. In the next section, we will examine some 'peculiar' formations with the suffix *-idz(o)*.

4.1.2 Peculiar derivational formations

Cross-linguistically, we notice a number of formatives which are ambivalent between inflection and derivation. Stump (2005a) examines *synthetic causatives* in Sanskrit and observes that alongside most verbal lexemes there is a corresponding causative lexeme whose present-tense stem is marked by the suffix *-aya*, as in the following table (from Stump, 2005a: 294):

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[95]It is worth noticing that in Griko verbal loans, only the Romance root is retained; the Romance ending is truncated and replaced by the corresponding Greek one (Ralli, 2012: 121).

Table 22: Sanskrit verbs and their causative derivatives in *-aya*

Sample root		Simple present-system stem		Causative stem
		Form	**Class**	
√*vad*	'speak'	*vada-*	I	*vādaya-*
√*dviṣ*	'hate'	*dveṣ-*	II	*dveṣaya-*
√*dā*	'give'	*dadā-*	III	*dāpaya*
sam√*pad*	'succeed'	*sampadya-*	IV	*sampādaya-*
√*śru*	'hear'	*śṛṇo*	V	*śrāvaya-*
√*kṣip*	'throw'	*kṣipa-*	VI	*kṣepaya-*
√*yuj*	'yoke'	*yunaj-*	VII	*yojaya-*
√*kṛ*	'make'	*karo-*	VIII	*kāraya-*
√grah	'seize'	*gṛhṇā-*	IX	*grāhaya-*

The question is whether *-aya* should be regarded as a mark of inflection-class membership or as a mark of derivation. As Stump (2005a: 293-4) himself points out, although the difference between inflection and derivation is in principle a clear one, it is, in practice, sometimes quite difficult to distinguish a mark of inflectional class membership from a mark of derivation. This stems from the fact that a derivational rule (or pattern) often has the effect of assigning its derivatives to a particular inflectional class and, for this reason it would be logically possible for the set of stems bearing a particular mark of derivation to be exactly the set of stems available to a particular subset of inflectional rules.

We now turn to the examination of the peculiar derivational formations with *-idz(o)* in Griko. Karanastasis (1997) points out that some simple verbs display a parallel form with the formative *-idz(o)* which does not signal any semantic opposition between the two forms. His observation reads as follows (Karanastasis, 1997: 94):

'Μερικὰ προέρχονται ἀπὸ τὰ ἀρχαῖα σὲ -έω ἀπὸ παρασυσχετισμὸ τοῦ ἀορ(ίστου) σὲ -ησα μὲ τὸν ἀόρ(ιστο) -ισα τῶν ρ(ημάτων) σὲ -ίζω'

[Some verbs originate in the Ancient Greek contract verbs in *-eo* due to an erroneous linkage between their Aorist in -ησα and the Aorist -ισα of the verbs in -izo][96]

It should be mentioned that after the Hellenistic period Ancient Greek η = /e:/ was raised to /i:/ (long i) and since in broadly the same period the distinction between long and short vowels was also lost, /i:/ became /i/ (short i) (Horrocks, 2010: 160). Thus, the suffix *-ησα* and the suffix *-ισα* became homophonous. Karanastasis claims that the fact that a certain

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[96] Translations and additions in the parentheses are the author's.

stem ends in /i/ prompts the selection of a suffix beginning with /i/ and thus paradigmatic interference leads to the change of the present stem and the addition of the element -*idz(o)*.

Although Karanastasis pinpoints the phenomenon, he does not provide abundant evidence for his claim. A more detailed classification of the data reveals that -*idz(o)* verbal formations form a mixed group which contains three different groups:

Group A: Verbs which are directly inherited from Ancient Greek:
(6)
θer-idz-o 'reap'   <   θer-os 'reaping'
STEM(N)-VBZR-INFL   STEM(N)-INFL

Group B: Synchronic formations where -*idz(o)* functions as a verbalizer:

(7)
alat-idz-o 'to salt'   <   alati 'salt'
STEM(N)-VBZR-INFL   STEM(N.NEU.NOMV.SG)

Group C: Verbal formations which have been reshaped, displaying -*idz*- between the verbal base and the inflectional ending:

(8)
[apor-idz-o]ᵥ 'to lack'   *versus*   apore-o 'to lack'[97]
STEM(V)-IDZ-INFL   STEM(V)-INFL

Formations in (6) and (7) should be considered as derivatives, whereas formations like those in (8) do not have a straightforward explanation. The examination of the raw data from the dialect shows that group (c) contains a great number of such 'peculiar' verbal pairs with parallel forms:

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[97] It is important to notice that this verb has retained the classical Greek meaning, whereas in SMG the same verb has the meaning of 'to wonder'.

Table 23: *-idz(o)* verbal formations in Griko

Formations without *-idz(o)*	Formations with *-idz(o)*
Group A: *-eo* verbs[98]	
lyp-o (lypeo) 'mourn, feel sad'	[lyp-idz-o]$_V$ 'mourn, to feel sad'
STEM(V)-INFL	STEM-IDZ-INFL
var-o (vareo) 'weigh, make sb feel sad'	[var-idz-o]$_V$ 'weigh, to make sb feel sad'
STEM(V)-INFL	STEM-IDZ-INFL
krat-o (krateo) 'hold'	[krat-idz-o]$_V$ 'hold'
STEM(V)-INFL	STEM-IDZ-INFL
Group B: *-ao* verbs	
aγap-o (agapao) 'to love'	[aγap-idz-o]$_V$ 'to love'
STEM(V)-INFL	STEM-IDZ-INFL
vront-o (vrontao) 'to thunder'	[vront-idz-o]$_V$ 'to thunder'
STEM(V)-INFL	STEM-IDZ-INFL
pon-o (ponao) 'feel pain'	[pon-idz-o]$_V$ 'feel pain'
STEM(V)-INFL	STEM-IDZ-INFL
tsungl-o (tsunglao) 'to ground'	[tsungl-idz-o]$_V$ 'to ground'
STEM(V)-INFL	STEM-IDZ-INFL

By examining of the data in the table above we can extract the following observations: (a) verbs in the two columns differ only with respect to their formal make-up, that is, the appearance of the formative *-idz(o)*; and (b) not only verbs in *-eo*, but also verbs in *-ao* show the same 'erroneous linkage'.

The formations which do not display the formative *-idzo* should be considered as basic since they have historical precedence. The question that comes next concerns the grammatical status of the suffix *-idz(o)*.

4.2 The problematic nature of the *-idz(o)* formations

In order to examine the grammatical characteristics of *-idz(o)* in cases where it does not have a clear grammatical status we need to invoke specific criteria. These criteria will show whether it has the characteristics of prototypical derivational suffixes.

Criterion 1: change in the lexical category

'The basic function of derivational processes is to enable the language user to make new lexemes. Lexemes belong to lexical categories such as N, V, and A and the derived lexemes may belong to a different category than their bases.' (Booij, 2007: 51).

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[98] As has been already noticed, this category should not be confused with the verbs ending in *-eu(o)*.

Based on the lexicalist assumption that stems are inherently specified as to their category (cf. Ralli, 1988, 2005), I assume that the formations without the formative *-idz(o)* are inherently specified as to the verbal category.[99] The same holds for the formations with the formative *-idz(o)*, which are also specified as verbs. This fact suggests that the addition of the *-idz(o)* does not affect the category of the base.

Criterion 2: semantic contrast between derived stems and their bases

'A mark of derivation signals a particular semantic relation between two lexemes. A mark of inflection-class membership does not, in itself, signal a particular semantic relation between two lexemes.' (Stump, 2005a: 297)

The *-idz(o)* formative, as shown in table (23), does not signal any semantic opposition between the members of the pairs.

Criterion 3: change in valency

'Valency-changing categories generally have many of the properties that are considered as characteristic of derivation as opposed to inflection' (Haspelmath & Müller-Bardey, 2004: 1139)

In SMG, the derivational suffix *-iz(o)* forms both transitive and intransitive verbs.[100] For example, we have the transitive verb *fylak-izo* 'imprison' which is derived from the noun *fylaki* 'prison' and the intransitive verb *adynat-izo* 'lose weight' which is derived from the adjective *adynatos* 'slim'.

The same holds for the derivational suffix *idz(o)* in Griko. In Griko, we have the transitive verb *alat-idzo* 'to salt' which is derived from the noun *alati* 'salt' and the intransitive verb *engydzo* 'to approach' which is derived from the adverb *engys* 'near'. The addition of the formative *-idz(o)* to verbs that originally do not display this element does not change the valency of the base.

As shown above, the formative *-idz(o)* does not meet the criteria for derivational affixes and, thus, cannot be considered as a prototypical derivational suffix. In these formations, *-idz(o)* attaches to bases that are already specified as to the verbal category

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[99] Within a different theoretical model, as for example in D(istributed) M(orphology), roots (or stems) do not have any categorical specifications. Thus, an alternative analysis might suggest that the parallel forms (with and without this additional element) in these pairs are derived from a category-less common root (or stem) and the addition of this element assigns category to the stem. In accordance with DM, Drachman (p.c.) argues that *-idz-* is attached to an unspecified root, turning it into a verb. However, this solution does not explain the empirical fact that there are verbs without the derivational suffix and thus leaves open the question of what happens with category assignment in these formations.

[100] See Efthymiou *et al.* (2012) for a comprehensive discussion of the suffix *-iz(o)* in SMG.

and is a recurrent formative to which no meaning or function can be assigned.[101] Thus, we need to seek another explanation.

However, it may well be that *-idz(o)* has no status independent from the base, and therefore can be considered as reanalysed part of the stem. Interestingly, *-idz(o)* shows behaviour which resembles the characteristics of prototypical affixes: (a) it always attracts the stress and (b) in some forms it can be interchangeable with the allomorph *-iadz(o)* which is clearly derivational (see examples in (4)). These characteristics show that *-idz(o)* cannot be considered as lexicalized. The question that follows from this is: *what is the grammatical status of the formative -idz(o)?* To answer this question we need to go beyond the classic explanations and examine the inflectional system.

4.3. Verbal inflectional classes in Griko

The verbal inflectional system of Griko has not been extensively discussed in the literature and thus it is necessary to start with the description and classification of the verbal inflectional classes (conjugations).

Karanastasis (1997: 83 ff.), in his traditional description, claims that Griko verbal inflection is mainly structured around two major inflectional classes which can be classified on the basis of two different stress patterns: the first inflectional class encompasses verb formations with a non-final stress in the citation form (first person singular of the present tense indicative), for example *alatídzo* 'to salt', whereas the second inflectional class encompasses verbs with a final stress in the citation form. The latter pattern is further split into two subclasses, that is, verbs with a stem ending in *-e*, e.g. *omiléo> omiló* 'speak', and verbs with a stem ending in *-a*, e.g. *agapáo> agapó* 'to love'.

Karanastasis's classification is mainly influenced by the criteria initially applied in the verbal system of Classical Greek. In Classical Greek the -ω sonantic (or vocalic) verbs, i.e. verbs ending in -ω in the citation form, are classified into: barytones (uncontracted) and contracted verbs (Jannaris, 1897: 181). The latter have been called contract because their stem-final/thematic vowel (/a/, /e/ or /o/) has fused together with the initial vowel of the inflectional ending due to a phonological rule of contraction.[102] This rule, although very productive in Ancient Greek, had already disappeared in the Hellenistic period (circa 3rd c.BC-3rd c.AD) and cannot be considered as productive synchronically.

As has been shown by Ralli (1988, 2005), since the phonological rule of contraction is not productive anymore, verbs in Modern Greek cannot be classified according to this

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[101] In terms of grammaticalization, the *-idz(o)* element is subject to context generalization (or extension) and decategorialization (see Heine, 2003).
[102] *Contraction* is the phonetic or graphic fusion, originally under the influence of accent, of two successive sonants within one word into one sonant, naturally intensified ('lengthened') at the time of contraction, but soon afterwards unconsciously reduced to the level of normal or common sonants (Jannaris, 1897: 87).

criterion. The most reliable indicator of the inflectional class of the verb should be considered the pattern of stem allomorphy, while the stress pattern can provide a secondary cue of class membership.

Since Griko is a Greek-based dialect, verbs follow this pattern and are organized on the basis of their stem allomorphs. The Griko verbal system has two major inflectional classes (IC) and can be organized as follows: The second inflectional class (IC2) encompasses verb formations which display a systematic allomorphic pattern, whereas verbs of the first inflectional class (IC1) do not. The second inflectional class can be further divided into two sub-classes according to the final vowel of the stem (see tables 25 and 26) (from Karanastasis, 1997: 87, 89). The classification of the verbal system can be analysed as follows:

Table 24: Griko IC2a: X(a)~Xi

	Present	**Aorist**
1SG	agap-ó[103]	agápi-s-a
2SG	agapá-(s)	agápi-s-e(s)
3SG	agapá	agápi-s-e
1PL	agap-oúme	agapí-s-amo/egapi-same
2PL	agapá-te	agapí-s-ato
3PL	agap-oúne	agapí-s-ane

Table 25: Griko IC2b: X~Xi

	Present	**Aorist**
1SG	omil-ó	omíli-s-a
2SG	omil-eí(s)	omíli-s-e(s)
3SG	omil-eí	omíli-s-e
1PL	omil-oúme	omilí-s-ame
2PL	omil-eíte	omilí-s-ate
3PL	omil-oúne	omilí-s-ane

Table 26: Griko IC1: no allomorphy

	Present	**Aorist**
1SG	alatídz-o	alátis-a
2SG	alatídz-ei(s)	alátis-e(s)
3SG	alatídz-ei	alátis-e
1PL	alatídz-ome	alatís-ame/alatís-amo
2PL	alatídz-ete	alatís-ato
3PL	alatídz-oune	alatís-ane

At this point it is necessary to underline some basic points concerning the forms in these tables:

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[103]In these verbs the stem merges with the inflectional ending, and thus the morphemic analysis is not straightforward.

(a) Verbs in the Aorist and Imperfect tense may have a prefixed verbal augment *e-*[104], e.g. *egápisa*, *egápi-s-e(s)* etc.

(b) The suffix *-s-* which manifests itself between the stem and the person/number/tense endings is an aspectual marker (Ralli, 2003, 2005). This marker gives the perfective value to forms like: *omíli-s-a* 'speak' BASE-ASP-1SG.AOR.

(c) The appearance of the aspectual marker *-s-* causes morphophonological alternations in forms which end in a consonant. As a matter of fact, the stem *alatídz-* (Present tense) becomes *alátis-* (Aorist tense), dz+s>s (NB *-is-* is the derivational marker).

(d) Griko shows a preference towards the optimal shape of syllables (CV shape) and, thus, the final *-s* is often dropped.

4.3.1 Cross-paradigmatic levelling in Griko

Maiden (2003: 5) argues that in the diachronic development of languages 'speakers actively seek out, then reinforce and generalize recurrent patters of similarity and difference between "cells" of the morphological paradigms across lexemes […] That speakers recognize and maximize such patterns is manifest in the fact that paradigms display "coherence" […] and may be subject to "convergence"'. An example of this convergence is paradigmatic (or analogical) levelling. Paradigmatic levelling refers to the process which reduces the number of allomorphs a form has and 'levels out diversity in the paradigm' (McMahon, 1994: 73).

Griko shows a tendency for elimination of the differences between its verbal inflectional classes (verbal paradigms) (cf. Karanastasis, 1997; Katsoyannou, 1995b (for similar tendencies in the Greek dialect spoken in Calabria); Tommasi, 1996). The two (major) inflectional classes display a significant difference with respect to their productivity: IC1 displays high productivity and can be considered as the default paradigm in the verbal system, whereas IC2 is a paradigm with lower productivity.

The difference in productivity of the two paradigms plays an important role in the change of the inflectional system. Many verb formations tend to change inflectional class by shifting from IC2 to IC1. However, the process of elimination of the verbal inflectional classes raises an important question. This question concerns the forces, i.e. both internal pressures within the grammar and external factors, that may lead to change.

4.3.2 Forces motivating paradigmatic levelling

It is a customary in language-change studies to assume that languages can change either because of internal-processes or as a result of 'external' influence, that is, language contact (see the relevant discussion in, among others, Aikhenvald, 2007; Ralli, 2012). Only a few espouse the traditional view that change follows universal, language-internal

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[104] See also chapter 5 for the discussion of the augment.

principles such as simplification, and takes place in the absence of contact with other varieties (Gardner-Chloros, 2010: 194). Based on the fact that Griko is a dialect of Greek origin in long-standing language contact with both the local Romance dialects and Standard Italian, one must examine not only the internal pressures, but also the external factors that may play a role in language change.

4.3.2.1 Internal pressures

In this section, I present the pressures in the linguistic system itself (internal motivations) for cross-paradigmatic levelling. I will not focus on paradigmatic levelling and the grammatical mechanisms that are responsible for changes inside inflectional paradigms. Rather, the focus will be on the elimination of verbal paradigms and the consequent 'simplification' of the verbal system.

Early generative approaches viewed analogical change (in the sense of morphological change) as grammar change and, moreover, as grammar simplification (Hock, 2003). Kiparsky (2005) proposed that analogical change can be seen as *grammar optimization*, i.e. the elimination of unmotivated grammatical complexity or idiosyncrasy. Perhaps the most widely accepted tendency of analogical change is the notion that levelling serves to establish the 'one meaning-one form' principle and to eliminate variation that does not serve a morphological purpose. This tendency has been named *von Humboldt's Universal* by Vennemann (1972).

From a synchronic and typological point of view, Corbett (2009) introduces the canonical approach to inflectional phenomena. Corbett defines canonical inflection as follows (2009: 1):

'In canonical inflection, we find a unique mapping from form to function, and from function to form. It does not matter at this stage whether such a system exists: the point is that we can define it, we can recognize it if we find it, and it gives us a measure of canonicity according to which we can calibrate the instances of inflectional morphology which we find'.

According to this approach, it is possible to distinguish morphological phenomena according to how closely they adhere to the ideal of one-to-one form-meaning correspondence. In this view, the existence of multiple (more than one) inflectional classes in a system constitutes a deviation in the inflectional system.

Let us now examine the reorganization of the Griko inflectional system. Griko has two major inflectional classes and three sub-classes, a fact that may render the system susceptible to morphological change. I would like to propose that since the verbal inflectional system is not canonical, it tends to eliminate this flaw in its canonicity by reorganizing its paradigms. The key factor behind this change is the difference in

productivity between the two major inflectional classes. As argued by Hock (2003: 446), the concept of productivity is clearly a valid one and plays a major role in analogical (or morphological) change, although there is no ready-made answer to the question of what makes a particular type of formation productive. The paradigms that are more likely to be eliminated are the paradigms with lower productivity. These paradigms tend to reshape in favour of those paradigms with higher productivity.

4.3.2.2 External pressures

Let us now turn to the external pressures that may lead to language change and the elimination of verbal inflectional classes in Griko. Language contact may cause either *complexification* or *simplification* of the linguistic system (cf. Trudgill, 2001; Siegel, 2008).[105] As Nichols puts it: 'contact among languages fosters complexity, or, put differently, diversity among neighbouring languages fosters complexity in each of the languages' (from Trudgill, 2001: 264). Simplification can be conceived of as the reverse process of this and may be based on quantitative or qualitative criteria (cf. Siegel, 2008: 19 ff.). Simplification seems especially likely to attack inflection (Trudgill, 2010: 306-207).

With regard to the Griko data, we can claim that the elimination of the verbal inflectional classes (that is, simplification) comes as a 'self-protection' of the system against the changes that language contact with Italian may cause.[106] But this is only a general observation and it is not watertight. We need to note that levelling in inflection may lead to simplification, but, at the same time, complexity may be created in another aspect of the morphological system (cf. De Groot, 2008). For example, as will be shown in the next sections, the elimination of the verbal inflectional classes leads to complexification of the morphological patterns of the verbs since the transition from one inflectional class to the other is realized through the addition of an extra element (complexity created as far as the stem is concerned). Moreover, we cannot claim that the shift from IC2 to IC1 is due to contact with Italian, since the dominant system, i.e. Italian, has more than one inflectional class (see Napoli & Vogel 1990, for the discussion of the Italian verb conjugations).

In sum, I would like to claim that Griko, which is in contact with Italian and the local varieties, may change independently of the dominant varieties. However, contact may have also enhanced change, in the sense that the embedded language (Griko) has become more sensitive to change.

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[105] Haugen (1950: 225) considers the term 'simplification' as 'scientifically questionable' and uses the term 'structural reorientation' in order to describe this type of phenomena.
[106] Language contact may lead to *language death* which 'mainly occurs in unstable bilingual or multilingual speech communities as a result of language shift from regressive minority language to dominant majority language' (Dressler, 1988 from McMahon, 1994: 284). The gradual changes which are the linguistic concomitant of langauge shift can be described as *linguistic obsolescence* (op. cit.: 285).

4.4 Empty morphs and the element *-idz(o)*

4.4.1 Empty morphs and morphomes

The findings of section 4.2 can be summarized as follows: *-idz(o)* in some formations does not have either clear semantic content or a morphosyntactic function. Thus, the question of the status of *-idz(o)* still remains open. This will be the topic of the present section.[107] Let us start with the discussion of similar cases in the bibliography. Hockett (1947) in his classic paper examines the problems of morphemic analysis and points out some 'special' cases of morphemes 'which have no meaning and belong to no morpheme' (Hockett, 1947: 333).

Aronoff (1994) examines a range of such 'empty morphs' and introduces the notion of *morphome*. *Morphome* is 'to be understood as a morphologically abstract function relating to the distribution of a morphological entity' (O' Neil, 2011: 70). Aronoff (1994) argues that the notion of morphome comes into play when the mapping from morphosyntax to phonological realization is not direct but rather passes through an intermediate level.

An interesting aspect of the empty morphs is the origin of such elements. This aspect has not been extensively discussed in the literature. Maiden (2005) examines the same problem from a diachronic point of view and argues that we can also find morphomes in the diachronic development of languages. On the basis of the Griko data, I will try to shed light upon this issue.

An interesting example of a genuine derivational morpheme that has changed its morphological status over time can be found in the development of the Romance languages. In the fourth conjugation of the Italian verb system, we find both the verbs *sentire* 'feel, hear, smell, perceive, sense' and *percepire* 'perceive, sense', which are inflected as shown in table (27).[108]

According to Maiden (2003), these verbs have the same formal make-up (stem+inflectional suffix), except that in the first, second and third person of singular and the third person of plural of the present indicative and *only* in these cells of the paradigm, *percepire*, unlike *sentire*, has the element *-isc* immediately following the lexical stem. This element does not have any function or particular semantic nuance, either syntagmatically or paradigmatically (from Maiden, 2003: 1):

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[107]A preliminary version of this section has been published in Koutsoukos and Ralli (2013).
[108] This issue has been matter of considerable discussion in the literature (see Kaye, 2010; Maiden, 2003; Vincent, 1988, and the references therein). The analysis presented here follows Maiden (2003).

Table 27: Italian verbs fourth conjugation

Infinitive		sentìre	percepìre
Gerund		sentèndo	percepèndo
Past participle		sentìto	percepìto
Present indicative	**1SG**	sènto	percepìsco
	2SG	sènti	percepìsci
	3SG	sènte	percepìsce
	1PL	sentiàmo	percepiàmo
	2PL	sentìte	percepìte
	3PL	sèntono	percepìscono

It is noteworthy that the inflectional element *-isc* is a continuation of the Latin derivational suffix *-sc-*.[109] As Maiden points out, the broad consensus about Latin *-sc-* is that it carried 'ingressive' value, i.e. expresses the meaning of 'becoming/entering a state'. For example, there is a semantic difference between the verb *taceo* 'I am silent' which expresses a state 'of being silent' and the verb *contice-sc-o* 'I become silent' which expresses the meaning 'entering the state of being silent'. While principally associated with intransitive verbs, in later Latin the 'ingressive' value spreads to transitive verbs, thereby acquiring what it might be best described as 'transformative meaning'. In later Latin there is no discernible distinction between these forms and their counterparts which do not display this element.

The analysis of this data suggests, in my view, that *-sc-* has acquired a morphomic function in the course of time. In other words, the otherwise derivational suffix *-sc-* has started a new life in its own right as an inflection-class indicator which led to a demise of its earlier derivational status.

It is also worth mentioning some similar examples in the development of the IE languages from the Proto-IE parent language.[110] According to Meillet (in Clackson, 2007: 151 ff.), the organization of verbal stems in PIE is fundamentally different from the system found in modern IE languages, where each verb belongs to a conjugation with a discrete number of stems and forms. In PIE, each verb may show a wide range of differing formations attested as present or aorist tense stems from the same root. These stems were held to show different 'nuances' of aspectual meaning (or, to use the German term, *Aktionsart*). Clackson (2007: 152) shows that athematic verbs are in general a relic class, replaced over the history of individual languages by thematic formations and *patterns of associations* between certain present stems and aorist stems have started to emerge. For example, the root *$leik^w$-* 'leave' displays these two different stems *li-ne-k^w-t* (Latin *linquit*) and *$leik^w$-e-* (Greek *leípō*). The nasal infix in the form *li-ne-k^w-t* is overwhelmingly found beside root aorist formations and need not have any particular

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[109] It should be mentioned that the same element, i.e. *-isk-*, is found in many Greek dialects, for example in Pontic, Maniot and Cypriot Greek.

[110] I would like to thank N. Pantelidis for bringing this point into my focus.

Aktionsart in late PIE: it is just one marker of the present stem (Clackson, 2007: 153). As Clackson states, although such affixes may have been grammaticalized as markers of tense and aspect stems in late PIE, there is much current research attempting to elucidate their earlier function. In some cases, they can be seen to have a *causative function* or in other cases they may have functioned as markers of *transitivity*.

Similar cases can be found throughout the history of Greek. Horrocks (2010: 303) mentions the following:

‘During the early and middle [Byzantine] periods there was a great reduction in the variety of imperfective formations, a process principally involving extensive remodellings on the basis of the aorist stem and other related forms.’

An often-cited example is the suffix *-on(o)*. This suffix was developed through the phonological similarity between the aorist form of the so called ‘*n verbs*’ (verbs with a stem-final *-n*) and the aorist of the old contract verbs in -oō. For example, *zóno* ‘I gird’ which forms aorist as *ézosa* ‘I girded’ shows a phonological similarity with the verb *diloō* ‘I declare’, which forms aorist as *dilosa* ‘I declared’. This phonological similarity in the aorist forms led to most of the old contract verbs acquiring parallel presents in *-on(o)*, *e.g. dēloō* AG >*dilono* (cf. Horrocks, 2010: 305). During the 7th c. A.D. *-on(o)* started acquiring an operator-like function, that is, it was used for the recharacterization of the Ancient Greek contract verbs in -oō (among others, Babiniotis, 1972· Katsouda, 2007: 75). Synchronically, *-on(o)* is still used as a verb-forming suffix, *e.g. kamak-on-o* ‘catch with a fish spear’ < *kamaki* ‘spear’, but it also has a purely morphological status signaling the recharacterization of the Ancient Greek contract verbs in -oō according to the first conjugation in SMG (Ralli, 2005).

This type of change has been extended to several bases through analogical extension and has resulted in a number of pairs of verbal formations that have the same base (or root) and the same meaning, but different morphological make-up in the present form; that is, the same verbal bases can appear both with an extra formative (which in most cases used to be a pure derivational suffix at earlier stages of the language) and without this element (bare stem). The following passage from Hatzidakis (1905 [1892]: 267-268) illustrates this situation:

‘Πολλῶν ῥημάτων ὁ ἐνεστὼς ἐσχηματίζετο κατὰ δύο καὶ τρεῖς ἐνίοτε τρόπους, ἄλλοτε μὲν μετὰ τῆς αὐτῆς, ἄλλοτε δὲ μετὰ διαφόρου σημασίας […] Πάντα ταῦτα καὶ τὰ τοιαῦτα ὀφείλουσι κατὰ τὰ εἰρημένα νὰ ἐκβληθῶσι πρῶτον ἐκ τῆς ἐρεύνης ὡς ἀλλότρια καὶ μετὰ ταῦτα τὰ ὑπολειφθέντα νὰ ταξινομηθῶσι καὶ οὕτω ζητηθῇ ἡ αἰτία τῆς μεταβολῆς αὐτῶν ἥτις […] κεῖται ἀπλούστατα ἐν τοῖς ὁμοίως περατουμένοις ἀορίστοις καὶ μέλλουσι.’

[The present form of many verbs was formed in two or –sometimes– three different ways, sometimes with the same and sometimes with different meaning […] All these and similar forms should be excluded from the study -according to what has been claimed previously- because they should be considered as peculiar forms and then the remaining forms should be classified; the reason behind this change lies in the similar formation of the Aorist and the future]

A significant difference between the development of this type of element in Modern Greek and Latin/Italian verbs of the 4th conjugation is the fact that *-isc-* has accomplished the change, whereas in Greek none of these elements has accomplished the process.

The same phenomenon can also be observed in many Greek dialects (Hatzidakis 1905 [1892]; Katsouda, 2007). Regarding this issue, Katsouda (2007: 237) mentions:

'Οι ρηματικοί μεταπλασμοί στην Κοινή Νέα Ελληνική έχουν μερικό χαρακτήρα, δηλαδή ένας μεγάλος αριθμός ρηματικών τύπων μιας συγκεκριμένης κατηγορίας μένει αμετάπλαστος, ενώ στις διαλέκτους έχουν καθολικότερο χαρακτήρα'

[The verb recharacterizations in Standard Modern Greek are more limited, i.e. a large number of verb formations in a given category remain unconverted, whereas recharacterizations in the dialects are more widespread]

At this point, it should be mentioned that some Greek dialects show the reverse process or show both processes at the same period (Hatzidakis, 1905 [1892]; Katsouda, 2007). For example, in the dialects spoken on Lesbos (Lesbian and Aivaliot) a great number of IC1 verbs have acquired the X(a) form which originally belongs to the IC2 verbs. Thus, these verbs conform to the systematic allomorphy pattern X(a) ~ Xi and, as a result, they have changed inflectional class (from IC1 to IC2) (Ralli, 2006: 336-337):

Table 28: Change of the IC in Lesbian and Aivaliot

Present Form		Past tense [-perfective]	Aorist	Allomorphy pattern: X(a) ~ Xi
1SG[111]	aroust-o	arost-oum/arostoumna	arost-sa < arosti-sa	aroust(a) ~ arousti
	zv-o	zouv-oum/zouv-oumna	zouf-sa < zouvi-sa	
2SG	arousta-s	arosta-s	arost-sis < a'rosti-ses	z(ou)v(a) ~ z(ou)vi
	zva-s	zouva-s	zouf-sis < 'zouvi-ses	

4.4.2 The role of *-idz(o)* in Griko

In this section, I discuss the nature of *-idz(o)*. Following the analysis of the previous section, the question that will be addressed is: *can we assume that -idz(o) has acquired a morphomic status in these particular cases?*

First, we need to answer the question of why only *-idz(o)* shows this type of change, since *-idz(o)* is not the only verb-forming suffix in Griko.[112] Karanastasis (1997) accurately points out that verbal formations having this 'additional' element *-idz(o)* in the present form arise due to the phonological similarity between *-idz(o)* verbal formations and *-e(o)/a(o)* verbs (the old contact verbs) displayed in the Aorist tense. In other words, the fact that a certain stem ends in /i/ prompts the selection of a suffix beginning with /i/ and thus *paradigmatic pressure* leads to the change in the present stem and the addition of this 'additional' formative. Consider the following examples:

Table 29: Aorist forms in Griko

	Present	Aorist
1SG-IC2	agapó 'to love'	agápi-sa
1SG-IC1	alatídzo 'to salt'	aláti-sa

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[111] Lesbian and Aivaliot belong to the dialectal group of Northern dialects which is characterized by a wide variety of vowel reduction phenomena. These phenomena render the morphological boundaries blurred in most cases. Thus, I present both the citation form and the 2SG form.

[112] The Greek verbal suffix *-ίζ(ω)* was adapted into Latin at the end of the 3rd century B.C. and became increasingly productive in the Latin verbal system. It then continued to develop in Medieval Latin and in the Romance Languages, where it is still an extremely productive verbal suffix (Cockburn, 2012: 478). The semantic value of the suffix is certainly diverse. It appears in both Latin and Greek with a number of different uses. The aspectual development of the suffix thus follows the same lines as that of *-sco* (Cockburn, 2012: 496). The same suffix in the *-izzare* form is found in the Romance dialects spoken in the area around the Greek-speaking villages in Salento. This fact may have enhanced the choice of the suffix -*idz(o)*.

In the table above, we notice that the two verbs show a phonological similarity in the Aorist forms and that this phonological similarity leads to a reanalysis of the verb *agapo*. The verb *agapo* is reanalysed according to the pattern of the verb *alatídzo* through analogical extension.

We should mention that analogical principles can exploit any predictive pattern and need not attach any significance to the morphological segmentation invoked in a proportional analogy (Blevins, 2006: 539). This proportion can be represented as follows:

Table 30: Coining of new verb forms in Griko

	IC1	IC2
Present tense	X	alat-ídzo
Aorist	agápi-sa	aláti-sa
Present tense of X: *agapidzo* instead of *agapo*		

The question now is: *what type of change do we have through this analogical extension?* The type of change presented in table (30) refers to the change in the allomorphy pattern of the verb. Ralli (2006) has shown that the allomorphy displayed by the Modern Greek verbs in the Aorist can be seen as a central morphological property, which: (i) may assume a *distributional role*, i.e. distinction of inflectional classes, and (ii) may pave the way for paradigmatic uniformity. In other words, allomorphy is an important property of morphological formations and plays an active role in paradigmatic organization and paradigmatic levelling.[113] Proportional analogy results in a change in the allomorphy pattern of the verb in IC2.

Apart from the grammatical factors that may lead to the grammaticalization of *-idz(o)*, we need to examine the distribution of this type of change.[114] Bybee (2003: 621) claims that 'analogical levelling affects low frequency items first'. A closer examination of the data shows that not only high-frequency verbs, such as the verb *agapo* 'to love', but also a number of low-frequency verbs, such as the verb *vronto* 'to thunder', show this type of change.

Based on the facts presented in the previous sections, I would like to propose that since certain patterns of associations between present stems have emerged in the system, it is plausible to assume that the element *-idz(o)* in a specific context can be reanalysed as an element which signals the transition from IC2 to the (more productive) IC1.[115] Thus, *-idz(o)* in these particular constructions seems to have acquired an *operator-like function*.

At this point it should be mentioned that in this thesis, I analyse only the *-idz(o)* cases in Griko. Similar observations can be made in a number of Greek dialects on the basis of similar elements which show that a derivational element may acquire a morphomic role in the course of time.

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[113] As noted in chapter 3, the pattern of allomorphy functions as the principal part.
[114] I am grateful to C. Iacobini for pointing this out.
[115] Anastasiadi-Symeonidi (1992, 2004) describes this type of element as a *class indicator*.

Last but not least, on the basis of the data described in table (28) one could argue that the reverse process could be considered as a counterexample to the claim made earlier. I would like to propose that: (a) productivity of the inflectional classes should be examined in each dialect/system separately and thus the directionality of the process may vary from dialect to dialect; and (b) a two-way process in the same dialect does not understate the validity of the hypothesis that specific patterns of associations may arise and some derivational elements may develop into inflectional material; rather, we can assume that analogical processes put pressure on some verbs to change their shape due to specific phonological resemblances.

The context in which *-idz(o)* has acquired this function will be discussed in the subsequent sections.

4.5 A constructional approach to *-idz(o)* formations

In this section, I address the fundamental questions of (a) what the context is in which -*idz(o)* has been grammaticalized, and (b) what the best way to formally represent the -*idz(o)* formations is.

The *-idz(o)* formations form a mixed group that includes: (a) formations inherited from Ancient Greek which are not synchronically analysed, (b) formations in which *-idz(o)* keeps its derivational character, and (c) formations in which *-idz(o)* has started acquiring an operator-like (or morphomic) function.

The proposed analysis should provide us with the means for the representation of the whole range of data. At this point we need to clarify that the analysis will not examine the diachronic aspect of the problem, but rather will propose a model for the synchronic analysis of the data.

4.5.1 Grammaticalization and constructionalization

Following the lines of classic linguistic tradition, the development of *-idz(o)* formations definitely carries features of grammaticalization. Grammaticalization is a well-studied phenomenon in linguistics which has attracted the interest of different linguists.[116] However, grammaticalization with respect to word formation is a rather understudied phenomenon (Wischer, 2011).

Meillet (1948 [1912]: 131) was the first to use the term *grammaticalization* in order to provide a general description of several phenomena:

'Le passage d'un mot autonome au rôle d'élément grammatical'
[The passage from an autonomous word to an element with a grammatical role]

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[116] See, among others, Heine (2003), Traugott (2005), for an overview of the topic.

As Heine (2003: 575) points out, grammaticalization is not confined to the development of lexical forms, since grammatical forms themselves can give rise to even more grammatical forms. Kuryłowicz's (1975: 69) definition of grammaticalization seems to be more explicit at this point:

> 'Grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one'.

According to Kuryłowicz, a grammatical element may acquire a more grammatical/functional status in the course of time.

Heine (2003) describes the evolution of a grammaticalized form in terms of a three-stage model, called the *overlap model*. The stages are the following (Heine, 2003: 579):

(i) Stage A: there is a linguistic expression A that is recruited for grammaticalization;

(ii) Stage B: this expression acquires a second use pattern, B, with the effect that there is ambiguity between A and B;

(iii) Stage C: finally, A is lost, that is, there is now only B;

In terms of morphological processes, Kuryłowicz's definition of grammaticalization suggests a morphological cline of the following type (from Brinton & Traugott, 2005: 86):

(9)
Phrase > Compound> Derivation > Inflection

Stevens (2005: 81) proposes another type of cline which describes the grammaticalization of affixes:

(10)
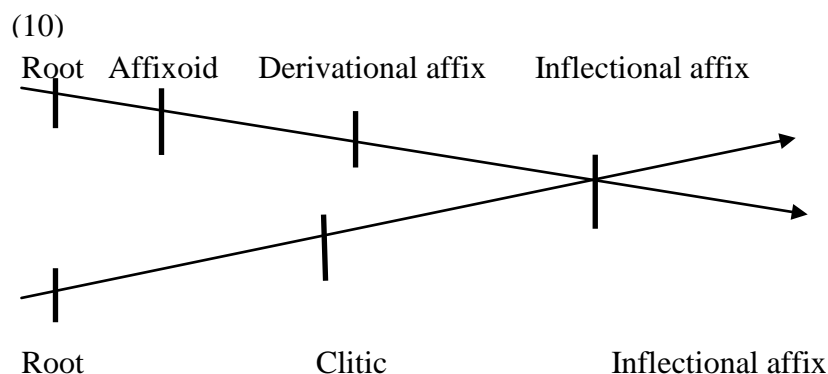
Among the different phenomena, a well-studied type of morphological change is the relation between compounding and derivation. The development of derivational affixes is

often referred to as an example of grammaticalization, since their origin is often traced back to lexical units.[117]

However, less attention has been paid to the relation between derivation and inflection in language change. This fact comes as no surprise since there are important questions which are still open concerning the position of derivation vis-à-vis inflection in the organization of the morphological component.[118]

Hüning (2012) argues that development of derivational affixes into inflectional affixes is highly exceptional in the history of (at least Germanic) languages and that derivational patterns usually do not develop any further; they do not get 'more grammatical'. A classic example which contradicts this claim is the development of the adverbial marker *-ly* in English which can be considered as an example of a derivational suffix becoming an inflectional one (cited in Hüning, 2012).

Kuryłowicz (1975) mentions that the reverse process is also possible. As an illustrative example, he presents the case of the Latin ending *-a* which is used to function as the inflectional suffix of the (nominative, accusative and vocative) plural of neuter nouns, whereas in Italian it has been restricted to a limited number of items with a specific collective meaning. Norde (2009) also discusses a number of cases which suggest that the grammaticalization process from derivation to inflection should not be considered as unidirectional and she gives some examples showing that we can also have the reverse process, the so-called *deinflectionalization*.

Returning to our data, *-idz(o)* formations have reached the second level of the grammaticalization process in Heine's terms, since *-idz(o)* displays variation at a synchronic level. The development of *-idz(o)* in these particular constructions illuminates the issue of whether we can assume a transition from derivation to inflection and whether there are any restrictions imposed on the process. The change in the grammatical status of *-idz(o)* provides evidence in favour of the view that derivational elements can become inflectional. However, not all types of derivational elements can undergo this type of change. Only the 'grammatical derivational morphemes' (the term used by Hopper and Traugott, 2003) may develop into inflectional ones. Moreover, there are restrictions on the type of inflectional morpheme that can be the output of this process. A derivational element cannot acquire a morphosyntactic inflectional status, and can only result in some categories that have an autonomous morphological character, for example, functioning as an *inflectional class indicator*. Therefore, the grammaticalization of *-idz(o)* does not

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[117] It should be mentioned that there is a still open debate on whether the development of derivational affixes is a case of *grammaticalization* or *lexicalization*. Booij and Hüning (2012) argue that the development of derivational affixes can be seen as a case of lexicalization, since derivational elements form part of constructional idioms in the hierarchical lexicon. The discussion of the relationship between lexicalization and grammaticalization is beyond the scope of the present paper. The interested reader may refer to Himmelmann (2004), Traugott (2005) and Booij and Hüning (2012).

[118] See also chapter 1.

contradict the general hypothesis that derivational morphemes cannot acquire morphosyntactic properties, but provides useful evidence favouring the view that derivational elements may become inflectional under certain conditions.

The next issue concerns the organization of the morphological component. Although grammaticalization models provide an adequate description of the developmental paths of various grammatical or lexical elements, trying to deal with the relation between inflection and derivation presupposes that one has a clear-cut idea of what the lexicon and the grammar are like (cf. Himmelmann, 2004).

For some grammarians, functional words and inflectional affixes are part of the lexicon, for others they are not (see the relevant discussion in chapter 1). Moreover, there is no ready-made answer to the question of whether there are clear-cut borders between the lexicon and the grammar.

On synchronic grounds, a number of practical criteria for the demarcation between inflectional and derivational morphemes have been proposed in the literature. However, cross-linguistic evidence shows that these criteria should not be considered to be foolproof (see, among others, Bauer, 2004; Booij, 2000; Scalise, 1988; Stump, 2005a, b). From a typological perspective, Aikhenvald (2007) argues that the status of each particular category in a language as inflectional or derivational should be established on language-internal criteria. What is inflectional in one language can be derivational in another.

On diachronic grounds, the consensus seems to be that derivation and inflection can form a continuum diachronically (Brinton & Traugott, 2005: 87). Illustrative examples have been provided in the previous sections.

The tradition view of grammaticalization presupposes a rigid separation between the lexicon and the grammar and thus the goal is to draw the line between the processes either synchronically or diachronically. However, as shown above, it is hard to define the criteria for the separation of the processes. For those authors who doubt that there are clear-cut borders between the grammar and the lexicon, it would appear that a comprehensive approach according to which the lexicon and the grammar are a continuum is much more viable (cf. Booij, 2010; Gisborne & Patten, 2011: 102).

In Construction Grammar the lexicon and the grammar form a continuum from more lexical to more grammatical (Booij, 2010). There is a gradation between lexical and grammatical constructions and some constructions are *hybrids* (Traugott, 2012). Prototypically Lexical Constructions (LCxns) are contentful/substantive, while Grammatical Constructions (GCxns) are procedural, that is, GCxns have abstract meaning that signals linguistic relations, perspectives and deictic orientation (Traugott, 2012).

In a Constructional approach the process of grammaticalization can be considered as a process of *schematization*, in which the construction (or the construct)[119] becomes a more abstract, higher level category and the cline from a more lexical to more grammatical status is reenvisaged a hierarchy from more substantive to more schematic constructions (Gisborne & Patten, 2011: 100). The formations move along this continuum depending on how *productive* (sanctioning more instances) and how *schematic* (open) they are (*ibid.*).

In this view, grammaticalization can be seen as *constructionalization* (Cxzn) which is defined as follows (Traugott, 2012):

'Cxzn is a change by which a form$_{new}$-meaning$_{new}$ sign is created through a sequence of small-step neo-analyses of form and meaning; it is accompanied by changes in degree of productivity, schematicity, and compositionality.'

The view of grammaticalization as constructionalization leaves open the issue of the interrelation between the two. Noël (2007: 196) accurately points out that diachronic Construction Grammar has a wider scope than Grammaticalization Theory, and we should not think that 'constructionalization equals grammaticalization'.

4.5.2 Constructional taxonomies in synchronic grammar

Constructional approaches do not only provide a model for the relationship between the grammar and the lexicon, but also provide the means for the analysis of the data. Bybee (2003: 602) argues that the recent literature on grammaticalization seems to agree that it is not enough to define grammaticalization as the process by which a lexical item becomes a grammatical morpheme, but rather it is important to say that this process occurs in the context of a particular construction. In a similar vein, Traugott (2003: 645) defines grammaticalization as:

'The process whereby lexical material in highly constrained pragmatic and morphosyntactic contexts is assigned grammatical function, and once grammatical, is assigned increasingly grammatical, operator-like function'.

Let us now turn to the issue of how grammaticalization affects synchronic grammar. Booij (2008a: 54) argues that the notion 'constructional idiom' is essential for a proper account of the impact of grammaticalization on a synchronic grammar. The element -*idz(o)* was originally a derivational affix which changed the category of the base. The

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[119] Fried (2008, 2010) makes a distinction between *constructions*, i.e. pieces of grammar, and *constructs*, i.e. actual physical realizations of constructions and argues that language change does not originate in constructions but in constructs.

properties of the derivational affix can be represented in the following constructional idiom:

(11)
$[[X]_{m\text{-NOM}}+[idz(o)]]_{K\text{-VERB-IC1}} \leftrightarrow [\text{ACTION RELATED TO SEM}_{Nm}]_k$

In this schema we notice that the affix *-idz(o)* changes a nominal base into a verbal one and flags the inflectional class of the formations (IC1). However, there is a large number of formations in which the constructional idiom of *-idz(o)* unifies with verbal bases of the second inflectional class and flags the first inflectional class. In other words, a new constructional idiom of *-idz(o)* has been developed through the grammaticalization process. In this constructional idiom the marker *-idz(o)* is used as a grammatical marker in combination with the verbs of the second inflectional class. This constructional idiom originated in the paradigmatic pressure in the aorist but has developed into a *building block* for the accommodation of verbs of the second inflectional class to the first inflectional class and can be represented as follows:

(12)
$[[X]_{m\text{-VERB-IC2}}+[idz(o)]]_{K\text{-VERB-IC1}} [\text{ACTION RELATED TO SEM}_{Vm}]_k$

At this point it should be mentioned that the grammaticalization of the new pattern does not lead to the demise of the old one. It is the paradigm of constructions as a whole that has expanded (see also Hilpert, 2011: 4, for the argumentation of similar cases).

The data described in the previous sections also shows that the grammatical shift from derivation to inflection is a *gradient and gradual* process. For example, in Griko there is still a fair number of formations in which the element *-idz(o)* retains its derivational character and it is only in a specific type of formation in which *-idz(o)* has acquired a new more inflectional status. In other words, we have a *functional change* in which a derivational element has become an ingredient of the inflectional system and takes a particular function in a construction. This type of change can be considered as a *constructional change* at the word level (Hüning & Booij, 2013).[120]

Construction Morphology allows for the representation of the linguistic capacity by means of different degrees of schematicity. Booij (2008a) highlights the notion of *inheritance tree* (or constructional layering) which is crucial for an insightful account of the *-idz(o)* data.

In the data under discussion, both the constructional idioms of the *-idz(o)* element form part of an upper constructional idiom which inherits the properties of the lower nodes *by default* unless they are overridden by unpredictable specification for the relevant

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[120] The interested reader may also refer to Gisborne and Patten (2011), Hilpert (2011), Noël (2007) and Traugott (2012) for issues concerning constructional changes.

parameter in the lower construction (or node) (Booij, 2008a: 98). For example, we can assume that *-idz(o)* as part of the constructional idiom *by default* flags the first inflectional class, whereas the lexical (or grammatical) category of the base is specified in the lower constructions. Moreover, as has been already argued, there is a large number of *-idz(o)* formations inherited from Ancient Greek that cannot be analysed at a synchronic level. In other words, we cannot assume that these formations have been formed by the unification of the *-idz(o)* constructional idiom with a base that is semantically or formally analysable. This type of formation can be assumed to belong to the lowest nodes of the inheritance tree, as part of the 'derivational constructional idiom' of *-idz(o)*.

These regularities can be expressed in an inheritance tree which can be represented as follows:

(13) Inheritance tree of the *-idz(o)* formation

$$[[X]_i+idz(o)]_{VERB\text{-}IC1} \text{ [ACTION RELATED TO SEM}_i]$$

$$[[X]_{m\text{-}VERB\text{-}IC2}+idz(o)]_{k\text{-}VERB\text{-}IC1} \text{ [ACTION RELATED TO SEM}_{Vm}]_k$$

$$[[X]_{m\text{-}nominal}+idz(o)]_{k\text{-}VERB\text{-}IC1} \leftrightarrow \text{[ACTION RELATED TO SEM}_{Nm}]_k$$

apor-idzo 'to lack'

alat-idzo 'to salt'
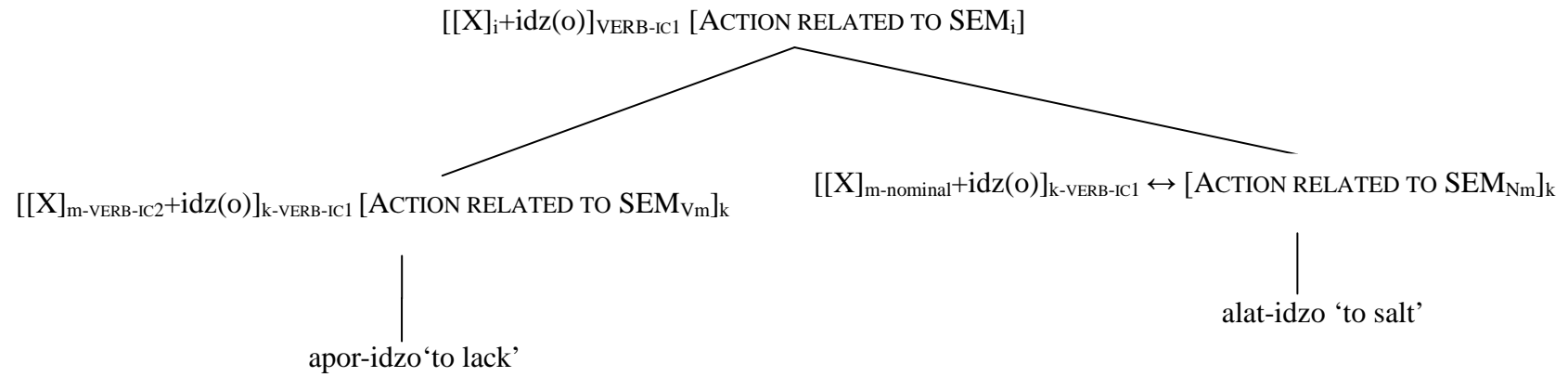
4.6 Conclusions

In this chapter, I have examined the Griko verb-forming system and focused on particular verbal formations which display the suffix *-idz(o)*. I have shown that *-idz(o)* is a formative with dual grammatical status: (a) it may be attached to nominal bases in order to derive verbs and (b) it may be added to the base as an explicit formal marker of the inflectional class. This fact is related to the cross-paradigmatic levelling evident in Griko. Verbs of the second inflectional class are reshaped in favour of the first inflectional class. A great number of IC2 verbs show both forms with *-idz(o)* and forms without *-idz(o)* at the same time, and certain patterns of associations between these two stems have emerged. Thus, I would like to propose that *-idz(o)* in this particular context is used as a building block for the accommodation of specific verbs to the first inflectional class and in this respect it has a acquired a morphomic status.

The examination of this particular phenomenon has important implications for the theoretical issue of the relation between inflection and derivation. Derivational elements cannot, in principle, acquire morphosyntactic properties. I have argued that derivational morphemes may develop into inflectional ones but only under certain conditions, that is, some derivational affixes that have a grammatical function may develop into elements with purely morphological properties. Thus, the grammaticalization process of *-idz(o)* has a bearing on the nature of the morphological categories and the relationship between lexical and grammatical elements.

Moreover, the variation displayed in *-idz(o)* formations raises the issue of what might be the best way to formally represent these formations and what the context is in which this process takes place. As has been shown, the development followed by the *-idz(o)* formations bears features of grammaticalization. However, we have argued that grammaticalization can describe only the relevant process, and cannot provide an answer to a number of theoretical questions. Following previous researchers, I have argued that grammaticalization should be considered a notion complementary to that of *constructionalization*.

A constructional approach to this type of change can give us a sufficient answer to the question concerning the relation between the lexicon and the grammar since in Construction Grammar there are no clear-cut borders between the two.

I have argued that a constructional approach to *-idz(o)* formations can successfully represent the gradualness of change in all its complexity. The shift from a derivational to a more inflectional status can be conceived of as a process of *constructional change* in which the emergent constructions differ with respect to their characteristics. All of these different characteristics of the *-idz(o)* formations can be represented in the format of an inheritance tree which allows for a proper account of the impact of grammaticalization on

a synchronic grammar. Since *-idz(o)* formations display variation in the system, a CM account of the data allows for the representation of the linguistic capacity by means of different schemas.

Chapter 5
Preverbs and past tense verb forms in Standard Modern Greek and Griko

5.0 Introduction

It has been generally claimed in the literature that we cannot find inflected forms inside derivational formations. With respect to this issue, Greenberg's (1963: 93) well-known typological observation reads as follows:

Universal N.28

'If both the derivation and inflection follow the root, or they both precede the root, the derivation is always between the root and the inflection'.

According to this Greenbergian universal, we should never expect to see a case in which a base is followed first by an inflectional and then by a derivational suffix. It also excludes cases in which a root is directly preceded by an inflectional prefix which is preceded by a derivational prefix in turn.

These empirical generalizations were formulated as a general principle called the *Uninflected Base Hypothesis* (Scalise, 1986) according to which only uninflected bases can undergo derivation. In other words, we cannot have inflected words as a base for derivation, but only stems.

The goal of the present chapter is to examine whether this hypothesis is empirically justified. In both SMG and Griko we find a specific type of preverb which has derivational properties. I examine the formation of past tense verb forms in constructions consisting of this type of preverb and a verbal base and argue that we can find inflected forms inside this type of construction. The analysis of these data raises important questions, such as: (a) how frequent these cases are, (b) what kind of conditions constrain the appearance of inflection inside derivation.

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In the first section, the discussion centres upon the examination of inflection inside derivation from both a cross-linguistic (5.1.1) and a diachronic perspective (5.1.2). The cross-linguistic perspective sheds light upon the question of whether we can find inflected forms inside derivational formations, whereas the diachronic perspective shows that there is a clear tendency for externalization of inflection and this externalization follows certain paths. In the next section, I briefly review the models for the order of inflectional and derivational morphemes in the morphological formations (5.1.3).

Past tense verb forms in Modern Greek are generally characterized by the appearance of the augment. Thus, this topic entails first taking a position as to the difficult questions of the grammatical status of both the augment and the preverbs in Modern Greek. The augment in Modern Greek is in the process of grammaticalization, that is, it turns from a purely inflectional prefix into a morphological element which is phonologically conditioned (5.2.1). All the Greek varieties are not at the same stage of grammaticalization. I argue that the augment in Griko has a status similar to that of SMG and thus can be considered as a morphological element which is phonologically conditioned and carries the stress (5.2.2). Either as an inflectional prefix or as a morphophonological element the augment is related to the past tense forms and can be considered as a 'marker of the application of inflectional processes'.

The next issue to be addressed is the grammatical status of the preverbs (5.3). This issue is relevant to our discussion since the appearance of the augment differs depending on the type of the preverb. I present a classification of the preverbs in Modern Greek based on the previous literature (5.3.1) and then I focus on the formations with class II preverbs, i.e. preverbs which originate in Ancient Greek prepositions, since this type of preverbs has derivational properties (5.3.2).

The examination of the data in question comes in the next section (5.4). The aims are the following: (a) to cover descriptively the data in both SMG and Griko, since it has not been discussed so far, (b) to show what kind of conditions constrain the appearance of inflection inside derivation, and (c) to examine whether one can find any similarities between Griko and SMG. I start with the examination of the data in SMG which reveals that the appearance of the augment is a productive phenomenon that has not been thoroughly analysed. I show that the augment in SMG appears only under certain conditions in verbal formations with class II preverbs (5.4.1). Then, I argue that in Griko there are some issues that have gone totally unnoticed so far such as the great variation with respect to the appearance of the augment (5.4.2). The comparison between Griko and SMG shows some differences between the two varieties.

In the last section (5.5), I discuss the representation of the internal augment within the Construction Morphology framework and I propose an analysis based on output-oriented schemas ordered. The important insight of this analysis is that the distribution of the augment is depicted as a network of schemas and subschemas which are available to the

language user. The data under discussion challenges the Split Morphology Hypothesis and argues for a unified account of inflection and derivation in the morphological component. However, only specific types of inflection may form the basis for derivation and, thus, it is important to investigate these cases.

5.1 The problem: Inflection inside derivation?

In the present section, I present some data from typologically different languages with the aim of showing that Greenberg's universal should not be considered as an absolute universal but rather as a strong tendency. I present data that has been analysed in the literature. It will be carefully examined here in order to discuss (a) the type of inflection that may appear inside derivational formations and (b) whether these cases are counterexamples or epiphenomena.

5.1.1 Cross-linguistic data

The idea that inflectional morphemes cannot appear inside derivational formations originates mainly in Greenberg's (1963) typological observation (see also section 5.0). This observation has been later verified by Bybee (1985) who examines a large sample of languages.[121] In what follows, I present some data which can be seen as constituting exceptions to this universal.

5.1.1.1 Data from Romance languages

Rainer (1996: 83) argues that the notions 'inside/outside' in Greenberg's universal N. 28 should not be interpreted as purely linear, but rather we need a reformulation in 'hierarchical terms', where 'inside/outside' is reinterpreted as 'being under the scope of/having scope over'. Under this interpretation, licenses structures like [[der[root]]infl] and [infl[[root]der]] are also licensed, but structures like *[[infl[root]]der] and *[der[[root]infl]] are not licensed.

Rainer (1996) presents a number of counterexamples to Greenberg's universal. Among these examples, there is the formation of the Spanish adjectives of the type *antibalas* lit. 'anti-bullets', which consist of a prefix[122] and the plural form of a noun. According to Rainer (1996: 88), in Modern Spanish we find a number of this type of formations:

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[121] It should be mentioned that Bybee (1985: 44) criticizes Greenberg for the sample of his survey.

[122] Rainer (1996: 90) mentions that if one analyses this type of prefix as a preposition, then these examples cannot be considered as counterexamples.

(1)
[anti[balas]_N] lit. 'anti-bullets'   < bala-s

                                             STEM-PL

[contra[incendios]_N] lit. 'counter-fires'   < incendio-s

                                             STEM-PL

[inter[ciencias]_N] lit. '(Society) Inter-Sciences'   < ciencia-s

                                             STEM-PL

[extra[partidos]_N] lit. '(candidature) extra-parties'   < partido-s

                                             STEM-PL

Let us now examine what kind of inflection forms the base for the prefixation process in the examples in (1). According to Booij (1994, 1996) the category number for nouns should be considered to be inherent inflection.[123] Inherent inflection is more derivation-like and thus may feed derivation (Booij, 1994: 45).

An often cited exception to Greenberg's universal is the formation of adverbs in -*ment(e)*, found in many Romance languages (Rainer, 1996: 86-87):

(2)
[maladroit]_A clumsy.M > [maladroit-e]_A clumsy-FEM > [maladroit-e-ment]_ADV clumsy-FEM-ADV French

[certo]_A certain.M > [certa]_A certain-FEM > [certamente]_ADV certain-FEM-ADV Italian

[claro]_A clear.M > [clara]_A clear-FEM > [claramente]_ADV clear-FEM-ADV Spanish

Rainer (1996) claims that the adverbial suffix -*ment(e)* is attached to the feminine counterpart of the adjectival bases and argues that these formations should be considered as derivatives.[124]

Booij (1996) proposes a different analysis of these cases according to which the base of the formation cannot be considered as the feminine counterpart of the masculine adjective, but rather as a stem allomorph which is used in this particular context (formations of the adverbs). This stem allomorph should be considered as the residue of the Latin ablative feminine singular case of adjectives. In that case, these formations cannot be considered as exceptions to Greenberg's universal.

Rainer (1996) also analyses some examples from Portuguese which show that inflection may appear inside derivational formations. In this case, the diminutive suffix -*zinho* (masculine)/-*zinha* (feminine) attaches to bases which are inflected for gender and number. The following set of examples is illustrative (Rainer, 1996: 88):

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[123] The distinction between inherent and contextual inflection has been presented in chapter 1.

[124] There is a controversy in the literature about the grammatical nature of this type of formation. A number of researchers analyse it as either a phrase or a compound (Rainer, 1996).

(3)

[ólho]ₙ 'eye'	>	ólh-o-zinho
		eye-M-DIM
òlho-s	>	òlh-o-zinho-s
eye-PL		eyes-M-DIM-PL
[corda]ₙ 'rope'	>	cord-a-zinha
		rope-FEM-DIM
corda-s	>	cord-a-zinha-s
rope-PL		rope-FEM-DIM-PL
[cão]ₙ 'dog'	>	cão-zinho
		dog-DIM
cães	>	cãe-zinho-s
dog.PL		dog.PL-DIM-PL

In (3), we notice that the diminutive suffix is attached to bases which are marked with respect to gender and number. In the first two examples, the formatives *-o* and *-a* mark the masculine and feminine gender, respectively, while in the third example we notice that the diminutive suffix is attached to the allomorph which is used for the formation of the plural. As mentioned by Rainer (1996: 89), the same phenomenon can be observed in the formation of adjectives, in which we notice double marking of the gender value:

(4)

um	rapaz	seri-o-zinh-o
a	boy-M	serious-M-DIM-M
uma	rapariga	seri-a-zinh-a
a	girl-FEM	serious-FEM-DIM-FEM

It is worth noticing that in (4) the kind of inflection which feeds the formations of the diminutives belongs to the category of inherent inflection. However, the marking of gender on the adjective belongs to the category of contextual inflection. Rainer proposes that one should consider the external marker as the only syntactically active one, and thus the generalization that only inherent inflection feeds derivation can be maintained.

5.1.1.2 Data from Germanic languages

In Dutch, we notice some examples in which the suffix *-dom* is attached to nominal bases in order to form nouns which denote the notion of 'collectiveness' (Booij, 2000). More specifically, the suffix *-dom* is attached to (van Marle, 1996: 77):

(a) Nominal bases that take the plural form *-en* (general case of Dutch plural formation): *goden-dom* 'god.PL-COLL', *studenten-dom* 'student.PL-COLL', and

(b) Nominal bases of singular form, when the plural of the noun is formed with -s: *burger-dom* 'citizen-COLL', *wetenschapper-dom* 'scholar-COLL'.

Another interesting case from Dutch is the comparative form of adjectives which functions as the base for derivation with the prefix *ver-*. The following examples are illustrative (Booij, 2007: 115):

(5)
[erg-er]$_A$ 'bad-COMPAR' > [ver[erg-er]$_A$]$_V$ 'worsen'
[oud-er]$_A$ 'old-COMPAR' > [ver[oud-er]$_A$]$_V$ 'get older'

The comparative form of the adjectives belongs to the category of inherent inflection and thus can feed derivation.

An often-cited exception to Greenberg's universal is the use of participles which may function as adjectives in de-adjectival nominal word formation, a phenomenon which is quite common in IE languages (Booij, 2000; 2007). The following examples from Dutch and English are illustrative:

(6)
[gevreesd]$_A$ 'feared' PAST PART'> [gevreesd-heid]$_N$ 'feared-ness' Dutch
[related]$_A$ PAST PART > [related-ness]$_N$ English

The morphological status of past participles is also a controversial question. Haspelmath (1996) considers participles to be an instance of word-class-changing inflection, whereas Blevins (2001: 212) considers them to be 'derived stems of a basic lexeme'.

5.1.1.3 Data from Greek

Apart from the cases which will be analysed in the subsequent sections, Ralli (1998, 1999) and Anastasiadi-Symeonidi (2004) have discussed a number of examples from Greek which show that inflection may appear inside derivational formations or compounds. The following examples are taken from Ralli (1998, 1999):

(7)
(i)   nyktilampēs 'who shines in the night'   < nykt-i   lampēs (Ancient Greek)
                                                 STEM-DAT WORD
(ii) nōnek^{h}ēs 'brained'   < nōn   ek^{h}ēs (Ancient Greek)
                                                 STEM.ACC WORD

(iii) perasma 'passage' < pera-s-ma

STEM-ASP-DER

It should be noticed that the appearance of the inflection marking case and number inside compounds was very frequent in Ancient Greek, but it is not productive synchronically (Ralli & Raftopoulou, 1999). In these examples we notice that inflectional markers appear inside compounds (examples i and ii) or derivational formations (example iii).

Anastasiadi-Symeonidi (2004: 46) also analyses some examples from SMG which show that inflection may appear inside derivation:

(8)
kalytereuo 'ameliorate'< kalyter-eu-o

STEM.COMPAR-VBZR-INFL

According to Anastasiadi-Symeonidi, in some cases the verbalizer *-eu*(*o*) in SMG is attached to the comparative form of adjectival bases. Anastasiadi-Symeonidi argues that the comparative forms of adjectives belongs to inherent inflection and thus in these examples we can assume that a derivational process applies after inflection has taken place.[125]

5.1.1.4 Data from Turkish and Athapaskan languages

The data presented in the previous sections concerns IE languages. However, it would be interesting to examine whether we can find similar examples in other languages which do not belong to this language family. In Turkish (a Turkic language) the basic characteristic of word formation is the agglutination of morphemes, that is, the formation of words by stacking up suffixes on the right periphery of the formation. In Turkish, we find the following examples:[126]

(9)
(i)   gün - ler[127] -ce[128]

day-PL-DUR
(ii)   ay-lar-ca

month-PL-REP
(iii) saat-ler-ce

hour-PL-REP

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[125] It should be mentioned that the form *kalyter*(os) is a suppletive form of the stem *kal*(os). Ralli (p.c.) proposes a different analysis according to which *ter-* is a derivational suffix.
[126] I would like to thank Metin Bağrıaçık for providing me with this data for my MA thesis.
[127] The suffix /lAr/ changes from *-lar* into *-ler* due to vowel harmony.
[128] The suffix /cA/ changes from *-ca* into *-ce* due to vowel harmony.

(iv) on-lar-ca

    decade-PL-REP

In these formations we notice that the morpheme which expresses the plural (inflectional suffix) is closer to the base than the suffix which expresses the lexical aspect (Aktionsart). The latter suffix cannot be considered a purely derivational category, but rather an intermediate category which lies between inflection and derivation.

    Aikhenvald (2007: 36-37) also mentions data from Turkish which show that derivational suffixes sometimes follow inflectional ones. Some examples are given below:

(10)
(i) ev-de 'in the house'

    house-LOC
(ii) ev-de-ki 'the one in the house'

    house-LOC-ki

According to Aikhenvald (2007), the suffix *-ki* expresses the meaning 'belonging to'. Since it changes the word class, it should count as derivational. This suffix appears after the *-de* suffix which expresses the locative case and to this latter form, plural and case markers may be added, e.g. *ev-de-ki-ler-i* (house-LOC-ki-PL-ACC) 'the ones (accusative) in the house'.

    Rice (1987) argues that Athapaskan languages (North America) offer strong counterexamples to the claim that inflectional affixes are added to the word only after derivational affixation is completed. She examines a case of inflection inside derivation in nouns in Slave, an Athapaskan language spoken in Northern Canada. The following examples illustrate the case:

(11)
(i) jih 'mitten'

    STEM
(ii) jih-cho 'large mitten'

    STEM-AUGM
(iii) -jiz-é-cho[129]

    STEM-POSS-AUGM
(iv) ʔah 'snowshoe'

    STEM

---

[129] The hyphen in front of the form indicates that it must be preceded by a possessor, either a noun or a pronoun.

(v) ʔah-cho 'large snowshoe'

    STEM-AUGM

(vi) -ʔah-é-cho

    STEM-POSS-AUGM

In these examples the diminutive and augmentative suffixes, which are derivational in nature, appear outside the possessive agreement marker (inflectional suffix).

5.1.2 Diachronic perspective

In the preceeding sections I examined several cases from typologically different languages which show that inflection may appear inside derivational formations. It is worth investigating whether we find similar cases in the diachronic development of languages. In the present section we will look at Haspelmath's (1993) proposal with regard to this issue.

Haspelmath (1993: 279) argues that sometimes inflectional morphemes may be 'trapped' in an internal position, that is, inside derivational formations or compounds, as the result of grammaticalization and affixation of an uninflected element. If this is the case, these elements may be externalized, i.e. they move to the periphery of the formation. A common striking feature of such changes is the appearance of *intermediate hybrid forms* which display inflection in both internal and external position.

An illustrative example comes from the Georgian indefinite pronoun *rame* 'anything' Haspelmath, 1993: 280):

Table 31: Georgian indefinite pronoun *rame*

	Older pattern	**Intermediate pattern**	**Newer pattern**
NOMINATIVE	ra-me		ra-me
DATIVE	ra-s-me	ra-s-me-s	ra-me-s
ADVERBIAL	ra-d-me	ra-d-me-d	ra-me-d
GENITIVE	r-is-me		ra-me-s
INSTRUMENTAL	r-iti-me		ra-me-ti

According to Haspelmath, the indefinite pronoun *rame* is derived from the interrogative *ra* 'what' by suffixation of the indefinitive marker -*me*. As can be shown in table (31), in the older pattern the inflectional formatives appear between the interrogative -*ra* and the indefinitive marker -*me*, whereas in the newer pattern the case markers follow the indefiniteness marker. It is noteworthy that there is an intermediate pattern in which the inflectional markers occur both before and after indefiniteness marker, that is, both in internal and external position. All three patterns are attested in modern Georgian.

This type of change described above is generally characterized as *externalization* of inflection. The diachronic process of externalization is subject to specific constraints which can be described as follows (Haspelmath, 1993: 289-291):

(a) *Unidirectionality*: externalization is unidirectional, i.e. only internal inflection may be externalized. External inflection cannot be internalized. [130]

(b) *Restriction to inflection*: only inflectional morphology and not derivational morphology can be externalized.

(c) *Hybrid forms*: only inflectional affixes can be doubled in hybrid forms, while particles are never doubled. [131]

The basic question that arises is this: what is the motivation for this type of change? Haspelmath argues that externalization of inflection cannot be attributed to a preference in the language for formal simplicity, because there are intermediate stages during the process wherein the inflectional paradigms show great complexities. For Haspelmath, this change is motivated by a general principle according to which (Haspelmath, 1993: 291):

'A morphologically complex word is preferred if its inflectional affixes are further away from the root than its derivational affixes'.

This principle is substantially the same as Greenberg's universal N.28 (see section 5.0), but as Haspelmath (1993: 292) puts it, this type of diachronic changes show that 'this is not merely a descriptive statement'. It is a cross-linguistic generalization which should be considered as a *preference principle*, i.e. as a 'soft' constraint that can be violated.

The next question is why forms like those in table (31) arise in the first place. According to Haspelmath, they arise as a result of the grammaticalization process. Grammaticalization does not take into account the entire structure but only the local environment of the grammaticalized element. Grammaticalization aims to create local optimization and does not care whether dispreferred structures are created. Thus, the externalization of inflection comes as a 'remedy' for these dispreferred structures.

5.1.3 Models for the order of inflectional and derivational morphemes

The order of morphemes is determined by a number of different factors, which can be summarized as follows (from Manova & Aronoff, 2010: 115 ff.): (a) semantic

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[130] Unless it is subject to grammaticalization. According to Haspelmath (1993), unidirectionality of externalization can be explained by the general tendency in the diachronic development of languages according to which grammatical change is unidirectional.

[131] It should be mentioned that although it is not very common for derivational affixes to be doubled, in many cases we notice accumulation of derivational affixes with similar meaning, as for example in affixes of evaluative morphology. This can be explained by the fact that some derivational affixes are subject to semantic bleaching during the grammaticalization process. This type of phenomena is referred to as *affix pleonasm* by Haspelmath (1993).

constraints/principles, (b) syntactic constraints/principles, (c) phonological (or prosodic) constraints/principles, and (d) morphological constraints.

The order of morphemes with particular reference to derivational and inflectional morphemes has been a hotly debated topic in the literature. The cross-linguistic tendency for derivational morphemes to appear closer to the root (or stem) compared to inflectional ones has been a strong argument for the proponents of the 'Split Morphology Hypothesis' (Perlmutter, 1988; Anderson, 1992). According to Anderson, the difference between the two types of morpheme and their position in the formations follows from the fact that derivation is pre-syntactic, whereas inflection is post-syntactic.[132]

Di Sciullo and Williams (1987: 25) argue against Anderson's claim and argue that it is not necessary to posit an extra level either in morphology or in syntax in order to account for the fact that inflectional morphemes appear outside derivational ones, since this follows from the notion 'head' in words. Di Sciullo and Williams (1987: 23) argue that words have *heads*, in the same way as phrases in syntax do, and the identifying feature of heads in both syntax and morphology is that the properties of the head are those of the whole. Affixes determine the properties of the words in which they appear and syntax determines the distribution of the words according to these properties. Thus, inflectional morphemes must appear in the 'ultimate head position' since they determine the properties of the whole word (Di Sciullo & Williams, 1987: 25). In other words, the position of the inflectional morphemes reflects their intrinsic characteristic to determine the properties of the whole word within syntactic contexts.

The idea that inflectional morphemes are placed outside the derivational morphemes due to their 'headedness' property raises a number of theoretical and empirical problems. The position that inflectional morphemes are heads in morphological formations has been challenged by Selkirk (1982: 75) who argues that there is little (if any) motivation for construing inflectional affixes as heads in the first place.

Kiparsky (1982a) provides a general model of level-ordered morphology which accounts for the difference between inflectional and derivational morphology by postulating different levels (or 'strata') at which affixes are inserted (see also 1.2.4).

It should be mentioned that although Kiparsky's model allows for a 'loop device' between inflection and compounding, it does not allow for the same mechanism in inflection and derivation. Thus, this model cannot explain cases of inflection which appear inside derivational formations.[133] Moreover, Kaisse (2005: 36) shows that Kiparsky's model makes very strong claims about the affix ordering on the morphological formations, while Booij (1989) argues that level ordering is not supported by the facts concerning the inflection of complex verbs in Dutch and English.

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[132] The arguments against this model have been extensively discussed in chapter 1.
[133] The model has been extensively discussed in chapter 1.

Bybee (1985) proposes a classification of the morphemes based on the notion of 'semantic relevance'. An element is relevant to another element 'if the semantic content of the first directly affects or modifies the semantic content of the second' (Bybee, 1985: 13). According to this criterion, affixes are classified and positioned in morphological formations according to the degree of semantic relevance they have with the base of the formation. In this respect, derivational morphemes must appear closer to the root, since they are more semantically relevant to the base of the formation compared to inflectional morphemes which often bring only slight semantic modifications.

Baker (1985) gives a syntactic account of the problem. Baker proposes the 'mirror principle' according to which 'the order of morphological derivations (in the sense of processes, my addendum) must directly reflect syntactic derivations (and vice versa)' (Baker, 1985: 375). Baker does not make any direct assumptions as to the order of inflectional and derivational morphemes. However, he states that sometimes the surface order of the morphemes does not reflect the order of morphological derivation. In that case, we may find apparent counterexamples to the mirror principle (Baker, 1985: 402). According to Baker, in these cases we need to examine the properties of the morphemes in order to see whether they are real counterexamples or epiphenomena.[134]

Beard (1987) proposes a different morphological model, called 'Lexeme/Morpheme-Based Morphology', which is based on the following principles: (a) morphemes are independent of lexemes, (b) M(orphological)-rules are independent of L(exical)-rules and (c) conditions on M-rules are independent of conditions on L-rules. With respect to the order of inflectional and derivational morphemes, Beard (1987: 26) argues that 'we expect affixes sometimes marking inflection to also occur inside L-derivational markers'. As Beard underlines (1987: 33), his model predicts that all inflectional (morphosyntactic) rules operate after L-rules and this 'guarantees' that morphemes marking inflectional functions will be affixed only after those marking lexical derivation. However, these markers may appear in several positions in the morphological formation (not only the final position) and 'their conditions may allow them more than one marking role' (*ibid.*).

Stump (2001) proposes a realization model of inflectional morphology which deduces a word form's inflection markings from the set of morphosyntactic properties associated with that word form (paradigm function morphology). Stump (2001: 112) explains that some realization rules are *Head Operations*, in the sense that the application of these rules results in some kind of marking on the head of the formation. These head operations can explain cases in which inflection may appear inside derivation. For instance, in Sanskrit the augment *a-* in preterite forms appears on the verb root *pat-* when the verb is prefixed, e.g. *ni-pat-* 'fly down' > *ny-a-patat* 3SG IMPERFECT ACTIVE.

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[134] This approach has been reviewed by Spencer (2003b).

Booij (1994) provides counterexamples to the head operation hypothesis, but, as he points out, the only category of inherent inflection that cannot appear in a non-head position is the category of tense. Booij (1994: 44) argues that tense is a deictic category and in order to be accessible it must appear in the head position of complex words. This explanation predicts that tense morphemes can appear inside words on the morphological heads of complex words.

Rice (2000) and Stiebels (2003) propose a different perspective -similar to that of Bybee's (1985)- which relates affix ordering to the *semantic scope* of affixes. Rice (2000: 24) defines scope as follows: 'given three items X, Y, and Z, items X and Y combine with each other and then combine as a unit with Z. The semantics of Z is added to that of X and Y as a unit'. In this view, scope can be defined as semantic compositionality. The ordering of inflection outside of derivation can be understood as the surface realization of a *scopal relationship*. For instance, a plural affix pluralizes a noun with a derivational affix, not just the noun on its own (*ibid.*).[135]

Muysken (1986) argues that most of the approaches are insufficient to handle the data and based on the examination of the Quechua verb system he proposes a different analysis which includes three different modes: (a) the lexical mode, (b) the syntactic mode and (c) the inflectional mode (ibid: 639). The lexical mode includes affixes which form intimate relations with the preceding root, often with idiosyncratic meanings, and which are fixed in their order, the syntactic mode involves affixes with a separate meaning and often with a variable order and the inflectional mode implies a series of affixes fixed in their position and without a lexical meaning. The classification of an affix as participating in the syntactic or inflectional mode is not simply a function of its interpretation (Muysken, 1986: 640). These modes can be likened to the models described above in the following way (from Muysken, 1986: 641 -with slight modifications):

(12)

lexical mode ———————— semantic relevance
syntactic mode ———————— logical scope
                         mirror principle
                         derivation
inflectional mode ——————— inflection
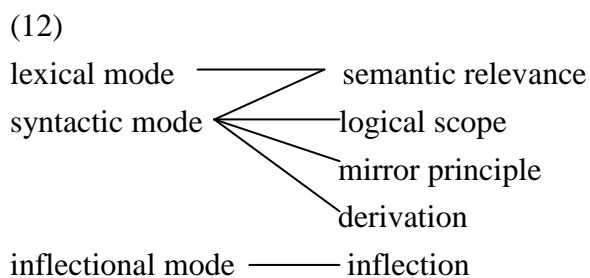
The distinction between inflection and derivation corresponds closely to that between the syntactic and the inflectional mode.

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[135] Rice's and Stump's models are reviewed by Spencer (2003a) who argues that there is a possibility of synthesis of these two accounts.

5.2 The grammatical status of 'augment' in Modern Greek

The aim of this section is to analyse the grammatical status of the augment in SMG and Griko aiming at: (a) examining whether the augment has the same status in both varieties, and (b) showing that it should be consider as a cue for the application of the inflectional properties; in other words, the augment, either as an inflectional morpheme or as a morphophonological element, indicates that an inflectional process has taken place.

According to Booij (1994: 30), tense belongs to the category of inherent inflection since it is not determined by the syntactic structure. The meaning of tense is a *deictic/referential* one: tense has scope over a whole clause, and locates the time of the state or action expressed by the sentence with respect to the time of speaking.

In Classical Greek, all past tenses carried an *augment*, which involved either the prefixation of the syllable ἐ [e] (occasionally ἠ [e:]) to forms beginning with a consonant, or the lengthening of the initial segment of forms beginning with a vowel or diphthong (the so-called 'temporal augment') (Horrocks, 2010: 319). Thus, we can argue that the verbal augment had purely inflectional status (inflectional prefix), since its appearance was obligatory in every past-tense indicative verb and the endings of the past tense forms were not systematic enough for being considered as the marker of the past tense (Ralli, 2003, 2005).

The 'temporal augment' fell quickly out of favour because of its variable form and the destruction of the relevant notion of lengthening by sound change, but the syllabic augment naturally survived more strongly (Triantafyllidis, 1935; Horrocks, 2010: 319).

Past tense verbal forms in Standard Modern Greek (henceforth SMG) and Modern Greek dialects are characterized by having antepenultimate stress (cf. Ralli, 2005; Spyropoulos & Revithiadou, 2009):[136]

(13)
é.ly.na 'untie' 1SG IMP < lyno 'untie'
é.ly.sa 'untie' 1SG AOR

The data from Griko shows exactly the same phonological rule (Morosi, 1870):

(14)
pesíniska 1SG IMP < pesinísko 'die'

However, the grammatical nature of the augment in SMG differs significantly from that of the Modern Greek dialects. In the following sections, I will present this difference.

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[136] Van Oostendorp (2012) examines this issue and explains why this fact is problematic for some theories of morphology-phonology interface.

5.2.1 The grammatical status of the augment in SMG

The grammatical status of augment in Modern Greek has been a hotly debated topic in the recent literature, since it is not clear *a priori* whether an augment should be considered as a purely inflectional element similar to the Ancient Greek one or should be analysed as a morphophonological element which appears only in order to bear the stress. In this section, I review the previous analyses and take a position in favour of the view that the augment should be analysed as a morphological element that is phonologically conditioned.

Ralli (1988, 2005) argues that in SMG the past tense is not marked by the augment, like in Ancient Greek, but rather by the endings of the verbal forms which are very systematic. According to Nespor (1999) and Ralli (2005), the verbal paradigm of the past tense forms has a prosodic pattern (antepenultimate stress) of the following form: [137]

(15)
´σσσ (**σ**= stressed syllable)

This prosodic pattern forces a stress shift leftwards outside the word boundaries in monosyllabic and disyllabic verb stems. For example, the imperfective form of the verb *déno* 'to tie' is formed as follows:

(16)
déno 'to tie' 1SG PRS > *édena* 1SG IMP

According to Ralli, the augment can be considered as a morphophonological element (epenthetic vowel) whose only function is to receive stress when the antepenultimate-syllable stress law causes a left-hand stress shift outside the word boundaries.[138] Ralli (1988) formalizes these cases in terms of a string-dependent rule, that is, a transformation readjusting the word string in a specific morphophonological environment:[139]

(17)
$\emptyset \rightarrow é \ / \ \#\#^{140} \_\sigma\sigma]_{V \ [PAST]}$

The appearance of the augment depends on the following conditions:
(a) The stem should start with a consonant.
(b) The stem (without the augment) should be disyllabic.

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[137] Only imperfective tense of the mediopassive voice deviates from this pattern, since verbs usually have penultimate stress, e.g. *koimómoun* 'I was sleeping'.
[138] A similar analysis can be found in Holton *et al.* (1999) and Babiniotis (1972).
[139] In the last section we will reformulate this rule as an output constraint on a pattern.
[140] The symbol # indicates the word boundary.

(c) The verb should be of active voice.

(d) The verb should belong to Inflectional Class 1.

An illustrative example is the following:

Table 32: Formation of the Aorist in SMG

	AORIST
1SG	é.gra.psa[141] 'I wrote'
2SG	é.gra.pses 'You wrote'
3SG	é.gra.pse 'He/she/it wrote'
1PL	grá.psa.me 'We wrote'
2PL	grá.psa.te 'You wrote'
3PL	é.gra.psan 'They wrote'

This analysis seems to be challenged in cases where we have prefixed verbal forms. More specifically, there is a number of prefixed verbal forms which have more than two syllables and according to the criteria mentioned above they should not have an augment. However, these verbs show an internal augment between the prefix and the stem. For example, we have the verb *grá.fo* 'I write' → *é.gra.psa* 1SG AOR and *ka.ta.grá.fo* 'I write down' → *kat-é-grapsa* 1SG AOR.[142]

Joseph and Janda (1988) argue that the augment is not just a morphophonological element since the augment appears: (a) in polysyllabic verbs, e.g. *e.pró.kei.to* 'it was likely', and (b) in prefixed verbal forms in the form of an internal augment (see examples above). Therefore, Joseph and Janda (1988) argue that in SMG the augment keeps its original inflectional status although in some cases its appearance is phonologically conditioned.

This analysis faces some problems which can be summarized as follows. First, it does not take into account the fact that past tense verbal forms with an augment are highly marked and in many cases are fossilized forms from Classical Greek. For example, in the SMG verbal form *e.lí.fthei* 'it was received' we notice that although the stress in on the penultimate syllable, the augment does appear. However, this verbal form is highly marked and used only within a high register context. The observation about the prefixed verbal forms is in the right direction but it does not mention that the internal augment does not always appear in the prefixed verbal forms. See the following examples:

(18)

frázo 'block' 1SG PRS → éfraksa 1SG AOR

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[141] Dots demarcate the syllable boundaries.

[142] These cases will be thoroughly analysed in section 5.4.1.

but

apofrázo 'unblock' 1SG PRS → apófraksa 1SG AOR

These cases will be further discussed in what follows. Malikouti-Drachman and Drachman (1992, 1993) argue that the prosodic analysis of the verbal forms in SMG shows that the stress shift in the past tense forms is a consequence of the fact that the basic metric structure of SMG is a trochaic foot. In their analysis, the augment is explained as an empty morpheme which characterizes the past tense forms. This morpheme is an empty vowel (indicated as V) which takes the phonological features of the unmarked case -e-, when it is stressed, while it remains empty, when it is unstressed. The basic arguments of their analysis are the following:

(a) Proclitics and verbs form a prosodic unit in SMG and clitics may bear the stress in past tense forms. However, in several cases the augment may interrupt this prosodic unit in order to bear the stress, for example *to éfera* 'I brought it' instead of *tófera* 'I brought it';

(b) The augment appears only in the paradigm of the indicative, although there are many other cases in which there is need for an extra element which will carry the stress. For example, we do not notice appearance of the augment in the paradigm of the imperative, for example *gráfo* 'to write'→ *grápse* 2SG IMPER **but** *ypográfo* 'to undersign'→ *ypógrapse* 2SG IMPER. This fact suggests that the augment is marked as [+past, +indicative].[143]

At this point we need to mention that the distribution of the augment in the case of proclitics varies and we can find many examples in which the proclitic may bear the stress, for example *tópe* '(s)he said that' instead of *to eípe* '(s)he said that'. Moreover, the distribution of the augment in these cases shows many similarities with the distribution of the augment in the prefixed verbal forms as will be shown in what follows.

  Spyropoulos and Revithiadou (2009) examine the grammatical status of the augment in SMG and Modern Greek dialects in the framework of Distributed Morphology and claim that the antepenultimate stress pattern is not a morphological exponent of [past], but rather derives from a segmentally empty prefix with lexically-encoded stress properties. The past tense prefix consists of a segmentally empty mora, which is lexically associated with an accent. The empty vocalic peak projects both a moraic position and an accent. As a result, the vocalic element inserted to fill in the empty slot ($\square_\mu > e_\alpha$), is also

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[143] As a side remark, the appearance of the augment in some prefixed imperative forms, for example *ypégrapse* '(s)he undersigned' instead of (?) *ypógrapse*, is exceptional and can be explained on the basis of analogical formation from the aorist forms.

assigned the inherent accent of the prefix. (Spyropoulos and Revithiadou, 2009: 112), as shown in (19):

(19)
*α
↑
μ_α
↑
☐_α (where α is the PAST morpheme)
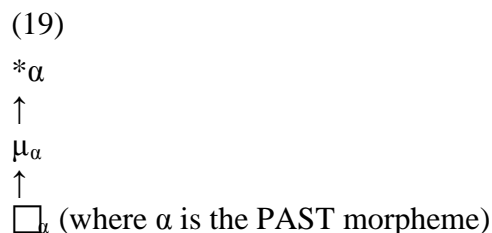
The arrows indicate the projection of the moraic position and the accent, while the box indicates the empty slot. However, there are two important points that should be mentioned concerning this analysis:

(a) SMG is a strongly suffixing language in which there are no inflectional prefixes. The postulation of an inflectional prefix would raise several problems concerning its distribution and its properties. For example, it is not clear why the augment does not appear in prefixed verbal forms, as in the example *katadynasteúo* 'predominate'> *katadynástefsa* 1SG AOR instead of **katadýnastefsa* or **katádynastefsa*. Following the analysis proposed by Spyropoulos and Revithiadou the augment should appear between the prefix *kata* and the word *dynastéuo* or in a syllable adjacent to that position.[144]
(b) It is not clear why one should argue for an empty position which projects a moraic position and a stress since if there is lexical stress, one could still say that stress is the exponent of [past].[145]

In sum, the discussion above shows that the analysis which considers the augment as a morphophonological element has more advantages since it is empirically justified. Although the appearance of the internal augment in prefixed verbal forms can be considered as counterargument to this analysis, as we will be shown in the following sections, these cases can be explained following the same analysis. In the next section, I will examine the properties of the augment in the Modern Greek dialects with particular emphasis on Griko.

5.2.2 Classification of the Modern Greek dialects

The augment in most of the Modern Greek dialects has a different grammatical status than in SMG. Triantafyllidis (1935) presents a nice overview of the status of the augment in the Modern Greek dialects and the relation between the degrammaticalization of the

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[144] This kind of data is also -barely- discussed in van Oostendorp (2012).
[145] According to Ralli (2005) the inflectional suffix is the exponent of the past.

augment and the development of new inflectional suffixes in the paradigms of the Aorist and Imperfect.

Modern Greek dialects can be classified into 3 different groups according to the status of the verbal augment.

Group A: augment as an inflectional prefix

Drachman and Malikouti-Drachman (2001) argue that in some Modern Greek dialects the verbal augment behaves like an inflectional prefix because it appears even when it does not carry stress. The following cases are illustrative (Drachman & Malikouti-Drachman, 2001: 54):

(a) In the dialect spoken in the southern part of Chios (Greece), the verbal augment appears in every verb starting with a consonant. The augment has two allomorphs depending on the stress: when the augment is stressed, it appears as -i-, while when not stressed, it appears as -e-:

(20)
(i) í-grapsa 'write' 1SG AOR
     AUG-BASE
(ii) e-grápsame 'write' 1PL AOR[146]
     AUG-BASE

(b) In Pontic Greek, the appearance of the syllabic augment is obligatory regardless of the stress placement:

(21)
(i) é-peza 'play' 1SG IMP
     AUG-BASE
(ii) e-kalátševa 'talk' 1SG IMP
     AUG-BASE

The syllabic augment also appears in prefixed verbal forms between the stem and the prefix, e.g. *en-e-sténaza* 'to sigh' 1SG-IMP.

Spyropoulos and Revithiadou (2009) also present some important data concerning the appearance of the augment in Modern Greek dialects. In the dialect spoken in Pyli (Kos, Greece) the presence of the augment varies according to the number of the syllables of the stem, that is, it is obligatory in disyllabic stems but optional in polysyllabic stems (Spyropoulos & Revithiadou, 2009: 115):

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[146] The same phenomenon can be detected in Bovese, the Greek-origin dialect spoken in Calabria (Southern Italy).

(22)

(i)   é-sfinga 'tighten' 1SG IMP
      AUG-BASE

(ii) e-sfíngame 'tighten' 1PL IMP
      AUG-BASE

(iii) e-gýrisa 'return' 1SG AOR
      AUG-BASE

(iv) gyrísame 'return' 1PL AOR
      BASE

Group B: augment as a discontinuous affix

According to Ralli (2005), in some dialects, the augment along with the endings of the past tense forms can be considered as a discontinuous affix which expresses the past tense. For example, in the dialect of Heptanesian we find the following forms:

(23)

é-lin-a 'untie' 1SG IMP
e-lín-ame 'untie' 1PL IMP
é-lis-a 'untie' 1SG AOR
e-lís-ame 'untie' 1PL AOR

According to Ralli (2005), in these examples we notice that the augment and the endings appear in a very systematic way and thus we can claim that both should be considered as part of the same affix which expresses the [past] feature. Since this affix is interrupted by the stem, we should consider it a discontinuous affix.

Group C: augment as a morphophonological element

In this group we find dialects in which the augment has characteristics similar to those of SMG. An illustrative example of this group is analysed in what follows.

5.2.2.1 The augment in Griko

The status of the augment *e-* in Griko (Salento), has been matter of discussion, thus we need to examine the previous literature before proceeding to the analysis. Morosi (1870: 132) states the following:

'Il raddoppiamento […] è ora affatto perduto e nella Grecia e qui. Rimase l' aumento, il quale fa le veci anche di quello ne' perfetti che tuttavia ci restano (ìvrica, èpiaca). […]; ma può stabilirsi come regola generale che I° i verbi nella 1a

pers. sing. pres. indic. bisillabi, parossitoni od originariamente (comme canno=κάμνω) o per aferesi moderna (come vrizo=ὑβρίζω), di necessità lo richiedono nell' imperf. e nell' aor. sing. laddove nel plur. non l' hanno costante, quindi *canno* fa nel sing. *ècanna*, *ècama*, ma nel plural *ecànnamo*, *ecàmamo* […] IIᵒ l' hanno speso, ma non sempre (s' intende solo nel singol.), i bisillabi perispomeni, come *fsunno* […] e *ghenno*, onde *efsùnnone* e *fsùnnone* imperf., *efsùnnisa* e *fsùnnisa* aor.; *eghènnone* e *ghènnone* imperf*.*, *eghènnisa* e *ghènnisa* aor.;- e di rado i trisillabi ossitoni, come *sunghìzo* (σφογγίζω), onde *esùnghiza* e *sùnghiza* imperf. *esùnghisa* e *sùnghisa* aor. IIIᵒ non l' hanno mai i composti di un maggior numero di sillabe, epperò *pesinìsco* (ἀποθνήσκω) nell' imperf. di regola fa *pesìnisca*'

[The reduplication […] is now totally lost in Greece and here. The augment has remained, which substitutes also that in the perfects that we still have (*ìvrica* 'I found', *èpiaca* 'I caught'). […] but as a general rule it can be established that: (a) the verbs in the first person singular of the Present indicative that are disyllabic and that are paroxytonic either originally, like the verb *κάννω* 'get tired', or after a recent deletion of the first vowel, like the verb *βρίζω* 'swear' (from *ὑβρίζω*, my addendum), require the augment in the singular forms of the Imperfect and Aorist tense, while it is not constant in the plural forms, therefore *canno* 'do' in the singular forms is *ècanna*, *ècama*, but in the plural *ecànnamo*, *ecàmamo* […] (b) disyllabic contract verbs have the augment, but not always (that is in the singular), like the verb *fsunnó* 'wake up' […] and *ghennó* 'give birth', which are formed as *efsùnnone* and *fsùnnone* in the Imperfect, *efsùnnisa* and *fsùnnisa* in the Aorist; *eghènnone* and *ghènnone* in the Imperf., *eghènnisa* and *ghènnisa* in the Aorist.; and rarely the three-syllable paroxytonic verbs like *sunghìzo* 'sponge', which is formed as *esùnghiza* or *sùnghiza* in the Imperfect, *esùnghisa* and *sùnghisa* in the Aorist. (c) but compositional verbs that have more than three syllables never have the augment, therefore the verb *pesinìsco* 'die' is formed as *pesìnisca* in the regular form of the Imperfect][147]

Morosi makes some very interesting points regarding the use of the augment and presents a brief analysis of its distribution. He claims that the augment appears only in stressed positions. Hatzidakis (1892: 70, my translation) makes a similar observation: 'in Süditalien sind beide Formen, sowohl die augmentierte als auch die augmentlose üblich' (in Southern Italy both forms are used, usually both with and without the augment).[148]

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[147] I would like to thank Sally Pasquare for helping me with the translation of this excerpt.

[148] It should be mentioned that Rohlfs (1977) presents the same conclusions.

Karanastasis (1997: 80) mentions that the syllabic augment in Griko behaves like in SMG, that is, it is being dropped in the unstressed position in three-syllable verbs. This observation is in accordance with Morosi's observation which shows that the augment in the dialect has lost its original morphological status.

The examination of contemporary data drawn from the area of Salento can shed light on the difficult question of the morphological status of the augment.[149] Consider the following tables:[150]

Table 33: Past tense formation IC1-Griko

	AORIST[151]-	**IMPERFECT**
1SG	égratsa 'I wrote'	égrafa 'I was writing'
2SG	égratse[152] 'you wrote'	égrafe 'you were writing'
3SG	égratse '(s)he/it wrote'	égrafe '(s)he/it was writing'
1PL	grátsamo 'we wrote'	gráfamo 'we were writing'
2PL	grátsato/ grátsate 'you wrote'	grátsato/ gráfate 'you were writing'
3PL	grátsane 'they wrote'	gráfane 'they were writing'

Table 34: Past tense formation-IC2A-Griko

	AORIST	**IMPERFECT**
1SG	agápisa 'I loved'	agápona 'I was loving'
2SG	agápise 'you loved'	agápone 'you were loving'
3SG	agápise '(s)he/it loved'	agápa '(s)he/it was loving'
1PL	agapísame 'we loved'	agapoúamo 'we were loving'
2PL	agapísete/agapísato 'you loved'	agapoúato 'you were loving'
3PL	agapísane 'they loved'	agapoúane 'they were loving'

Table 35: Past tense formation-IC2B-Griko

	AORIST	**IMPERFECT**
1SG	epátisa 'I stepped'	epátona 'I was stepping'
2SG	epátise 'you stepped'	epátei 'you were stepping'
3SG	epátise '(s)he/it stepped'	epátei '(s)he/it was stepping'
1PL	patoúsamo 'we stepped'	epatoúamo 'we were stepping'
2PL	patoúsete 'you stepped'	epatoúato 'you were stepping'
3PL	pátousàne 'they stepped'	epatoúane 'they were stepping'

There are two important points to be made here:

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[149] The formation of the past tense forms has been already examined in chapter 4. However, in this chapter we focus on the distribution of the augment.

[150] The data in these tables came from recordings of native speakers of the dialect in the village of Calimera. It should be mentioned that there is some variation among the villages in the Salento area which has not been standardized. Karanastasis (1997) presents some form variants in his grammar. Formations of the Imperfect tense in table 35 are not collected from the recordings, but follow the examples found in Karanastasis (1997: 89).

[151] I present only the active voice. The native speakers of the dialect seem to be reluctant to form the mediopassive voice in many cases. Instead, they form the active voice combined with the reflexive pronoun.

[152] It should be mentioned that the final -s is being dropped due to the phonological constraint requiring an open syllable and thus the endings of the 2nd and the 3rd singular are neutralized.

(a) The augment does not have a clear-cut morphological status: it mainly appears in stressed positions, similar to the distribution of the augment in SMG, but it can also appear in unstressed positions;

(b) In the second person plural of both the Aorist and the Imperfect tense there is a second form, i.e. *grátsate* and *gráfate*, correspondingly, which is not mentioned in Karanastasis' description.

5.3 A classification of preverbs in Modern Greek

Preverb is a cover term which is used in order to describe all 'morphemes that appear in front of a verb, and which form a close semantic unit with that verb' (Booij & van Kemenade, 2003: 1). The category of preverbs includes both preverbal words and preverbal prefixes and in many cases the morpheme that functions as a preverb can also appear in non-preverbal context, often used as an adverb or an adposition (Booij & van Kemenade, 2003).

Modern Greek has a rich variety of preverbal elements. The appearance as well as the position of the internal augment in both SMG and Griko depends on the type of the preverb. In both varieties, the augment shows an interesting distribution particularly in formations with preverbs inherited from Classical Greek. In order to describe the data in the subsequent sections, the aim of the present chapter is twofold: first, to present a classification of Modern Greek preverbs, based on the Ralli's (2004, 2005) analysis, and second to focus on the morphological features of the preverbs inherited from Classical Greek, since this type of preverbs is particularly relevant to our analysis.

5.3.1 Preverbs in Modern Greek

A thorough analysis of Modern Greek preverbs is provided by Ralli (2004, 2005), who has proposed a classification of the preverbs on the basis of well-defined structural and semantic properties of the elements involved in both SMG and the Modern Greek varieties.

According to Ralli's analysis, preverbs are divided in the following categories (Ralli, 2004: 243):[153]

(a) *Prefixes*: items which are only used as bound forms, with no prepositional or conjunctional use (class I preverbs);

(b) Ancient Greek prepositions: most of them appear as prefixes today, but they can have a formally corresponding preposition or conjunction (class II preverbs);

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[153] It is beyond the scope of the present analysis to present a thorough analysis of the criteria used for this classification.

(c) *Adverbs*: items which appear as either phrasal elements or first constituents of words, with more or less the same adverbial meaning (class III preverbs).

The category of Class I preverbs has as its only member the prefix *kse-*.[154] This element never appears separately but only prefixed to verb bases, and bears no primary stress (Ralli, 2004: 243). In its most productive formations, *kse-* expresses a reversing of the event, for example *kse-skepazo* 'un-cover' from the verb *skepazo* 'cover', while it may also show an intensive character and denote a high degree of realization of the verbal notional properties, for example *kseskizo* 'tear up' from the verb *skizo* 'tear' (*ibid.*). Since *kse-* ends in the vowel -e- it is hard to examine the distribution of the internal augment in SMG.

   The category of Class III preverbs includes items which can also function as an adverb. For example, the preverb *poly* 'a lot, much', as in *poly-diaspo* 'split sth into many pieces', can also be used as an adverb, as in *agapo poly* 'to love a lot'. Class III preverbs carry a primary stress without any significant change to their meaning (Ralli, 2004: 251).

5.3.2 Formations with Class II preverbs in MG: between compounding and derivation

On the basis of the existing relation between the members of a formation prefixed by a preverb, we can assume a cline which has two poles: on the one side of the continuum we have the ideal case of concatenation, while on the other side of the continuum we find cases in which the structural or semantic relation among the different constituents is not transparent:

(24)
Everything is concatenation ⟶ Structural and semantic opacity

Compounding -in most cases- can be considered as the ideal case of concatenation, while derivation stands in between these two poles. It is generally acknowledged that formations with preverbs blur the distinction between compounding and derivation since formations with this type of elements may display characteristics of both processes (cf. Booij, 2005; Dimela, 2010; Iacobini 1999, 2004a; Los at al., 2012 and Ralli 2005, 2010).

   Class II preverbs derive historically from Ancient Greek (henceforth AG) prepositions. The grammatical status of this category has been hotly debated in the recent literature, since these elements have an ambiguous morphological status between words and

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[154] See Efthymiou (2001, 2002) for a discussion of this prefix.

prefixes and thus the formations in which they participate can be considered as either compounds or derivatives.[155]

This question is relevant to our topic in the following sense: if class II preverbs are words and the formations in which they participate are compounds, then the appearance of the internal augment does not constitute an exception to Greenberg's universal. However, if class II preverbs have more derivational properties, then we can argue against the generality of this universal.

Let us now examine the previous accounts. In traditional descriptions (see, among others, Babiniotis, 1972), it is argued that the AG prepositions keep their original grammatical status in Modern Greek since most of these elements can also be used as prepositions synchronically. In this view, the formations with AG prepositions should be considered as compounds synchronically.

However, this analysis is not without problems. The classification of these elements as part of compounds is based on an 'intuitive concept' of the distinction between derivation and compounding and it does not specify the phonological, semantic and structural differences between these elements and their prepositional counterparts. Moreover, it does not take into account the fact that these elements had an ambiguous status since Classical Greek (see, Schwyzer, 2002).

Ralli (2007) argues that class II preverbs have a bound character and thus they are more close to the category of derivational prefixes. This follows from the examination of the following criteria:

Criterion 1: syntactic autonomy

Synchronically, most of the class II elements appear as bound forms and only in some specific cases they have a formally corresponding preposition.[156] For example, the preverb *peri-* 'as for, around' is not productively used as a preposition synchronically, but it is found only in some relics or fossilized expressions (cf. Humbert, 1957; Tzartzanos, 1996 [1946²]), e.g. *peri orekseos* 'there is no accounting for taste', *exo peri polou* 'I find something important'. In most cases, the AG prepositions have been replaced by new 'more complex' prepositions (Humbert, 1957; Jannaris, 1897). For example the AG preposition *peri* has been replaced by the complex preposition *sxetika me* 'with regard to'.

At this point it should be mentioned that some preverbs of this specific class correspond to some prepositions with identical phonological form in Modern Greek (homonyms/homomorphous). For example, the MG preposition *apo* 'from, by', which

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[155] The same conclusion can be reached by examining the grammatical behaviour of these elements in their diachronic development (Koutsoukos, 2009).

[156] According to Clairis and Babiniotis (1999), the use of these elements as prepositions is found only in high and formal registers.

expresses either the origin/source or the agent in passive sentences, is homonymous with the preverb *apo-*.

Criterion 2: semantic compositionality

Formations which have class II preverbs as their first element do not always display the same degree of semantic transparency. The semantics of these formations may vary from a fully compositional (predictable) meaning to an idiosyncratic meaning. For example, in structures with the preverb *peri-* we find the following cases:

(a) Formations in which the preverb *peri-* has a fully predictable meaning and its semantic contribution to the formation is transparent, e.g. *peri-toixizo* 'surround an area with wall' < peri 'around'+toixizo 'wall sth', *peri-trigyrizo* 'skirt around sth' < peri 'around'+trigyrizo 'wander'

(b) Formations in which the preverb *peri-* is semantically opaque, e.g. *periexo* 'contain' < peri+exo 'have', *peripoioumai* 'take care of sth' < peri+(?)poioumai 'make(?)'

Criterion 3: change in the verb valency

Class II preverbs can contribute to the aspectual properties of the verb (aspectual particles) and thus may also affect the valency of the verb. Ralli (2004) makes a distinction between internal and external class II preverbs mainly on the basis of the semantic/aspectual changes that they bring to the base. *Internal preverbs* are those which affect the meaning of the verb, for instance, they may change the internal aspectual structure of the event denoted by the verb, whereas *external preverbs* do not change the aspectual structure and they have a more loose relation with the base. This distinction is exemplified in (25) (from Ralli, 2004: 249):

(25)
(i) vlepo 'see' > apo-vlepo 'to aim' (internal)
(ii) asfalizo 'to lock' > apo-asfalizo 'unlock' (external)

In (25i) the verb *vlepo* is a transitive verb which needs one complement (nominal phrase or subordinate clause), whereas the verb *apovlepo* needs a prepositional phrase as a complement. In this respect, class II preverbs are quite similar to verbal prefixes which can also affect the aspectual properties of the verb. In (25ii) both *asfalizo* and *apo-asfalizo* have the same aspectual structure (one complement) and they differ only with respect to their meaning.

Criterion 4: productivity

The combination of class II preverbs with the base is not always productive, but may be subject to a number of unpredictable constraints. For example, the prefix *apo-* may be combined with stative verbs, e.g. *apokoimamai* 'fall asleep' < *apo+koimamai* 'sleep', but there are a number of derivational gaps, e.g. **apopeinao* < *apo+peinao* 'be hungry' (Ralli, 2004). Note that derivational gaps is a property mostly found in derivational processes, a fact which suggests that these elements are closer to derivational affixes.

At this point it is worth mentioning that Lieber and Baayen (1993) have noticed a relation between the different meanings of a polysemous preverb and its productivity. Lieber and Baayen (1993: 71-72) argue that an affix which is not very productive may in fact gather strength in some well-defined subset of formations and re-emerge as highly productive there. For example, the preverb *para-* has developed the meaning of excessiveness in Modern Greek and this type of formations is highly productive (Ralli, 2004), e.g. *paratroo* 'over-eat', *parakoimamai* 'over-sleep', *parapino* 'over-drink'.

Criterion 5: combinatorial properties

Class II preverbs can be combined with both stems and words in order to form new lexemes.

In addition to the above mentioned criteria, we can add two criteria from Amiot (2005: 184):

Criterion 6: the ability to combine with different categories of lexemes

Class II preverbs have the ability to combine with adjectival, nominal and verbal bases, e.g. *peri-tranos* 'famous' (peri+adjective), *peri-kyklono* 'surround' (peri+verb), *peri-gyros* 'associates' (peri+noun). On the other hand, prepositions in MG can be combined only with nouns in order to form nominal phrases.

Criterion 7: semantic autonomy

The meanings displayed by class II preverbs do not correspond to the 'homomorphic' preposition. They have developed new meanings that do not correspond to the meanings/functions expressed by the AG prepositions. For example, the AG preposition *epi-* had mainly a locative meaning in Classical Greek and developed several new meanings in the Medieval Greek period. In Medieval Greek, the preverb *epi-* had started acquiring the meanings which are related to the notions of cause, tense, anaphora and

others, which cannot be considered as meaning extensions of the Classical Greek preverb (cf. Bassea-Bezantakou, 1996: 165).

According to these criteria, the basic properties of Class II preverbs can be summarized in the following properties:[157]

(a) They are bound elements that attach to the left periphery of the word.

(b) They combine with either words or stems for the formation of verbs. In order to examine whether they attach to stems or words, we need to invoke phonological, semantic and structural criteria (see section 5.5).

(c) They cannot combine with suffixes, but they attach to bound stems, e.g. *plan(o)* but *apoplano* 'seduce', *kse(o)* but *apokseo* 'scrape' (Ralli 2004, 2005, 2013).[158]

(d) They are closed-class items.

(e) They can appear with other preverbs (cumulative appearance), but only in specific ordering.

(f) They attach to bases that have the feature [+learned],[159] e.g. *para-dido* 'hand over', but they can also appear with bases that have the feature [-learned] e.g. *para-dino* lit. 'over-give' (give excessively).

(g) they do not affect the stress of the verbal base (Ralli, 2005), e.g. *trelaíno>apotrelaíno*.[160]

In sum, the class II preverbs should not be considered as autonomous words, but rather as bound morphemes which are similar to derivational prefixes. The relation between the base and the members of this particular class may vary from bound to loose on the basis of several structural and semantic criteria. Consequently, the formations in which class II preverbs participate should not be considered as compounds, but rather as derivatives.

Note now that the formations with Class II preverbs in Modern Greek could be likened to *Separable Complex Verbs* (SCVs), i.e. preverb-verb combinations, which are found in the West Germanic languages. In present day German and Dutch these elements are quite similar in their behaviour and most of them derive historically from adpositions or adverbs (Los *et al.*, 2012: 2). Preverb-verb sequences in these languages differ from

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[157] See also Iacobini (1999, 2004a) for a discussion of the Initial Combining Forms (ICFs).

[158] Both *plan(o)* and *kse(o)* are bound stems inherited from Classical Greek.

[159] According to Anastasiadi-Symeonidi and Fliatouras (2004) this feature is linked to elements which are used in high register context, or are inherited from Classical Greek (via Katharévousa) or both.

[160] At this point we need to mention that in other languages we may notice a stress shift when a preverb is attached to a verb. For example, in Sanskrit the stress placement depends on the type of the sentence in which the formations appears: the stress shifts to the verb when the verb appears in a subclause, whereas the preverb is stressed when the verb appears in a main clause (Los *et al.*, 2012: 8-9). In Dutch, the different stress patterns reflect the difference in the relation between the preverb and the base. Prefixed verbs carry the main stress on the verbal stem (not on the prefix), whereas the corresponding separable complex verbs carry main stress on the non-verbal constituent (Los *et al.*, 2012: 3), e.g. prefixed verb *over-kómen* 'happen to' versus separable complex verb *óver-komen* 'come over'.

prefixed verbs and verbal compounds in that the preverb is separable form the verb and the position of the preverb is regulated by the difference between main clause and embedded clause (*ibid.*):

(26)

Main clause: *Hans **belde** zijn moeder **op*** 'Hans phoned his mother up'

                        VERB   PARTICLE

Embedded clause: ….*Hans zijn moeder **op-belde***

                                           PARTICLE-VERB

Moreover, Iacobini and Masini (2007) and Iacobini (2009) argue that particle-verb (or to be more accurate verb-particle) constructions can also be found in present-day Standard Italian, as the following examples illustrate:[161]

(27)

venire giù 'come down, descend'

BASE   PARTICLE

portare via 'take away'

BASE   PARTICLE

mettere sotto 'put (something) under, run over'

BASE   PARTICLE

In Italian, the particles appear after the verbal base (postverbs) and, as shown by Iacobini and Masini (2007), they contribute to the Aktionsart (lexical aspect) of VPCs and have an ambiguous structural status between words and phrases.

    The basic difference between MG and the other IE languages is the following: there is clear evidence that particle+base formations in MG are words, whereas in other IE languages this type of formation stands between words and lexical units, since preverbs can be separated from the base and move to another position in the phrase.

    In Romance languages we can find elements which can have either a prepositional or prefixal use. Amiot (2005) analyses a number of elements, such as *après* 'after/post-', *avant* 'before/pre-', *contre* 'against/contra-', that can be used as either prepositions or prefixes in French. The following examples of the element *après* are illustrative:

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[161] It should be mentioned that Italian displays some differences compared to other Romance languages with respect to this issue (see, Iacobini, 2009). The appearance of phrasal verbs in Italian is considered as the borrowing of a Germanic pattern which first appeared in dialects in contact with the German language and then spread throughout standard Italian (Iacobini, 2009: 16). However, as shown by Iacobini, the occurrence of phrasal verbs in Italian is due to an internal development of the language.

(28)

(i) prepositional use

Il a commencé à travailler [*après la guerre*]~PP~ 'He started working after the war'

PREPOSITION ARTICLE NOUN

(ii) prefixal use

après-dîner 'post-dinner'

PREF-NOUN

According to Amiot, in many analyses the two different uses of preverbs (prefix versus preposition) are not distinguished. However, she proposes a different analysis according to which prefixes may originate in prepositions, but it is not necessary to analyse them in the same way. Amiot claims that we need to consider a continuum on which prototypical prepositions and prototypical prefixes can be found at its two poles. Along this cline, we can find elements such as those analysed above.

5.4 Inflection inside derivation in Modern Greek

In the previous sections we examined several cases in which inflectional morphemes appear inside derivational formations. In this section I put the focus on the examination of data from SMG and Griko.

5.4.1 Augment and preverbs in SMG

Mackridge, in his classic description of SMG, observes the following (1985: 184-185):

'In SMG there are about eighteen *prepositional prefixes* (i.e. prefixes which were used in AG as prepositions), and two or more of these may be used on the same word […]. *Katharévousa* brought with it a huge number of verbs with these prefixes, and with them a number of complications in phonology and morphology, (a) because of the internal augment, and (b) because the final sound of most of these prefixes is affected according to what sound immediately follows it […]'.

Mackridge rightly points out a topic which has been neglected in the recent literature, that is, the fact that in SMG the verbal augment may appear between the preverb and the base.[162] Take for example the verb *syngráfo* 'to author' (< syn 'con-'+gráfo 'write') in which the augment appears between the preverb and the base in the aorist like in *syn-égrapsa* 1SG AOR 'I authored'.

This phenomenon is inherited from Ancient Greek and passed to SMG through Katharévousa. It should be mentioned, however, that this type of formations should not

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[162] This phenomenon is also mentioned in Spencer (2003b).

be considered as relics from Ancient Greek, since the appearance of the augment between the preverb and the base is quite productive, as will be shown below. Modern Greek dialects were not affected by Katharévousa to such a great degree, but do display internal augment in formations with preverbs.

The use of the internal augment is a difficult problem for most speakers of Modern Greek and it is not surprising that several strategies are employed in order to avoid a decision to use it or not (Mackridge, 1985: 185). Preverbs in this type of formations have an ambiguous grammatical status, which allows for two possible structural interpretations. This ambiguity can be seen as the source of change. Moreover, formations of this type in SMG are considered to have the feature [+learned].

For the same reason, the examination of the internal augment has been deliberately neglected by most of the researchers who argue that the distribution of the augment cannot be sharply defined. However, in what follows, I argue that although there is a great morphological variation, it is possible to establish certain criteria in order to describe the distribution of the augment.

Let us now turn to the examination of the data. As illustrated in section 5.2.1, past tense verbal forms in SMG can be marked by the appearance of a morphophonological element which carries stress (traditionally referred to as 'syllabic augment' or 'augment'). The appearance of the augment is morphologically conditioned: the 'augment' does not appear throughout the paradigm, but *only* in cases where after the addition of the inflectional suffix the base consists of two syllables (disyllabic verbal forms). Therefore, the augment should *not* appear in cases where there are more than two syllables in the base form. For example, the verb *gráfo* 'write' becomes *égrapsa* 1SG AOR, whereas becomes *grápsame* 1PL AOR.

However, there are some cases which seem to be exceptions to this rule. Consider the following paradigm of the formation consisting of the *preverb syn 'con-'* and the base *gráfo 'write'*:

Table 36: Formation of the verb *syngrafo* 'to author'

	AORIST
1SG	syn-é-gra-psa (instead of *sýngrapsa)[163]
2SG	syn-é-gra-pses (instead of *sýngrapses)
3SG	syn-é-gra-pse (instead of *sýngrapse)
1PL	syn-grá-psa-me
2PL	syn-grá-psa-te
3PL	syn-é-gra-psan/syngrápsane (instead of *sýngrapsan)

In the table above we notice the following:

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[163] Hyphens demarcate the syllable boundaries.

(a) An internal augment[164] appears between the preverb and the verbal base, although there is no need for the addition of an extra syllable in order to carry stress (the syllable of the preverb can carry the stress);

(b) The appearance of the internal augment follows the same rules as in the forms without the preverb (see in section 5.2.1).

The data so far raises an important question: *is there any correlation between the prosodic make-up of preverbal elements and the appearance of the augment*? Since Class II preverbs are either monosyllabic, e.g. *en-*, or disyllabic, e.g. *apo-*, it seems that the prosodic form of the preverb does not play any significant role in the appearance of the augment: in fact, in both cases, we can notice an internal augment, for example *egkríno*[165] (en+kríno) > *en-ékrina* 1SG AOR and *katagráfo* (kata+gráfo) > *kat-égrapsa* 1SG AOR.

Let us now examine whether the prosodic form of the base plays any role in the appearance of the internal augment:

Table 37: Internal augment in verbal forms with preverbs

Formatives	Base form	Past form without augment	Past form with augment
anti+grafo	antigrafo 'copy'	*ant**í**grapsa	ant-**é**grapsa
apo+kamno	apokamno 'get tired'	apókama	*apékama[166]

In table (37) we observe that there is a difference with respect to the appearance of the internal augment. Both verbs have the same prosodic (two syllables) and morphological (preverb+base) make-up, but, the form *antigrafo* displays a different behaviour compared to that of *apokamno*. The first form features an internal augment (*ant-**é**grapsa*) in contrast to the second form.

Thus, the appearance of the augment does not correlate with the prosodic form of either the preverb or the base. I assume that the appearance of the internal augment correlates to the morphological and semantic characteristics of the preverb and the base. This assumption will be examined in the next sections.

5.4.1.1 The preverb apo-

The preverb *apo-* belongs to the Class II preverbs (Ralli 2004, 2005). *Apo-* has a dual behaviour with respect to its semantic transparency. Following Ralli's classification (presented in 5.3.1), the preverb *apo-* has the following characteristics:

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[164] The internal augment may be either syllabic (prefixation of the syllable *-e-*) or vocalic (change of the first vowel), e.g. AG e:rxome:n 'I was coming', depending on whether the verb-stem begins with a consonant or a vowel. The second type of augment has either disappeared in MG or exists in fossilized verbal types.

[165] The preverb *en-* assimilates its final -n- before -k-, but regains it before a vowel.

[166] The formation is grammatical but highly questionable in SMG.

(a) External *apo-* has a transparent and compositional meaning.[167] External *apo-* may either *reverse* the meaning of the verbal base or express the *accomplishment*[168] of the action of the verbal base:

(29)
psyxo 'freeze' [V: <u>NP</u> Agent, NP theme][169]
apo-psyxo 'defrost': [V: <u>NP</u> Agent, NP theme] (reverse meaning)

(30)
troo 'eat' [V: <u>NP</u> Agent, NP Theme]
apotroo 'eat up' [V: <u>NP</u> Agent, NP Theme] (accomplishment of the action)

As shown by the examples above, the external *apo-* does not change the valency of the verb and brings only transparent changes to the meaning of the verbal base.

(b) Internal *apo-* has a different behaviour. It is semantically opaque, it is combined with a verbal stem and can change the valency of the verb:

(31)
feugo 'depart' [V: <u>NP</u> Agent]
apo-feugo 'avoid' [V: <u>NP</u> Agent, NP Theme]

As shown by the example above, internal *apo-* has an idiosyncratic meaning and changes the valency of the verb.

Let us now examine whether the distinction made above is related to the distribution of the internal augment. I have argued elsewhere (Koutsoukos, 2009, 2010) that the internal augment appears more systematically with the internal variant of Class II preverbs, whereas it appears only under certain conditions with the external variant of Class II preverbs.

In order to prove that, we need to examine minimal pairs of verbal formations which display both variants of the same preverb. In SMG there is a large number of verbal bases which can be combined with both the internal and the external variant of the same Class II preverb. For example, the verbal base *ginomai* 'become' may be combined with both the internal variant of the preverb *apo-*, e.g. *apoginomai* 'exist' and the external variant of it, e.g. *apoginomai* 'end up'.

The two verbs show a different behaviour with respect to the distribution of the augment:[170]

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[167] Class II preverbs may be combined with either a word or a stem (Ralli, 2004).

[168] According to Ralli (2004), the accomplishment meaning results indirectly from the excessive and the reversative nuance of the preverb.

[169] The underlined element expresses the external argument.

Table 38: Minimal pairs-distribution of the augment

Verbal base	Aorist	Aorist
apoginomai	**internal apo-** *ap-égina* 'I became'	**external apo-** *apógina* 'I ended up'
apografo	**internal apo-** *ap-égrapsa* 'I wrote down'	**external apo-** *apógrapsa* 'I wrote up'

The data in the table (38) suggests that the augment appears only when we have the internal preverb.

As mentioned above, an internal augment may appear with external Class II preverbs, but only under certain phonological conditions. For example, the verb *apógina* can also appear as *apoégina* with the same meaning. However, in that case the preverb and the verb do not form a prosodic unit, as evidenced by the fact that there are two adjacent vowels (cf. Nikolou, 2008, 2009)

Since the appearance of the internal augment is related to Ancient Greek, another issue that needs to be investigated is whether the feature [±learned] correlates with the appearance of the internal augment. I assume that synchronically the augment is more likely to appear in formations which are marked as [+learned], as shown by the following data:

(32)
Group A
When the verbal base has the feature [+learned], there is an internal augment:
apo-ripto 'object' → ap-éripsa 1SG AOR
apo-lyo 'to fire' → ap-élysa 1SG AOR
apo-krouo 'repel' → ap-ékrousa 1SG AOR
apo-theto 'to place' → ap-éthesa 1SG AOR

Group B
When the verbal base has the feature [-learned], the internal augment is absent:
apo-dioxno 'repel' → apódioksa 1SG AOR
apo-kovo 'cut off'→ apókopsa 1SG AOR
apo-sono 'get tired' → apósosa 1SG AOR

The distinction made above is further supported by minimal pairs of synonymous verbal bases, which are many in SMG. In a large number of cases though, the difference is a matter of register: one of the pair originating in Dimotiki and the other from Katharévousa. In most such cases, the Dimotiki word is the more frequently used in

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[170] The data for the present analysis was drawn from the Dictionary of Standard Modern Greek (http://www.greek-language.gr/greekLang/modern_greek/tools/lexica/triantafyllides/index.html).

informal speech and literature, while the Katharévousa equivalent (which is used in more formal speech) is the one generally found in official writing (Mackridge, 1985: 335-336). These verbal bases are in most cases etymologically related, but differ with respect to the feature [±learned], e.g. *kopto* 'to cut' [+learned] but *kovo* 'to cut' [-learned].

Let us now examine some illustrative examples with the preverb *apo-*. Both -synonymous- bases *kopto* and *kovo* combine with the internal preverb *apo-*, but show a different behaviour with respect to the distribution of the augment:

(33)
apo-kópto 'cut off' → ap-ékopsa 1SG AOR ***but***
apo-kóvo 'cut sb out' → apókopsa 1SG AOR

The examples in (33) show that the internal augment is more likely to appear when the verbal base has the feature [+learned].

5.4.1.2 The preverb para-

The preverb *para-* also belongs to Class II preverbs and has two variants (Ralli, 2004):

(a) External *para-* attaches to verbal bases and gives the meaning of excessiveness:

(34)
eksetazo 'examine' [+V, −N: <u>NP</u> Agent, NP Theme]
para-eksetazo 'over-examine' [+V, −N: <u>NP</u> Agent, NP Theme] (excessive meaning)

External *para-* has a loose relation with the verbal base, it does not change the valency of the verb and adds the nuance of excessiveness to the verbal base.

(b) Internal *para-* does not have a transparent meaning:

(35)
vgaino 'go out' [+V, −N: <u>NP</u> Agent]
paravgaino 'compete' [+V, −N: <u>NP</u> Agent, PP Theme]

As shown by the examples above, internal *para-* may change the valency of the verb and has an idiosyncratic meaning.

The distribution of the augment in formations with the preverb *para-* displays many similarities with the distribution of the augment in formations with the preverb *apo-*. Applying the same criteria, we notice that the augment appears only in formations with the internal variant of *para-*:

Table 39: Distribution of the augment in *para*- formations

Verbal base	Aorist	Aorist
paragrafo	**Internal para-** *par-egrapsa* <para+egrapsa 'I deleted'	**External para-** *paragrapsa/ paraegrapsa* < para+egrapsa[171] 'I overwrote'
parameno	**Internal para-** *par-emeina* <para+emeina[172] 'I stayed'	**External para-** *parameina/ paraemeina* < para+emeina 'I overstayed'

Therefore, the semantic feature of the preverb should be examined along with the diacritic feature [learned] of the base:

(a) The internal augment appears, when the verbal base has the feature [+learned]:

paralyo 'lose consciousness' → par-élysa 1SG AOR

paradido 'hand over' → par-édosa 1SG AOR

(b) The internal augment does not appear, when the verbal base does not have the feature [+learned]:

parapéfto 'fall unnoticed' → parápesa 1SG AOR

This distinction is corroborated by the examination of minimal pairs consisting of synonymous verbal bases with the same preverb. As with the preverb *apo-*, the preverb *para-* may combine with bases which are etymologically related but are different as for the feature [±learned], e.g. the verb *dino* which has the feature [-learned] and the verb *dido* which has the feature [+learned]. Both bases may combine with the preverb *para-*:

(36)

para-díno 'overgive' → parádosa1SG AOR

para-dído 'hand over' → par-édosa 1SG AOR

To conclude, the internal augment has a clear distribution which can be defined on the basis of two different dimensions:

(a) The internal augment shows up in the content of lexical features associated with preverbs and stems: it appears when the formations has the characteristic [+learned] which 'forces' the speaker to relate the preverb to the original form and to keep the structure of the AG formation.

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[171] Exceptionally, the internal augment appears with external *para-*, as in *paraevrase* 'it overboiled', but this is only for emphasis.

[172] *mein-* is a suppletive form of the base *men-* which is used to express [+perfective] aspect.

(b) The appearance of the internal augment depends on the structural interpretation of the construction and the degree of cohesion between the preverb and the base.

5.4.2 Augment and preverbs in Griko

The distribution of the internal augment in Griko shows a great variation which has been little described in the previous literature. This issue has been neglected for two reasons: first, the augment has been considered as an inflectional prefix (relic of Ancient Greek) which always appears in the past tense of the verbal formations and second, the description of preverbs is mainly based on loose criteria which cannot account for the variation in the formations. However, in this section, I aim to describe the data and to examine whether we can find cases where inflection appears inside derivational formations with class II preverbs.

The traditional descriptions of the dialect refer to this phenomenon only sporadically. The following excerpts are the most characteristic ones:

'Anche i verbi composti fanno apparire l'aumento all' inizio del verbo: *ekatévina*, *efsúnnisa*, *eparpátia*, *ekáisa gramma*' (Rohlfs, 1977: 104-105)

[Also the compound verbs have the augment at the beginning of the verb: *ekatévina* 'I descended', *efsúnnisa* 'I woke up', *eparpátia* 'I stepped', *ekáisa gramma* 'I wrote a letter' (translation of the Greek words is mine)]

'Τα σύνθετα ρ. με πρόθεση που αρχίζει από σύμφωνο παίρνουν συλλαβική αύξηση: *φσουννώ < εξυπνώ - εφσούννισα* (Απουλία), *κατεβαίνω - εκατέβηνα* (Καλαβρία)' (Karanastasis, 1997: 80)

[Complex verbs with a preverb starting with a consonant have a syllabic augment: *fsunó < eksupno* 'wake up' - *efsúnnisa* 1SG AOR (Salento), *katevainno - ekatevina* (Calabria)]

Both Rohlfs and Karanastasis do not take into account the fact that *ekatévina*, *efsúnnisa*, *eparpátia* are structurally opaque synchronically, and thus one cannot use them for the examination of the distribution of the internal augment. In this type of formations the augment correctly appears at the beginning as in simple verbs.

The distribution of the augment should be investigated only in formations which are structurally and semantically transparent synchronically, and it should be based on the criteria described in the previous sections.

Let us now examine the data. It should be mentioned that in the dialect, there are not so many verbal types with class II preverbs, which can be considered as productively built. Among these examples I have excluded those which appear only in

Bovese, the Greek-origin dialect spoken in Calabria. In the remaining formations, there is diversity with respect to the appearance of the augment. The following examples are illustrative:

(37)
Group A: the augment does not appear
(i)   katá-lona 'destroy' IMPERFECT
      PREVERB-BASE
      (Salento: Martano from *DGDSI*, *s.v.*: καταλύω)
(ii) pará-ššisa 'to grow an offshoot' AORIST
      PREVERB-BASE
      (Salento: Castrignano dei Greci, Sternatia, Corigliano d'Otranto from *DGDSI*, *s.v.*: παραššídζω)
(iii) pará-skatsa 'to dig' AORIST
      PREVERB-BASE
      (Salento: Corigliano d'Otranto, from *DGDSI*, *s.v.*: παρασκάθτω)

Group B: the augment appears at the beginning
(i) i pratina **e-katá-lyse** 'the ewe gave birth-AORIST'
          AUG-PREVERB-BASE
     (Salento: Calimera, from *DGDSI*, *s.v.*: καταλύω)
(ii)   i itsa **i-katályse** 'the nanny goat gave birth-AORIST'
          AUG-PREVERB-BASE
     (Salento: Sternatia, from *DGDSI*, *s.v.*: καταλύω)

In the first group of data the addition of the inflectional suffix 'pushes' the stress towards the antepenultimate syllable and the preverb carries the stress. One could argue that in these cases the augment may be present in the first place, but it is dropped due to phonological reasons.[173] Moreover, this data shows that the preverb and the base have a structural cohesion which is not interrupted by the appearance of the augment. In the second group of data in (37) the augment appears at the beginning of the formations, either as a syllabic or as a temporal augment. This kind of formations is not very frequent in the data a fact which can be explained by the grammatical status of the augment in the dialect. In both cases we notice that the augment does not appear between the preverb and the base which does not come as a surprise. Griko has not been affected by Katharévousa and thus there are not minimal pairs of formations which may give different structural interpretations to the formations.

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[173] Syllables in Griko usually have the optimal form of CV.

5.5 Construction Morphology and inflection inside derivation

The thrust of the present section is to provide an analysis of the cases discussed in the previous sections. The appearance of inflection inside derivational formations is only part of a general problem, that is, the order of morphemes in morphological constructions. However, it should be underlined that it is beyond the scope of the present thesis to discuss the order of morphemes in general. The focus is on the order of inflectional and derivational morphemes.

I aim to show that Construction Morphology can account for the cross-linguistic tendency generally referred to as Greenberg's N.28 universal by providing an analysis based on schemas and subschemas, but also for the apparent exceptions to this tendency.

In section 5.1.3 we noticed that several accounts have been put forward in order to explain cases wherein inflection appears inside derivational formations. However, all of them face serious challenges in many respects. The most crucial problem is that most of these proposals can be considered as theoretical idealizations since they ignore the empirical data.

In this section, I present an analysis within the CM framework. This analysis is based on the idea that the various alternatives regarding the appearance of the internal augment are represented as subschemas available to the language users. The crucial point of this analysis is to find the constraints that delimit the use of this schema and integrate them in the analysis.

Past tense forms in SMG are characterized by having antepenultimate stress. This prosodic requirement should be represented in the word formation schema along with the morphological and semantic information of the past tense morphology. These features should be represented as output constraints that need to be fulfilled in order to give the right form:

(38)

$<[\acute{\sigma}\sigma\sigma]_{\omega i} \leftrightarrow V_i \leftrightarrow [PAST\ [SEM\ _i]]>$

In the above schema we notice that past tense formation in SMG is represented as a tripartite construction which combines three pieces of information: first, it expresses the prosodic requirement of the antepenultimate stress, second it links this prosodic form with the syntactic information of the base (i.e. verb), and third it expresses the function/meaning of this form (i.e. past tense). The correspondence between these three pieces of information is expressed by the symbol $\leftrightarrow$ and specified by the co-indexation.

The analysis of the SMG data reveals that the augment appears only under specific conditions, i.e. disyllabic verbal bases. This distribution can be related to parsing constraints, and thus the prosodic schema can be divided into to two subschemas:

(39)

$$[\acute{\sigma}\sigma\sigma]_{\omega i} \leftrightarrow V_i \leftrightarrow [\text{PAST} [\text{SEM}_i]]$$

$$[\acute{e}[\sigma\sigma]]_{\omega i} \leftrightarrow V_i \leftrightarrow [\text{PAST} [\text{SEM}_i]] \qquad [\acute{\sigma}\sigma\sigma]_{\omega i} \leftrightarrow V_i \leftrightarrow [\text{PAST}[\text{SEM}_i]]$$
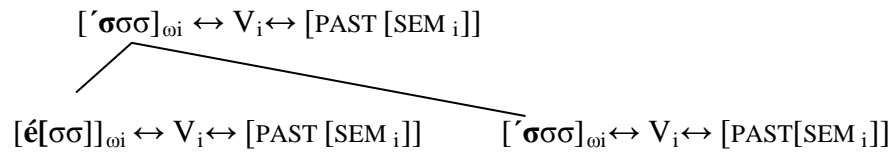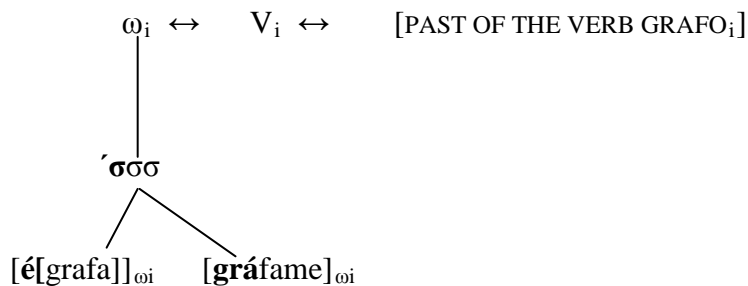
The schema in (39) shows that the prosodic requirement of the past tense forms can be segmentally expressed as either an antepenultimate stress of the verbal base or a syllabic augment -e- which carries the stress. In this representation the fact that the appearance of the augment is restricted to cases where the antepenultimate stress is not carried by a syllable of the base is represented along with the cases in which the stress is carried by the verbal stem.

Let us now see the full-fledged representation of the past tense of the verb *grafo* 'write'. The verb *gráfo* is disyllabic in the three persons if the singular and the third person plural, while it is polysyllabic in the first and second person plural. The augment appears only in the slots of the paradigm in which the verb is disyllabic. This alternation can be represented as follows:

(40)

$$\omega_i \leftrightarrow V_i \leftrightarrow [\text{PAST OF THE VERB GRAFO}_i]$$

$$\acute{\sigma}\sigma\sigma$$

$$[\acute{e}[\text{grafa}]]_{\omega i} \qquad [\textbf{grá}\text{fame}]_{\omega i}$$

The second point to be examined is how to account for the appearance of inflected forms inside derivational formations. As shown earlier, internal augment shows a variable distribution which is connected with the availability of two structural interpretations of preverb-verb combination; the preverb-verb combination may be interpreted as either a structurally looser, or more bound.

Relevant to our discussion is the distinction proposed by Ralli (2004, 2013) between stem-based versus word-based constructions with class II preverbs in SMG.[174] According to Ralli, preverbs may be combined with the morphological categories of word or stem. The criteria which are invoked in order to decide between the two categories are the following: (a) (possible) vowel deletion between the base and the preverb, (b) the preverbs order, and (c) the productivity of the preverb.
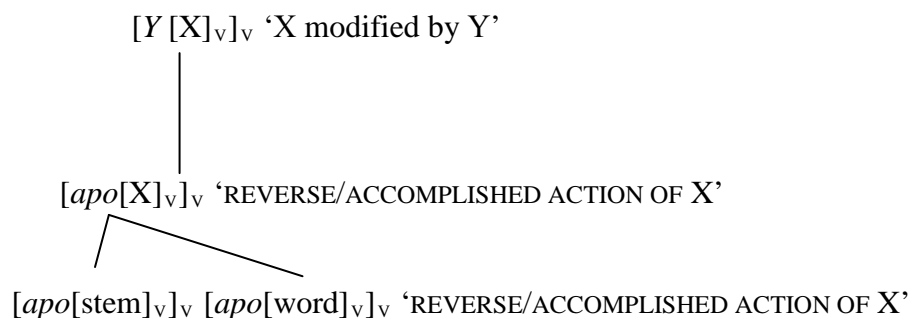
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[174] In a similar vein, Harris (2009: 297) argues that in Batsbi there are two basic constructions or schemas for lexical items of all types.

For example, when the preverb is attached to a stem, there is an obligatory vowel deletion, e.g. *parexo* 'provide' < *para+exo*. In this case, *para-* is attached to a stem and it has a close relationship with the base. However, *para-* can also attach to a word, e.g. *paraéfaga* 'I overate' < *para* 'over'+*éfaga* 'I ate'. In this case, the preverb *para-* is attached to a word and the relation between the base and the preverb is looser.

The crucial point here is the fact that both options are available synchronically. Thus, any prethereotical stipulation concerning the appearance of the augment is challenged by the actual facts.

Let us now examine a concrete example of this type of formation:
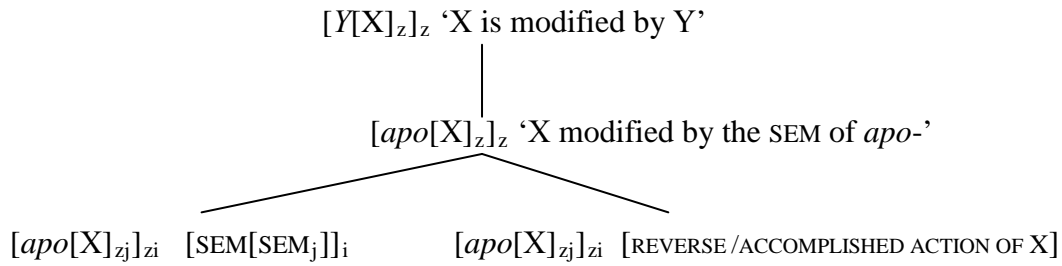
(41)

$$[Y\,[X]_V]_V$$ 'X modified by Y'

$$[apo[X]_V]_V$$ 'REVERSE/ACCOMPLISHED ACTION OF X'

$$[apo[\text{stem}]_V]_V \quad [apo[\text{word}]_V]_V$$ 'REVERSE/ACCOMPLISHED ACTION OF X'

In (41) we notice that the constructional schema of the preverb *apo-* is part of the general schema of prefixation in SMG.[175] This general schema shows that prefixes in SMG are category-neutral (indicated by the subscribed index v) and can only bring semantic modifications to the base (Ralli, 2004). The preverb *apo-* belongs to the category of class II preverbs and thus it is an instantiation of this general schema.

The morphological and semantic properties of this preverb are represented in a constructional schema which shows that *apo-* is combined with the category of verb and can express the reverse meaning of the verbal base or the accomplishment of its meaning. This preverb can be combined with either the morphological category of stem or the category of word. Thus, the constructional schema of the preverb *apo-* is split into two different subschemas which specify the morphological category of the base.

The schema in (41) is an inheritance tree which includes only morphological information about the constructions. This representation may be cross-classified with a semantic classification. For example, the preverb *apo-* has two semantic variants which belong to the same constructional idiom.

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[175] I use the general term prefixation to describe the combination of a preverb+base.

(42)

$$[Y[\text{X}]_z]_z \text{ 'X is modified by Y'}$$

$$[apo[\text{X}]_z]_z \text{ 'X modified by the SEM of } apo\text{-'}$$

$$[apo[\text{X}]_{zj}]_{zi} \quad [\text{SEM}[\text{SEM}_j]]_i \qquad [apo[\text{X}]_{zj}]_{zi} \quad [\text{REVERSE /ACCOMPLISHED ACTION OF X}]$$
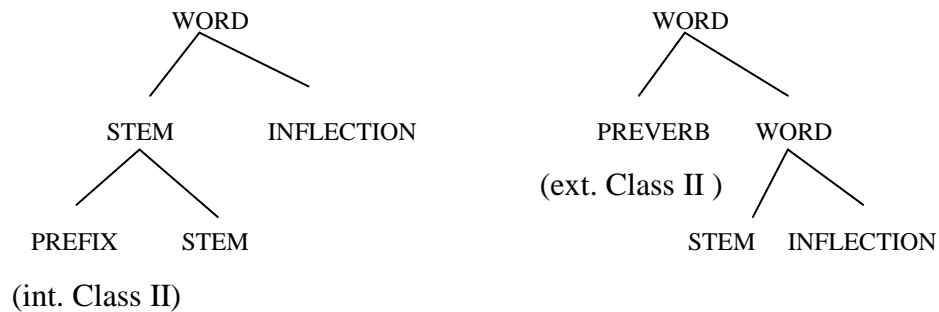
In (42) the two semantic variants of the preverb *apo-* are represented. The internal variant of the preverb *apo-* is not specified as to its semantics, since it does not bring predictable meaning changes. However, the external *apo-* has transparent meaning which is combined with the base.

Ralli (2004) assumes that the semantic classification of the class II preverbs (internal versus external variant) may be aligned with the morphological category of the base. In other words, internal class II preverbs are combined with the morphological category of stems, whereas external class II preverbs are combined with the category of words. This is shown schematically in the following (from Ralli, 2004):

(43)

```
           WORD                          WORD
          /    \                        /    \
      STEM    INFLECTION         PREVERB    WORD
     /    \                    (ext. Class II )  /   \
 PREFIX   STEM                              STEM  INFLECTION
  (int. Class II)
```
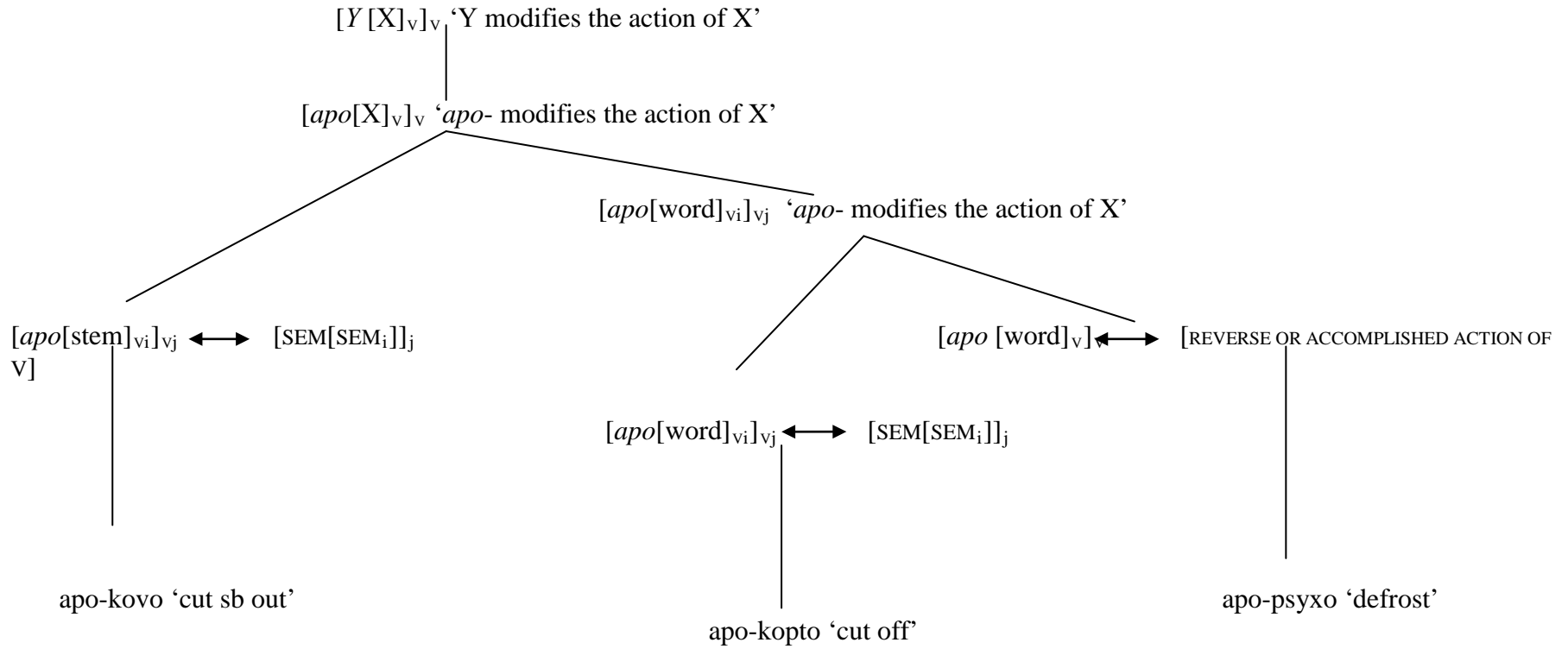
The examination of the distribution of the internal augment has shown that the schemas in (43) are not exceptionless. Internal augments can appear in formations in which the preverb does not bring any semantic modification to the base. In other words, internal class II preverbs can be combined with the category of words and thus the semantic properties of the preverb are not necessarily aligned with the category of the base.

Let us now recapitulate the properties of the preverb *apo-*:

(a) It can be combined with either the category of stem or the category of word
(b) When it is combined with a stem it does not bring any semantic modifications to the base.
(c) When it is combined with a word it may express the reverse meaning of the base, the accomplishment of the action, or it may not bring any semantic modification

All these properties show that the constructional idiom of the preverb *apo-* should be split into various subschemas according to morphological and semantic criteria. These subschemas can be represented in a unified account in order to represent the options available to the language user:

(44)

$[Y [X]_v]_v$ 'Y modifies the action of X'

$[apo[X]_v]_v$ '*apo*- modifies the action of X'

$[apo[\text{word}]_{vi}]_{vj}$ '*apo*- modifies the action of X'

$[apo[\text{stem}]_{vi}]_{vj}$ ⟷ $[\text{SEM}[\text{SEM}_i]]_j$

$[apo [\text{word}]_v]$ ⟷ [REVERSE OR ACCOMPLISHED ACTION OF

$[apo[\text{word}]_{vi}]_{vj}$ ⟷ $[\text{SEM}[\text{SEM}_i]]_j$

apo-kovo 'cut sb out'

apo-kopto 'cut off'

apo-psyxo 'defrost'

5.6 Conclusions

In this final chapter, I have discussed the problem of whether we can find inflected forms inside derivational formations. I have examined data from SMG and Griko and focused on the formation of the past tense forms in verbal formations with Class II preverbs.

The examination of this data has shown that in Griko the augment shows a distribution similar to that of SMG, since it appears mainly in stressed positions. This observation contradicts the previous classic descriptions of the dialect which argue for the morphological status of the augment. In both varieties the augment is an inflectional marker, but not an inflectional prefix.

I have also addressed the grammatical status of class II preverbs in Modern Greek. Class II preverbs, mostly originating from Classical Greek, stand between the category of words and prefixes and may have different structural interpretations (cf. Ralli, 2013).

Typological data shows that inflected forms may appear inside derivational formations. This suggests that Greenberg's universal cannot be considered as an *absolute universal*, but rather as a *strong tendency* which can be violated under certain conditions. Based on these assumptions, I have argued that inflected forms may appear inside derivational formations with preverbs in SMG. It should be mentioned that although the augment cannot be considered to be an inflectional prefix, it can be seen as an inflectional marker which shows the application of inflectional processes. The appearance of the augment depends on: (a) the lexical feature [±learned] associated with the base and the preverb and (b) the cohesion between the formatives. It was argued that the augment appears when the preverb is internal and the base has the characteristic [+learned]. Although the first condition seems quite paradoxical, it was shown that minimal pairs of formations lead the speakers to relate the preverbs with the original forms and thus to form a construction in which the preverb and the base are more loosely connected.

I have also examined the appearance of the augment in verbal formations in Griko. The examination of this variety has revealed that there is a lot of variation in the distribution of the augment which has not been discussed before. In formations with class II preverbs, the augment may appear at the beginning of the formation or may be absent. However, it was shown that in Griko the augment does not show up in word internal position in constructions with class II preverbs. In other words, Griko does not display inflected forms inside derivational formations with preverbs.

The last issue I have addressed is the formal representation of the data. I have examined some state-of-the-art theories with regard to the position of inflectional and derivational affixes and have argued that each of them covers a particular aspect of the problem, but it does not provide a holistic solution. A CM analysis solves two different

problems. First, it takes a position on the difficult problem of the appearance of inflection inside derivation by assuming that the same element can be combined with either the category of stem or the category of word. Under this view, the focus turns to the discussion of the particular conditions that constrain the appearance of inflection inside derivation. These conditions are represented as output-oriented constraints on the constructions that should be met in order to give a well-formed output. Second, it accounts for the different structural interpretations of the formations. Based on Ralli's (2004) analysis, we can unify the various options in a network of related schemas. The representation of this variation is of paramount importance, since we can depict the language users' creativity and we can show the different options which can be the source of linguistic change.

Conclusions

The main goal of this thesis has been to discuss the relation between inflection and derivation from a different perspective, that is, a constructionist perspective. To attain this goal, a number of specific aims were set at the beginning of this thesis.

Derivation is generally considered as a purely morphological process, but the position of inflection inside the grammatical component is rather debatable. Thus, the first aim was to show that the two processes have a close relation at the word level.

The second aim was to show how Construction Morphology, as developed by Booij (2010), can account for the phenomena which reveal the close interaction between the two processes. Although CM offers an adequate framework for the discussion of a number of different morphological phenomena, it had not been developed with respect to the relation between inflection and derivation.

In this concluding part we need to ask ourselves what insights have been gained from the examination of the relevant phenomena and whether the aims of this thesis have been accomplished. In **Chapter 1** I analysed the different approaches to *lexical relations* (organization of the morphological component) and provided arguments in favour of the notion of the hierarchical lexicon. I strongly support the idea that neither the abstractive approach nor the constructive approach alone can provide an effective solution to the different phenomena, and thus we need a comprehensive approach which draws on both. In the same chapter, I provided a brief overview of the theoretical models for the relation between inflection and derivation and showed that both processes should be accounted for within the morphological component.

In **Chapter 2**, I discussed both inflection and derivation from a paradigmatic perspective. The aim was to show that for both inflection and derivation we can assume paradigmatic relations between their outputs. At this point, it should be mentioned that I did not presented a list of criteria which show similarities and differences between the two processes, but rather I discussed a number of different phenomena which show that inflection and derivation have an inherent paradigmatic nature.

Based on these assumptions, I argued that the relationship between the two processes can be accounted for from a constructionist perspective since it has a strong lexicalist

perspective; that is, it considers both inflection and derivation as morphological processes which are placed in the lexicon, it assumes paradigmatic relations between the schemas and the output of the schemas, and it offers the formal apparatus for analysing a number of morphological phenomena: the output schema form is adequate for both inflection and derivation. The arguments in favour of this claim are elaborated in the main part of the thesis.

In **Chapter 3**, I examined the relation between conversion and inflectional classes. In the discussion of the relation between conversion and inflectional classes, I touched on a number of issues concerning the grammatical nature of conversion. First, I showed that conversion in SMG is a very productive process within a limited domain, (i.e. compound formations with bound stems) and analysed all the formal and semantic properties of the conversion pairs. I provided arguments in favour of the view that conversion is a systematic paradigmatic relation between two lexical items and this relationship is the *locus of interpretation of the form-meaning asymmetry*. This paradigmatic relation accounts not only for the change in the category and the semantic properties of the formations, but also for the inflectional properties of the output verb.

Second, it was shown that the conversion process in SMG does not lead to an output from the default inflectional class. Under this view, SMG does not validate the hypothesis that converted verbs are associated with the default conjugation class of the verbal system. I argued that conversion is associated with inflectional properties that *systematically* characterize this class of formations. Converted verbs in SMG do not belong to a uniform inflectional class, but rather their inflectional pattern is a *synthesis* of two different patterns which are not very productive in general. The inflectional properties of the output can be considered as the *only* mark of the conversion process.

In **Chapter 4**, I discussed the appearance of verbal doublets in Griko, that is, verbs which show parallel forms with and without the verbalizer *-idz(o)*. Although this morpheme originally only formed verbs out of nominal bases, it seems that it has started to acquire a new status. I argued that the attachment of this element to the base marks the transition from IC2 to IC1. In this respect the marker *-idz(o)* can be seen as an element which gradually becomes more functional and it is added on the structure as a formally explicit indicator of the inflectional class (inflectional class marker). This can have important theoretical implications as it suggests that some derivational elements can acquire inflectional properties. It should be mentioned that I did not claim that derivational elements can acquire morphosyntactic inflectional properties, but rather that they can acquire a *morphomic status*. Thus, a possible developmental path in the grammaticalization theory could suggest that derivational elements may become morphemes. It should also be underlined that *-idz(o)* is still used as a genuine verbalizer in the system, which means that there are two different structural patterns according to

which *-idz(o)* may form verbs out of nouns or change the inflectional class of a base which is already a verb.

This functional change of the marker *-idz(o)* was represented as the creation of a new pattern at the word level. I took a position in favour of the view that grammaticalization can be seen as the emergence of new patterns, i.e. constructionalization, and the creation of the new *-idz(o)* pattern as a *constructional change*. This solves the problem of how best to account for both the derivational and the inflectional pattern of *-idz(o)* and shows the interaction of the two processes by menas of hierarchically ordered schemas.

In **Chapter 5**, I discussed the appearance of inflection inside derivational formations. Drawing on data from both SMG and Griko, I argued that we can find cases where inflected forms may appear between the preverb and the base but only under certain conditions. This issue has led us to the examination of a number of related topics. First, I examined the nature of the augment in Griko and SMG and argued that in both varieties the augment does not keep its AG grammatical status, i.e. inflectional prefix, but rather it has developed into a morphological element which appears only under certain phonological conditions. It should be mentioned that these findings concerning the Griko data are contrary to the existing literature in which it is claimed that the augment is an obligatory element with clear morphological status. I argued that in both varieties the augment should be regarded as an *inflectional marker* which shows that inflectional processes have applied to the base.

Second, following previous literature, I presented a classification of the Modern Greek preverbs which applies to both SMG and Griko. I focused on formations with Class II preverbs, since these formations show different degrees of cohesion and have different structural interpretations. The findings of the analysis of the SMG data revealed that the internal augment shows up in formations with class II preverbs and that its distribution can be analysed on the basis of: (a) the lexical feature [+learned] associated with preverbs and stems, and (b) the structural cohesion between the preverb and the verb. I also examined the appearance of the augment in verbal formations in Griko. The examination of these data revealed that in formations with class II preverbs the augment cannot appear word internally. The augment may either appear at the beginning of the formation or be absent.

It should be mentioned that this data challenges the Uninflected Base Hypothesis. However, the appearance of the augment inside formations with preverbs should not be considered as a simple case of inflection inside derivation. The augment is more an inflectional marker than an inflectional prefix.

CM has two main advantages compared to other morphological models in the representation of these data. First, the nature of schemas within CM can represent cases of inflection inside derivation since the different options can be accounted for by

assuming that the same preverb can be combined with either the category of stem or the category of word. Thus, the focus turns to the discussion of the particular conditions that constrain the appearance of inflection inside derivation and the representation of these constraints on the schemas. Second, the different structural interpretations of the preverb-base combinations can be represented as an inheritance tree in which all the possible formations are available to the language user. This morphological variation would be hard-pressed to find a natural account in rule-based models.

In a nutshell, the present thesis has attempted to study the close interaction of inflection and derivation. In some cases this interaction is not easily detected or analysed and thus can be *complex*. A number of issues still remain open. For example, we need to test the analysis of these phenomena in other dialects or languages in order to examine its validity. Moreover, several issues regarding the technical details of the representation still need some elaboration. However, what I hope to have achieved in this thesis is to initiate a discussion about phenomena that have been neglected in the previous literature and to offer a basis for a future research in the relevant domain.

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Bibliographic abbreviations

HHL= B. D. Joseph and R. Janda (Eds.), *The handbook of historical linguistics*. UK: Blackwell.

HWF= P. Štekauer and R. Lieber (Eds.), *Handbook of word formation* (Studies in Natural Language and Linguistic Theory, Vol. 64). The Netherlands: Springer.

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Appendix: Constructive versus abstractive approach

	Constructive models	Abstractive models
Units of storage	Inventory of *morphotactically* minimal forms	Surface word forms are the basic elements of a system and roots, stems and exponents are *abstractions* over a set of full forms
Word-internal structure	Surface forms are 'built' or 'derived' from component morphs	Component morphs are regarded as abstractions over forms
Association between properties and units	Morpheme-based models associate grammatical properties with individual morphs	Word-based models associate properties with words
Relations between words	Individual forms are derived in isolation from other forms in the grammatical system ('paradigmatic' information to other word forms)	Grammar as a set of relations among full surface forms

Computational process	DERIVATION: which builds larger units from smaller elements - Surface word forms can be derived by rules or other combinatoric principles - Combinatoric principles operate over a closed feature space in which distinctive *'feature bundles'*	PREDICTABILITY: key-relation among the forms - Form variation within an system can be represented by exemplary patterns or '*paradigms*' - Forms of non-exemplary items can be deduced from *principal parts*
Deduction of new forms	The lexicon should be largely 'redundancy free', with predictable patterns expressed independently and symbolically by means of general combinatoric devices	New forms are obtained by extending the relation between exemplary cells and principal parts to other cell/form pairs, using what are known as '*proportional analogies*'.