Unveiling Prefix Systems: Exploring Semantic and Lexical Categories in Modern Greek Through Onomasiological and Semasiological Perspectives

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This paper explores the system of prefixes in Standard Modern Greek from both onomasiological and semasiological perspectives, aiming to uncover the complex connections between prefixes and specific semantic categories. It focuses on identifying the various types of semantic categories encoded through prefixation and analyzes their overall distribution within the prefixation system. Additionally, the study examines issues related to the heterogeneity of semantic categories and the polysemy of prefixes. It also investigates the interplay between semantic and lexical categories in prefixation, focusing on the heterocategorial combinations allowed and emphasizing the key role of meaning in word formation.

1 Introduction

The derivational prefixes of Modern Greek display a range of characteristics that have not yet been thoroughly investigated as a whole, although several studies on specific prefixes have emerged in recent years (see, among others, Delveroudi & Vassilaki 1999; Ralli 2004; Efthymiou et al. 2015a, b). This paper explores the complex system of prefixes in Standard Modern Greek, utilizing both onomasiological (e.g., Štekauer 1998; Ungerer 2003) and semasiological approaches (e.g., Corbin 1987), to gain a deeper understanding of how these linguistic elements function. Onomasiological approaches analyze linguistic elements from the perspective of the communicative needs of a linguistic community (e.g., what morphological tools can be used to form a Greek word that denotes intensification), while semasiological approaches focus on the linguistic elements themselves, examining their meanings and the concepts they represent (e.g., what is the meaning of the Greek prefix *iper-*).

The study emphasizes several key aspects of prefixation in Standard Modern Greek, including the identification of various types of semantic categories expressed through prefixation and an analysis of their overall distribution within the prefixation system. Additionally, it addresses issues related to the heterogeneity of semantic categories and the polysemy of prefixes. The research also investigates the interplay between semantic and lexical categories in prefixation, highlighting the heterocategorial combinations allowed in the process and emphasizing the crucial role of meaning in word formation. Through this comprehensive examination, the study aims to provide a more nuanced understanding of the role that prefixes play in shaping meaning and structure in language. The paper is organized as follows. Section 2 explores key diachronic and synchronic characteristics of Modern Greek prefixes, which are essential for the subsequent analysis. Section 3 examines the semantic categories formed through prefixation, starting with an overview of three theoretical approaches that analyze prefixation from a semasiological (Corbin 1999, 2004) or onomasiological (Ungerer 2003; Schmid 2016) perspective. Proposed meanings for the prefixes in Modern Greek are then presented, followed by a discussion of the primary function of prefixation and how it differs from suffixation. Section 3 also investigates the distribution of the proposed semantic categories within the prefixation system, addresses their heterogeneity, and examines issues

related to the polysemy of prefixes. Section 4 explores the interaction between semantic and lexical categories in prefixation, focusing on the heterocategorial combinations permitted in the process. Finally, Section 5 concludes the study by summarizing the findings and discussing their broader implications.

2 Diachronic and Synchronic Characteristics of Greek Prefixes

Modern Greek prefixes can be divided into two categories (Ralli 2004, 2022, Efthymiou 2018): The first category includes prefixes like *a-, δis-, ef-*, *kara-* and *kse-*, which never appear as independent words. This category is not homogeneous, as it includes elements that were already used as prefixes in Ancient Greek, such as *a-* (e.g., *á-oplos* 'unarmed'), as well as elements introduced during Medieval times, such as the prefix *kse-* (e.g., *kse-δéno* 'to untie')[1] It also includes prefixes borrowed through language contact, such as the prefix *kara-* (from the Turkish adjective *kara* 'black'), as in *kara-drépome* 'to be extremely ashamed[2]. The second category consists of prefixes originating from Ancient Greek preverbs, such as *apo-, anti-* or *ek-*. Synchronically, most of them appear as bound forms and the use of the formally corresponding prepositions is restricted to fixed or archaic expressions. For example, the prefix *peri-* is not productively used as a preposition synchronically, but it occurs only in some fossilized expressions. On the other hand, Modern Greek prepositions are always free and cannot function as preverbs (e.g., *γia* 'for', *me* 'with'). A small number of prepositional prefixes can be analyzed synchronically as either a prefix or an independent preposition. However, the meaning conveyed by the prefix is typically different from that of the homonymous preposition (cf. among others Ralli 2004, 2022; Bortone 2010). Members of this class retain some of their original Ancient Greek properties while also acquiring new meanings or functions. For example, *para-* has developed a new meaning relating to the excessive realization of an event: e.g., *káno* 'to do' > *para-káno* 'to over-do' (Ralli 2004; Efthymiou et al 2015b). Prepositional prefixes often modify the meaning of the base word they attach to, as in *treléno* 'to drive somebody mad'> *apo-treléno* 'to drive somebody completely mad'. Additionally, they may have effects on the argument structure of verbal bases, e.g., *vlépo* 'see' > *apo-vlépo* 'to aim', *lípo* 'to be absent, missing' > *para-lípo* 'to omit' (Ralli 2004; Efthymiou 2015). The prefixes in Modern Greek are presented along with examples in Table 1[3].

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[1] As Mendes-Dosuna (1997) demonstrated, *kse-* emerged in Medieval Greek from the combination of the Ancient Greek preverb *ek-* and the syllabic augment *e-*.

[2] According to Manolessou and Ralli (2015), the use of *kara-* as an intensifying prefix probably started from the borrowing of Turkish words where 'kara' was a component with an intensifying function.

[3] It is important to note that the attachment of Modern Greek prefixes to a base frequently involves phonological changes. As a result, Modern Greek prefixes exhibit various allomorphic forms, such as *an-* (allomorph of *ana-*), *kat-/kaθ-* (allomorph of *kata-*), *δi-* (allomorph of *δia-*), *em-* (allomorph of *en-*), *ef-/ep-* (allomorphs of *epi-*), *ap-/af-* (allomorphs of *apo-*), *eks-* (allomorph of *ek-*), ks- (allomorph of *kse-*), *sim-/siγ-/sil-/sis-/sir-* (allomorphs of *sin-*), *met-/meθ-* (allomorphs of *meta-*), *ip-/if-* (allomorphs of *ipo-*), *ev-* (allomorph of ef-), etc.

Table 1: Overview of Modern Greek prefixes with examples

prefixes	examples
a-	*á-oplos*_{Adj} ‘unarmed’ (*óplo*_N ‘arm’)
ana-	*ana-vaptízo*_V ‘to rebaptize’ (*vaptízo*_V ‘to baptize’)
anti-	*anti-ritiδikós*_{Adj} ‘anti-wrinkle’ (*ritíδa*_N ‘wrinkle’)
apo-	*apo-prosanatolízo*_V ‘to disorientate’ (*prosanatolízo*_V ‘to orientate’)
δia-	*δia-pernó*_V ‘to penetrate, pierce’ (*pernó*_V ‘ to pass, go through’)
δis-	*δís-osmos*_{Adj} ‘malodorous’ (*osmí*_N ‘odor’)
ef-	*éf-kamptos*_{Adj} ‘flexible’ (*kámpto*_V ‘to flex, bend’)
ek-	*ek-próθesmos*_{Adj} ‘overdue’ (*próθesmía*_N ‘deadline’)
en-	*ém-psixos*_{Adj} ‘animate’ (*psixí*_N ‘soul’)
epi-	*epi-kalípto*_V ‘to coat’ (*kalípto*_V ‘to cover’)
kse-	*kse-δéno*_V ‘to untie’ (*δéno*_V ‘to tie’)
iper-	*iper-fortóno*_V ‘to overload’ (*fortóno*_V ‘to load’)
ipo-	*ip-éδafos*_N ‘subsoil’ (*éδafos*_N ‘ground, soil’)
is-	*is-pnéo*_V ‘to inhale’ (*pnéo*_V ‘to blow’)
kara-	*kara-ɣustáro*_V ‘to fancy extremely, enjoy extremely’ (*ɣustáro*_V ‘to fancy, enjoy’)
kata-	*kata-céo*_V ‘to burn all over’ (*céo*_V ‘to burn’)
meta-	*meta-polemikos*_{Adj} ‘post-war’ (*pólemos*_N ‘war’)
para-	*para-θalásios*_{Adj} ‘seaside’ (*θálasa*_N ‘sea’)
peri-	*perí-plus*_N ‘circumnavigation’ (plus_N ‘sailing, voyage’)
pro-	*pro-poló*_V ‘to sell in advance’ (*poló*_V ‘to sell’)
pros-	*pros-anatolízo*_V ‘to orientate’ (*anatolí*_N ‘east, sunrise’)
sin-	*sin-ipárxo*_V ‘to coexist’ (*ipárxo*_V ‘to exist’)

Given that Greek preverbs functioned as free morphemes in Ancient Greek, their morphological status is often described as ambiguous and the formations in which they participate can be seen as either compounds or derivatives (for discussion see Ralli 2022). For instance, in most traditional grammars (e.g., Triandafyllidis 1991 [1941]) the combination of a preposition derived from Ancient Greek with a base is regarded as part of a compounding process. However, the dominant view among most linguists is that these elements should be analyzed as affixes in synchronic studies (cf., for example, Philippaki-Warburton 1970; Smyrniotopoulos & Joseph 1998; Ralli 2004, 2022).

The semantics of formations with prepositional prefixes as their first element can range from fully compositional meanings to idiosyncratic ones. For instance, verbs with the prefix *kata-* can be categorized into two types: (a) verbs in which the semantic contribution of the prefix *kata-* is transparent, e.g., *kata-céo* 'to burn all over' (*kata-* + *céo* 'to burn'), and (b) verbs where the meaning of *kata-* is opaque, e.g., *kata-férno* 'to manage' (*kata-* + *férno* 'to bring'). Additionally prepositional prefixes also show different degrees of semantic transparency. For example, most verbs which have the prefix *para-* as their first element are completely transparent in meaning (e.g., *para-káno* 'to over-do'). In contrast, the prefix *δia-* often appears in verbs with less transparent meanings, e.g., *δia-méno* 'to reside' (*δia-* + *méno* 'to stay') (cf. among others Ralli 2004, 2022, Efthymiou 2018). Moreover, some prefixes not only influence meaning but also select specific formal variants of the base they attach to. For example, if a verbal base has two variants that differ with respect to the [±learned] feature, then the prefix *para-* chooses the variant that appears in [+learned] contexts, e.g. *iper-θerméno* 'to overheat' [+learned], while the competing prefix *para-* chooses the variant which is not stylistically restricted: e.g., *para-zesténo* 'to overheat' [+/-learned] (cf. Efthymiou 2003; Efthymiou et al 2015b; Ralli 2004).[4] Furthermore, most prefixes form multiple lexical categories (e.g., *iper-* in *iper-íroas*~N~ 'superhero', *iper-plíris*~Adj~ 'superfull', *iper-prostatévo*~V~ 'to overprotect'), while others produce specific lexical categories (e.g., *a-* and *ef-* in *á-oplos*~Adj~ 'unarmed' and *éf-kamptos*~Adj~ 'flexible'). Finally, prefixes that combine with nominal base usually cause a shift in the base's stress, e.g., *psixí* 'soul'> *ém-psixos* 'animate', *osmí* 'odor'> *δís-osmos* 'malodorous' (Ralli 2004, 2022).

3 Semantic categories and prefixation

This section examines the semantic categories formed through prefixation, providing a brief overview of three theoretical approaches that address prefixation from a semasiological (Corbin 1999, 2004) or a onomasiological (Ungerer 2003; Schmid 2016) perspective. It further addresses the core semantic categories of the Modern Greek prefixation system and examines the primary function of prefixation in contrast to suffixation.

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[4] The feature [+learned] is assigned to words that either: (a) originate from Ancient Greek, (b) are artificial formations of *katharevousa* (i.e. the archaic, scholarly form of Greek developed in the 19th century), or (c) are primarily used in refined or formal written contexts. On the other hand, words marked as [-learned] have a popular origin or are commonly used in informal, spoken, or colloquial contexts. The feature [+/-learned] is assigned to words with a neutral or unmarked usage and origin (see Ralli 2004; Anastassiadis-Symeonidis & Fliatouras 2019, among others).

3.1 *Prefixes and semantic categories in the literature*

The first proposal we present in this section is that of Corbin (1987, 1999, 2004), which examines the prefixes of French from a semasiological perspective. According to Corbin, the meanings associated with the prefixes in French can be summarized under the concept of a) LOCALIZATION, appearing in the forms of SPATIAL or TEMPORAL LOCALIZATION (and in a derivative way of EVALUATION), b) NEGATION, PRIVATION and OPPOSITION (e.g., *anti-, dé(s)-, in-*) and c) QUANTIFICATION (e.g., *multi-, poly-*). Furthermore, the same researcher observes that certain meanings, such as those of SPATIAL and TEMPORAL LOCALIZATION, NEGATION, and QUANTIFICATION, are only served by prefixation and not by suffixation. Finally, Corbin posits that the meanings constructed through prefixation are more specific compared to those expressed through suffixation. She states that this tendency of prefixes is linked to etymology (for example, many prefixes come from prepositions) and additionally accounts for certain categorical gaps (such as why abstract denominal and deadjectival nouns are formed through suffixation, but not through prefixation).

The second proposal is that of Ungerer (2003), who approaches English prefixes from a cognitive/onomasiological perspective. Ungerer distinguishes three main conceptual categories of prefixes: a) *setting placers* (i.e. prefixes of location, orientation, temporal order and sequence), b) *graders* (i.e. intensifiers and down-toners), and c) *antonymizers* (i.e. negative and reversative prefixes). He also claims that the primary function of prefixation is to provide additional conceptual 'anchoring' for lexical concepts by placing them in a setting, on a scale of gradation or antonymy. In contrast, the main cognitive aim of suffixation is stable conceptual recategorization.

The third proposal is by Schmid (2016), who argues that the primary function of prefixation is the encoding of a contrast, the concept of 'different from X', and that the notion of difference is based on the fundamental cognitive ability of comparison, that is, the ability to observe and recognize differences and contrasts (cf. Langacker 1987). In this onomasiological approach to English prefixes, six main categories are distinguished: a) *negative*, *reversative* and *privative* prefixes (e.g., *de-, un-*), b) *locative* prefixes (e.g., *intra-, sub-*), c) *temporal* prefixes (e.g., *post-, pre-*), d) prefixes denoting *degree* (e.g., *ultra-, over-*), e) *number* prefixes (e.g., *bi-, multi-*), and f) prefixes denoting *attitude* (e.g., *anti-, mal-*).

According to Schmid, the categories mentioned earlier primarily serve as indicators of contrast. He points out that negative prefixes denote 'different from X', while verbs with the temporal prefix *re-,* like rebuild, can be rephrased as 'in contrast to what might be expected, the process is repeated'. Additionally, verbs with the reversative prefix *de-* (e.g., *deform*) essentially express a negation of expectation for an action that has been completed (e.g. 'even though something has appeared, the process is being reversed'). Ultimately, he suggests that the concept 'different' is also involved in prefixes that do not explicitly convey 'opposition' or 'contrast' but can still be classified into one of four fundamental cognitive categories: SPACE, TIME, QUANTITY, and ATTITUDE (for further discussion on these basic cognitive categories see Szymanek 1988; Štekauer 1998, among others). For example, he notes that *prewar* means 'not during or after, but before the war', and that degree prefixes (e.g., *ultra-light*) imply a comparison and contrast with an unstated norm suggested by the speaker.

The three proposals presented above differ in their initial approach (with the first being semasiological and the others onomasiological), the number of core semantic categories, and the specific definition of the primary function of prefixation. Despite these differences, they

share several similarities in the categories they propose, such as negation, location, and evaluation.

3.2 *Prefixation: core semantic categories in Modern Greek*

This section presents an initial analysis of the Modern Greek prefixation system from both a semasiological and onomasiological perspective, drawing on the proposals of Corbin (1999, 2004), Ungerer (2003) and Schmid (2016). Given the absence of a comprehensive analysis or detailed presentation of the prefix system in Greek grammars and most dictionaries, this study is based on the available research on Modern Greek prefixes (e.g., Delveroudi & Vassilaki 1999; Karantzola & Giannoulopoulou 2000; Ralli, 2004; Efthymiou et al., 2015a,b; Efthymiou 2018; Koutsoukos & Ralli 2023) and data from the *Standard Modern Greek Dictionary* (1998), which offers the most thorough information. A review of the available literature allows us to identify four core semantic categories of prefixes:

1. Prefixes denoting LOCALIZATION: e.g. *pro-pólisi* 'pre-sale', *ip-éδafos* 'subsoil'
2. Prefixes denoting EVALUATION: e.g. *iper-katáskopos* 'super spy', *δis-évretos* 'difficult to find'
3. Prefixes denoting NEGATION: e.g. *an-álatos* 'unsalted', *kse-díno* 'to undress', *kse-δondjázo* 'to take one's teeth out'
4. Prefixes denoting CHANGE OF STATE: e.g. *eks-aθlióno* 'to impoverish', *apo-ksenóno* 'to estrange, to alienate'

As we can see in Table 2, the core semantic categories mentioned earlier can be further divided into specific subcategories.

Table 2: The main semantic categories of prefixation in Modern Greek

semantic category	subcategories	examples
localization (spatial or temporal)	in, beyond, outside, after, before, below, etc.	*is-pnéo* 'to inhale', *para-θalásios* 'seaside', *pro-polemikós* 'pre-war'
evaluation (quantitative or qualitative)	modification of degree, size, or quantity, differentiation, comparison, attitude, etc.	*iper-fortóno* 'to overload', *para-loγotexnía* 'second rate literature', *éf-kamptos* 'flexible', *ipo-xrimatoδotó* 'to fund inadequately'
negation	negation, privation, reversal, etc.	*an-íkanos* 'incapable', *an-álatos* 'unsalted', *kse-díno* 'to undress'
change of state	causation, completion, etc.	*eks-aθlióno* 'to impoverish', *apo-ksenóno* 'to estrange, to alienate'

The information presented in Table 2, along with the discussion in the previous section, allows us to draw interesting conclusions about the function of prefixes and their differences in

relation to suffixes. Notably, the combination of semasiological and onomasiological approaches in the analysis of Greek prefixes highlights the central role of prefixation in conceptual 'anchoring' (according to Ungerer 2002) of fundamental conceptual categories such as SUBSTANCE, QUALITY, and ACTION within a (spatio-temporal) context (e.g., *pro-aɣorázo* 'to pre-purchase'/ *aɣorázo* 'to purchase', *pro-polemikós* 'pre-war'/ *meta-polemikós* 'post-war'), on a scale of gradation (e.g., *para-cimáme* 'to oversleep'/ *cimáme* 'to sleep', *iper-íroas* 'superhero'/ *íroas* 'hero'), or in relation to contrast, differentiation, or change (e.g., *kse-díno* 'to undress'/ *díno* 'to dress', *para-loɣotexnía* 'second rate literature' / *loɣotexnía* 'literature', *á-kakos* 'harmless'/ *kakós* 'bad') (cf. Corbin 1992; Ungerer 2003; Schmid 2016). In fact, prefixation in Modern Greek covers the fundamental categories of LOCALIZATION, EVALUATION, NEGATION, and CHANGE OF STATE; however, it does not include other core categories such as QUALITY, ACTION, PERSON, etc. which are handled by suffixation (see also Ungerer 2003).

The category of NEGATION is exclusively represented by prefixation and not by suffixation (cf. Corbin 1999, 2004 for French), while the category of CHANGE OF STATE, which is primarily represented by suffixation (e.g., *kond-éno* 'to shorten', *kaθar-ízo* 'to clean', *vutir-óno* 'to butter', *malak-óno* 'to soften'), uses prefixation only in parasynthetic structures (e.g., *apo-vlak-óno* 'to make stupid', *eks-aθli-óno* 'to impoverish', *eks-atomik-évo* 'to individualize: cf. Efthymiou 2015a, 2018, 2022). In contrast, regarding EVALUATION, which is served by both prefixation and suffixation, complementary trends can be observed: For example, the subcategories of INTENSIFICATION and DIFFERENTIATION (e.g., *iper-prostatévo* 'to overprotect', *para-loɣotexnía* 'second rate literature') are primarily associated with prefixation, while DIMINUTIVES are mainly formed by suffixation, e.g., *vark-áci* 'small boat' (Efthymiou 2015b, 2017, 2024).

Furthermore, regarding temporal and spatial LOCALIZATION, prefixation serves the categories of place and time in a different way than suffixation. The primary function of prefixation is localization in relation to a specific entity or event, e.g., *pro-aɣorázo* 'to pre-purchase', *ip-éδafos* 'subsoil'. In contrast, 'localizing' suffixes focus on creating more 'concrete' concepts, participating in the formation of words such as *jimnas-tírio* 'gymnasium' (*jimnázo* 'to train, exercise' + *-tírio*) or *luluδ-áδiko* 'flower shop' (*lulúδi* 'flower'+ *-áδiko*), which denote places designed for specific purposes (Schmid 2016: 172). This interplay between the different categories highlights the complexities of prefixation and suffixation in the language, underscoring their distinct yet interrelated roles in word formation. It also reinforces the idea that prefixes and suffixes serve different semantic functions and thus occupy separate categorial roles within the language structure (cf. among others, Corbin 1999).

Over time, the system of prefixes changes, partly through the incorporation of prefix-like elements. Consequently, the inclusion of these elements in the proposed classification leads to effects, such as the expansion of the subcategory of QUALITATIVE EVALUATION (e.g., *psilo-* 'slim', *psefto-* 'false' see, for example, Giannoulopoulou 2006; Efthymiou 2017; Ralli 2020) and the emergence of new semantic categories, including REFLEXIVITY (e.g., *afto-* 'self' see, for example Efthymiou 2018). In the next section, topics concerning the distribution of semantic categories in the prefixation system will be examined, along with issues of semantic overlap among prefixed words.

3.3 Semantic categories, distribution and polysemy

The data presented in Table 2 (see section 3.2), along with the material we collected from the *Standard Modern Greek Dictionary* (1998) and the available studies on the meanings of prefixes in Modern Greek, enable us to derive intriguing insights into the polysemy of prefixes, the heterogeneity of the previously mentioned semantic categories, and their distribution within the system of prefixation. Certain semantic categories contain more subcategories and members than others. For example, the category of spatial localization (*δia-, ek-, is-, epi-, en-, peri-, iper-, ipo-,* etc.) has more subcategories compared to temporal localization (*pro-, meta-,* etc.), while intensification (*para-, kata-, iper-,* etc.) encompasses more members compared to reversal (*kse-, apo-*) or attenuation (e.g., *ipo-*).

 The observed heterogeneity is interesting from an onomasiological perspective, particularly when considering the member of the category as a choice made by the speaker. For instance, one might consider how many options are available for creating a derived word that denotes an action taking place before a specific time limit (e.g., *pro-aɣorázo* 'pre-purchase') compared to a word that signifies an action considered to be performed with greater intensity than what is acceptable or usual (e.g., *iper-prostatévo* 'to overprotect', *para-vrázo* 'to overboil'). This observation aligns with the established view that evaluative categories evolve over time due to the 'bleaching out' of their meanings from extensive use, and it is also intriguing from a crosslinguistic perspective (see, for example, Körtvélyessy 2014; Mutz 2015).

 Moreover, many prefixes participate in several semantic categories (cf. Efthymiou 2001, 2003; Efthymiou et al 2015a, b). For example, *iper-* appears in *ipér-jios* 'aboveground' (spatial localization) and *iper-prostatévo* 'to overprotect' (evaluation), and *para-* is found in *para-θalásios* 'seaside, coastal' (spatial localization) and *para-loɣotexnía* 'second rate literature' (evaluation), among others. Another noteworthy example is the prefix *a-*. Derivatives with the prefix *a-* denote the absence of a property, a state or an entity (e.g., *ikanós* 'capable'> *an-íkanos* 'incapable', *ksirízo* 'to shave'> *a-ksíristos* 'unshaved', *cefáli* 'head'> *a-céfalos* 'headless'), while also being seen as having a somewhat evaluative nature and expressing a deviation from a norm (Efthymiou 2008).

 As expected, the polysemy of prefixes poses challenges for their categorization and analysis. Nevertheless, recent studies shed light on the relationships between the categories and the ambiguous nature of their boundaries. The example of the prefix *iper-* is quite revealing. In its evaluative meanings, *iper-* functions as a degree modifier while retaining its locational attributes. It 'positions' the properties of the derivative above and beyond the standard or threshold established by the base, suggesting that its evaluative meaning can be seen as an extension of its spatial meanings (Efthymiou 2003; Efthymiou et al 2015a).

 Another notable example is the prefix *kse-*. It is remarkable how the three primary meanings of words formed with the prefix *kse-*, namely LOCALIZATION (e.g., *kse-port-íz(o)* 'to sneak out': exit from a place), NEGATION (e.g., *kse-δén(o)* 'to untie': reversal, 'exit' from a state), and EVALUATION (e.g., *kse-kuf-én(o)* 'to make somebody completely deaf': intensification, 'exit' from an initial property to the highest degree) are interconnected on a more abstract level through the concept of LOCALIZATION (see also Efthymiou 2001, 2002; Ralli 2003, 2004). Interestingly, the reversative meaning of verbs formed with the prefix *kse-* can also be interpreted as a 'change of state'. Deverbal verbs prefixed with *kse-* imply an 'exit' from a state, with the verbal bases indicating the initial state. This contrasts with deadjectival verbs prefixed with the prefix *eks-*, which also denote a CHANGE OF STATE (e.g. *áθlios*

'wretched'> *eks-aθli-ón(o)* 'to impoverish'), but where the base adjective represents the resultative state (Efthymiou 2001, 2002, 2015). These observations on the polysemy of prefixes show that the classification of prefixes proposed in 3.2 faces certain challenges, as it does not fully clarify the relationships between the semantic categories of LOCATION, EVALUATION, NEGATION, and CHANGE OF STATE and could benefit from further refinement to enhance clarity. The classification could also be improved by integrating categories and subcategories such as NEGATION and PRIVATION, into broader ones, like EVALUATION and LOCALIZATION.

Finally, certain semantic categories are associated with specific types of bases. For example, the locational meaning of the prefix *para-* does not occur with every possible base, but typically arises if the nominal base can be interpreted as location or position (e.g. *para-θalásios* 'seaside, coastal'). Similarly, when the prefix *iper-* attaches to a nominal base that indicates location, it creates derivatives with the meaning of spatial LOCALIZATION, such as 'above the local limit' (e.g., *ipér-jios* 'aboveground'). However, when applied to an adjectival or verbal base, it forms derivatives with the meaning of EVALUATION, signifying 'above what is acceptable or usual in terms of degree/ intensity' (e.g., *iperplíris* 'superfull', *iper-prostatévo* 'to overprotect') (Efthymiou et al 2015a). These observations align with the perspective that the categorial role of prefixes is shaped by their semantic function and can be realized in multiple ways, depending on the meaning and category of the base, as noted by Corbin (1987, 1999) and others. In the following section, the focus will be on the relationship between semantic and lexical categories.

4 The relationship between semantic categories and word classes in prefixation

In contrast to suffixes, prefixes typically derive words of more than one lexical category and maintain the word class of the base (Ralli 2004; Fábregas & Scalise 2012; Štekauer, Valera & Körtvélyessy 2012; Lieber 2022). This has led to the widespread assumption that suffixes act as heads, in line with Williams' (1981) Right-hand Head Rule, while prefixes consistently function as modifiers. Although examples of the type *mávros* 'black' (Adj) → *katá-mavros* 'pitch-black' (Adj) and *céo* 'burn' (V) → *kata-céo* 'burn completely'(V) support the view that prefixes do not change the lexical category of the base, it is not difficult to find examples of the type *nómos* 'law' (N) → *pará-nomos* 'illegal' (Adj), which show that such a rule cannot have universal application (see e.g. Corbin 1999; Štekauer, Valera & Körtvélyessy 2012; Lieber 2022). Examples of class-changing prefixes in various languages challenge the Right-hand Head Rule, prompting Corbin (1999) to argue that prefixes and suffixes always have a categorizing function, regardless of whether the category of the derived word differs from or matches that of the base. Similarly, Štekauer (2001) suggests that both prefixes and suffixes can function as heads, though not always in equal measure.

As shown in Table 3, prefixes in Modern Greek can function as both class-maintaining and class-changing. Specifically, in structures 1-3, the prefixes preserve the word class of the base, whereas in structures 4-7, they seem to modify it. It is not a coincidence that prefixed structures associated with changes in lexical categories are often considered in contemporary morphological theory as 'parasynthetic formations' (e.g., *apo-cefal-íz-o* PREFIX-BASE-SUFFIX-INFLECTION 'to decapitate' (V)), 'bracketing paradoxes' (e.g., *pro-polem-ik-ós* PREFIX-BASE-SUFFIX-INFLECTION 'prewar' (Adj)) or 'exocentric formations' (e.g., *óplo*

'arm' (N) > *á-opl-os* PREFIX-BASE-INFLECTION 'unarmed' (Adj)).[5] These represent cases in which the semantic interpretation or the phonological organization of a word seems to conflict with its internal structure, posing challenges for analysis (for discussion, see for example, Corbin 1987; Anastassiadis-Symeonidis 1995; Ralli 2004, 2022; Booij 2010; Efthymiou 2014, 2015a, 2018; Koutsoukos & Ralli 2023).[6]

Table 3: Morphological structures and basic semantic categories of prefixation in MG

	morphological structure	semantic category	derivative example	base example
1	[Pref [X]$_N$] $_N$	localization	*pro-pólisi* 'pre-sale'	*pólisi* 'sale'
		evaluation	*iper-íroas* 'superhero'	*íroas* 'hero'
		negation	*andi-íroas* 'anti-hero'	*íroas* 'hero'
2	[Pref [X]$_{Adj}$] $_{Adj}$	localization	*pro-polemikós* 'prewar'	*polemikós* 'military'/ *pólemos* 'war'
			para-θalásios 'seaside'	*θalásios* 'marine'/ *θálasa* 'sea'
		evaluation	*iper-plíris* 'superfull'	*plíris* 'full'
		negation	*á-kakos* 'harmless'	*kakós* 'bad
3	[Pref [X]$_V$] $_V$	localization	*pro-aɣorázo* 'pre-purchase'	*aɣorázo* 'purchase'
		evaluation	*iper-liturɣó* 'overfunction'	*liturɣó* 'function'
		negation	*kse-díno* 'undress'	*díno* 'dress'
4	[Pref [X]$_N$] $_{Adj}$	localization	*ipér-jios* 'aboveground'	*ji* 'earth'
		evaluation	*év-ixos* 'euphonious'	*íxos* 'sound'
		negation	*an-álatos* 'unsalted'	*aláti* 'salt'
5	[Pref [X]$_N$] $_V$	localization	*kse-portízo* 'sneak out'	*pórta* 'door'
6	[Pref[X]$_{Adj}$] $_V$	change of state	*eks-aθlióno* 'mpoverish'	*áθlios* 'wretched'

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[5] This case can be considered as a bracketing paradox for the following reason: the derived adjective *pro-polem-ik-ós* 'prewar' seems to be formally derived from the adjective *polemikós* 'martial', but its meaning is formed on the meaning of the noun *pólemos* 'war'.

[6] The structure of parasynthetic contsructions seems to involve the simultaneous presence of prefixes and suffixes (see e.g. Plag 2003: 40): e.g. *ipér-j-i(os)* ADJ 'aboveground' (DPREF-*earth* N -DSUFF-ISUFF; *jios*), *apo-cefal-íz(o)* V 'decapitate' (DPREF-*head* N -DSUFF-ISUFF; *cefalí-zo*) (Efthymiou et al 2015a).

7	[Pref[X]_V] _{Adj}	evaluation negation	*ef-prosármostos* 'adaptable' *a-plírotos* 'unpaid'	*prosarmózo* 'adapt' *pliróno* 'pay'

Concerning the relationship between lexical and semantic categories, as represented in Table 3, it is also worth noting that certain morphological structures are associated with specific semantic categories (see Corbin 2004 for a similar observation regarding French). A characteristic example is the structure Pref [X]Adj]Adj, which is associated with the semantic categories of EVALUATION and NEGATION, but not to LOCALIZATION, only seemingly in cases of bracketing paradoxes, such as in the word *pro-polem-ik(ós)* 'pre-war'. The examples of the structures Pref[X]N]V and a Pref[X]Adj]V are also illuminating. The first structure seems to be exclusively (or almost exclusively) linked to the category of LOCALIZATION in parasynthetic structures, such as in the word *kse-port-íz(o)* PREFIX-BASE-SUFFIX-INFLECTION 'sneak out'), while the second is associated with the category of CHANGE OF STATE (for example, in the word *eks-aθli-ón(o)* PREFIX-BASE-SUFFIX-INFLECTION 'impoverish'), also in parasynthetic structures (Efthymiou 2014, 2015a, Efthymiou et al 2015a, b). Finally, the structures Pref [X]N]Adj and Pref[X]V]Adj are also distinguished by the potential of appearing in parasynthetic structures (for example in the words *para-θalás-i(os)*ADJ 'seaside' and *a-plíro-t(os)* ADJ 'unpaid').

One of most thoroughly studied example of class-changing prefixes involves parasynthetic verbs, which are characterized by the simultaneous presence of prefixes and suffixes, such as *apo-cefal-íz(o)* 'to decapitate' (Efthymiou 2015a). The majority of Modern Greek parasynthetic verbs are categorized as 'change-of-state' or 'change-of-place' verbs, typically expressing privative, ablative, locative or causative-completive meanings (e.g., *apo-lepíz(o)* 'to peel', *apo-centr-ón(o)* 'to decentralize', *pros-eδaf-íz(o)* 'to land', *apo-liθ-ón(o)* 'to petrify', *eks-anθrop-íz(o)* 'to humanize'). Conversely, reversative and evaluative meanings appear to be absent in these verbs. Given that some semantic categories —specifically privative and ablative meanings— which are displayed by most parasynthetic verbs, cannot be expressed by non-parasynthetic suffixed verbs in Modern Greek (Efthymiou et al 2012), it is argued that prefixes in parasynthetic verbs function as internal prefixes (Di Sciullo1997), exerting a stronger influence than suffixes on the meaning, argument structure, and register of the derivative. Additionally, it is suggested that the coexistence of prefixes and suffixes in parasynthetic structures allows for the creation of structural patterns that cannot be synchronically generated through prefixation or suffixation alone. Moreover, Efthymiou (2001, 2002) and Anastassiadis-Symeonidis & Masoura (2012) argue that suffixes that appear in parasynthetic verbs are not bona fide derivational affixes. Instead, they function as class-markers, serving not to convey the semantic content typically associated with suffixes but to indicate the integration of the derivative into a specific grammatical or semantic category.[7]

Another notable example of a class-changing prefix is the privative prefix *a-*, which systematically converts nouns and verbs into adjectives, such as *á-oplos*_{Adj} 'unarmed' (< *óplo*_N 'arm') and *a-plíro-tos*_{Adj} 'unpaid' (< *pliróno*_N 'to pay') (Efthymiou 2008). Interestingly, Anastassiadis-Symeonidis (1995) views the suffix *-tos* in deverbal adjectives as a class marker, while Koutsoukos and Ralli (2023) suggest that denominal adjectives are created with a zero derivational suffix.

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[7] According to Corbin (1987), class marking is considered a form of pseudo-suffixation.

Other extensively studied examples of prefixes are *iper-* and *para-*, which function as both class-changing and class-maintaining, conveying locational as well as non-locational meanings. Both prefixes originate from prepositions expressing the transgression of a limit with non-locational meanings being more frequent than locational ones (Efthymiou 2003; Efthymiou et al 2015a, b). The locational *iper-* appears in parasynthetic constructions (*ipér-j-ios* 'aboveground', *iper-çil-ízo* 'to overflow') or bracketing paradoxes (*iper-ast-ikós* 'interurban'), typically in the adjectival or verbal domains, and is linked to register factors, with all Modern Greek constructions being [+learned] and many of Ancient Greek origin. Similarly, the locational *para-* is common in parasynthetic constructions and bracketing paradoxes, especially in [+learned] adjectives, often translated from French and English (e.g., *par-aort-ikós* 'paraaortal', *par-óxθ-ios* 'riparian') or in adjectives of Ancient or Hellenistic origin (e.g., *para-θalás-ios* 'seaside', *par-ákti-os* 'costal, inshore').

Table 3 also reveals certain categorical gaps in the hetero-categorial combinations allowed in prefixation. For example, deverbal and deadjectival nouns that denote events or qualities, such as *skopef-tís* 'shooter', *skis-imo* tearing' and *pikr-áδa* 'sour taste', are typically formed through suffixation rather than prefixation. This involves adding derivational suffixes, such as *-tis* to *skopévo* 'to shoot', *-simo* to *skízo* 'to tear', or *-áδa* to *pikrós* 'sour'.

The observations concerning the categorical gaps in the heterocategorial combinations allowed in prefixation, along with the association of certain morphological structures with specific semantic categories, especially in cases where prefixes perform a class-changing function and present challenges for morphological theory, support Corbin's (1999) and Štekauer's (2001) claims. Both prefixes and suffixes have a categorizing function and can function as heads, though not to the same degree. Furthermore, the link between certain morphological structures and specific semantic categories, particularly in cases where prefixes perform a class-changing function, reinforce the argument that the 'obligatory' coexistence of prefixes and suffixes in parasynthetic structures (and bracketing paradoxes) enables the formation of structural patterns that cannot be created synchronically through prefixation or suffixation alone (Efthymiou 2015a). This relationship, especially in cases like bracketing paradoxes and parasynthetic structures that pose challenges for morphological theory highlights the need for cross-linguistic research to explore how this interaction manifests across various languages.

5 Conclusion

This investigation has shed light on the system of prefixes in Standard Modern Greek, uncovering the intricate connections between prefixes and their associated semantic categories. The analysis identified the types of semantic categories encoded through prefixation and examined their distribution within the prefixation system. It also addressed the heterogeneity of semantic categories, the polysemy of prefixes, and the interaction between semantic and lexical categories, highlighting the heterocategorial combinations permitted and the central role of meaning in word formation. These findings not only deepen our understanding of the morphological processes within Standard Modern Greek but also suggest avenues for further research into prefixation systems in other languages.

However, challenges emerge regarding critical questions: Can certain subcategories be integrated into broader categories? Are all semantic categories adequately represented? Additionally, are the relationships between these categories clearly highlighted? Addressing

these issues is essential for refining our understanding of prefixation in word formation. Overall, this study underscores the significance of meaning in word formation and contributes to the broader field of word formation.

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