

Image schemas as prototypes in the diachronic evolution of *kámnō* and *eutheiázō* in Greek: A behavioural-profile analysis



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Abstract

This is a diachronic, comparative, corpus-based study of the development of the Ancient Greek verbs *kámnō* and *eutheiázō*, originally meaning GET TIRED and STRAIGHTEN, respectively, into their modern meanings, roughly corresponding to English DO and MAKE, respectively. In doing so, the study theoretically and methodologically integrates the notion of *image-schematic topology* that underlies the conceptualisation of a term with the latter's *behavioural profile*. The underlying image schemas are shown to represent a gestalt prototype that not only licenses the semantic extension of a term but also constrains its polysemic potential, preserving its schematic structure diachronically. For *kámnō*, the schematic space is the vector of *work* produced by an energy source inversely proportional to the energy potential of this source. For *eutheiázō*, the schematic space is an arrangement internal to an entity that infers a telic state of order. The analysis uses the visualisation of multiple correspondence analysis (MCA) of the behavioural profiles of the two terms, *kámnō* and *eutheiázō*, for three stages: Ancient, Mediaeval and Modern Greek.

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1. Introduction

Two central, related themes in the cognitive linguistic literature are polysemy and semantic change. Understanding semantics not in terms of necessary and sufficient conditions but on the basis of prototypical categories (Rosch and Mervis, 1975; Rosch et al., 1976; Taylor, 2003) has opened the door to a wide range of interrelated new ways of treating semantic extension. These ways are pursued in what follows at the methodological and theoretical levels.

The inherently polysemic nature of lexical items poses another challenge: connecting synchronic semantics with diachronic semantics. The basic concern here revolves around the notions of stability and change, themes in principle relevant to all types of linguistic change. What motivates semantic change in the first place, and what regulates the relatedness of extended senses for a given form to their semantic ascendance? A number of models have been proposed,

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such as the *principled polysemy model* (Tyler and Evans, 2001, 2003) and *diachronic prototype semantics* (Geeraerts, 1997), to describe the semantic relatedness of a cluster of extended senses.

Corpus-based methodologies of semantic description have also been used to describe semantic relatedness. Describing meaning as an emergent and ever-changing entity, these methodologies have come to complement and empirically corroborate the results of more intuitive analyses of meaning construction such as *radial networks* (Lakoff, 1987; Brugman, 1981; Janda, 1990; Nikiforidou, 1991; Goldberg, 1992; Lewandowska-Tomaszczyk, 2010). Analyses that use detailed coding of elements for their semantic and syntactic properties, a method that has been termed the 'behavioural-profile approach', have been exploited in recent years to contend with the fine-grained and continuum-like structure of lexical meaning as a prototypical category. In the broader context of diachronic prototype semantics (Geeraerts, 1997, 2006), the behavioural-profile approach has been employed to account for the gradient nature of semantic change. The approach has thereby been extended from synchronic studies (Gries, 2003, 2006, 2010; Berez and Gries, 2009; Glynn, 2014b) to diachronic studies (cf. Ioannou, 2017, 2018; Jansegers and Gries, 2017).

On realising that semantic change may lie below the level of sense and that the cognitive linguistic view that all form is motivated (Radden and Panther, 2004), we are led to make two assumptions: first, there is no real synonymy as there will always be formal differences among distinct lexical items – form being understood in its widest meaning, from morphemic level to syntactic environment; second, if form is interlinked in such a way with meaning, then so is semantic extension with form (Lakoff, 1987; Beitel et al., 1997; Evans and Tyler, 2004).

Prototype theory is in principle compatible with the behavioural-profile approach (cf. Glynn, 2014a) and contains an appropriate analytical tool (Glynn, 2016). However, there is a relevant question: if prototypes are central/nuclear correlational features reducible from behavioural profiles, what do these featural correlations actually represent as a conceptual whole? Furthermore, if there is no atomically conceived sense that a network of extended senses can be considered 'prototypical', then what is the status of the subset of features that underspecifies atomic senses?

The present work addresses these questions by arguing that the image schema is a good candidate to be identified with the prototypical featural subset for a number of related senses. Image schemas, as gestalt prototypes, license the use of a given term with an extended meaning and at the same time constrain the polysemous potential of a term.

In order to test the plausibility of this hypothesis, this article undertakes a comparative, diachronic analysis between two Modern Greek terms, namely *káno* and *ftiáchno*, from antiquity to today, tracing the compatibility between the image-schematic make-up underlying their earlier senses on the one hand and the evolving correlations of their behavioural profiles on the other. The paper is structured as follows. Section 2 recapitulates the relevance of polysemy in cognitive linguistics, recast in a behavioural-profile methodology; it sees how image schemas as prototypes may not only drive but also constrain semantic extension, preserving the schematic structure of the evolved senses. Section 3 lays out the methodology and implements the analysis of the Ancient Greek term *kámnō*, originally meaning GET_TIRE, in its diachronic evolution. It is shown that its semantic extension from the sense of GET_TIRE to that of DO in Modern Greek is mediated by an underlying image schema of a decreasing energy potential, mapped onto the work produced by an agent. Section 4 describes the constraining role of image-schematic gestalts, comparing the Modern Greek verb *káno* with *ftiáchno*, which means STRAIGHTEN in Ancient Greek, and evolved to mean MAKE in Modern Greek. Section 5 shows how image schemas as prototypes can account also for microvariations and apparent exceptions within the polysemic paradigm of a term. Section 6 contains a summary and concluding remarks.

2. Image schemas as prototypes in a behavioural profile framework

2.1. Polysemy and behavioural profiles

The traditional definition of polysemy assumes distinct referents linked to a single form. However, under prototype-based semantics, polysemy is not as straightforward as a term simply denoting multiple referents. In contrast, a form may present only a partial variation in its use so that, although it keeps denoting the same referent, it also manifests subtle contextual fluctuations of co-occurrence, possibly expressed through minor features, such as a semantic characteristic of an argument. If these fluctuations are systematic, we have to assume a variation in semasiological structure (Glynn, 2014a) with characteristics of a continuum rather than a discrete space, and which populates a plane. The continuum, although it anchors itself onto terms that give the illusion of a correspondence to atomic senses, is only probabilistically attracted to them. Methodologically, locating these anchor points necessitates a subatomic treatment of the notion of sense, which is analysed as correlational patterns of features that *tend* to co-occur. Accordingly, a term is nothing but an access point to a plane of possibilities of conceptualisation.

An inductive methodology is required for two reasons. First, systematic variational patterns in semasiological structure may well lie below the level of a particular sense. Second, these patterns are emergent, and are not given by a naming relation between a term and a referent. The methodology is necessarily corpus-driven and based on co-occurrence of

features, where features are observables that represent linguistic dimensions that yield language's emergent complexity (Glynn, 2010b). Linguistic dimensions may represent semantic, constructional, morphosyntactic, pragmatic or other contextual features – all of which are assumed to represent a conceptual import. The probabilistic tendency of a term to access a specific area on the plane of conceptual possibilities is constituted by its *behavioural profile*. The behavioural-profile approach, introduced into linguistics by, for example, Gries (2006), Divjak (2006, 2010) and Glynn (2009, 2010a) assumes that the co-relational co-occurrence of features points to the entrenchment of a semantic pattern of limited scope, namely a lexical item (Langacker, 2008).

In practice, the behavioural profile of a term is built through the coding of a great number of contextualised instances of it. These so-called observations are coded for the factors/features that are considered to determine the term's usage-based behaviour. The standard multilevel instantiation of each of the factors coded for (e.g. PRESENT, PRETERITE, FUTURE, PLUPERFECT for the factor/feature TENSE; or ANIMATE, INANIMATE, ABSTRACT_OBJECT for semantic arguments) and the typically partial overlapping among the coded observations regarding their features yield a multidimensional space. The correlations of co-occurrence in this space escape the ability of a human observer for pattern reduction. Therefore, statistical multivariate techniques, such as MCA (cf. Levshina, 2015; Baayen, 2008), are used with corresponding visualisations that intuitively map these featural correlations onto a plot. Details of the method and its application to the present data are given in later sections.

2.2. Featural configurations and image schemas as prototypes

As argued in the previous section, the behavioural-profile approach is not just compatible with prototype theory: it is, to a large extent, a natural development thereof – especially since the strengthening of the theory's usage-based methodology and the determination of a more sophisticated way of detecting the prototypical core of a term's conceptualisation. Nevertheless, prototypicality is by no means a resolved matter. There are many vexing problems related to it, such as the distinction between frequency-based commonness between usages of a specific term on the one hand and schematic salience on the other. The former is a 'typical' use of a term bound to a specific context, whereas the latter represents a patterning that arises as a 'conceptual prominence' underlying the coalescence of features that do not necessarily correspond to a single attested sense (Glynn, 2014a, pp. 121–122; Arppe et al., 2010, pp. 9–11; Guilquin, 2010, pp. 145–166), but are reminiscent of a categorisation process among many overlapping senses.

This distinction raises the question of what is represented by the correlational featural patterns that lie at a below-sense level while encompassing more than one sense. Although atomic senses seem to be an illusion (Kilgarriff, 1997; Glynn, 2010b), the human mind persists in its unconscious task of attaching mental projections onto lexical anchors that look as if they have a conceptual autonomy. However, this autonomy stands in constant negotiation with its demarcating boundaries, extending its meaning towards designations completely unrelated to its earlier meaning. Fig. 1 shows schematically the extension of a sense [A] to [A'], with only a subset [C] of the featural make-up of each being the correlational pattern of their commonness – what we could call the 'prototypical core', which has a categorising potential over both (see Langacker, 2008 for a similar schema and analysis of semantic extension).

As a consequence of prototypes lying below the level of a sense A and its extension A', an evolving term's semantic shift often causes it to acquire meanings that pertain to a situation very different to the one the term originally had. The English term *pay*, for instance, has its origins in the senses PACIFY, APPEASE, then came to mean SATISFY and

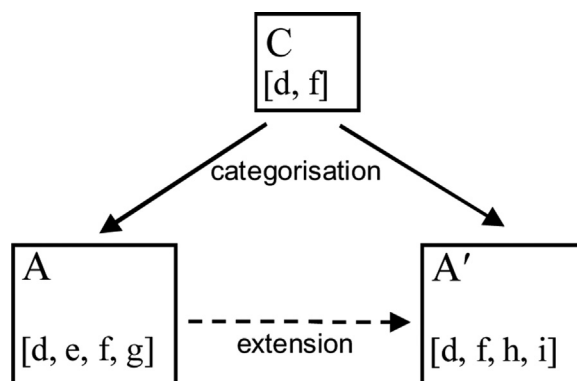


Fig. 1. Extension and categorisation by a common featural prototype.

eventually PAY (Ioannou, 2018).¹ Hence, we see that neither atomic senses nor the semantic frame (Fillmore, 1977, 1985) they are profiled against (Langacker, 2008) demarcate the prototypical core of a set of related senses. For the atomic senses PAY and PACIFY, the semantic frames are COMMERCIAL TRANSACTION (Fillmore, 1982) and STIMULATE_EMOTIONS (see FrameNet 2020), respectively.

In the literature, the featural correlations that comprise the behavioural profile of terms have been called 'gestalts', an implicit allusion to the fact that they constitute a projected 'wholeness' (for discussion see Georgakopoulos et al., 2020). If lexical senses are access points to gestalts, as they arguably are, then in what sense are feature clusters correlates of gestalts? We saw that polysemy seems to correlate not with the senses themselves but with information that lies below their atomic level (Georgakopoulos et al., 2020). This possibility also helps get a theoretical grip on gradual changes as subjectively imperceptible in their synchrony, giving rise to the question of how we account for minimal semantic extensions within a feature-based framework, when these mappings concern clearly gestalts.

To answer the two questions above, the present work puts forward the following hypothesis: the underlying featural configuration that functions as a categorising prototype among related extended senses under a single term actually corresponds to the image-schematic make-up underlying the term, traceable through its etymology. This image-schematic categorisation among senses may have both licensing and constraining effects over the possibilities of extension for a given term.

The idea of image schemas being both the driver and the constraint on semantic change gains theoretical plausibility if seen as an extension of Lakoff's (1990; 1993) *preservation of schematic structure* for metaphorical mappings. Lakoff argues that the *cognitive topology* of the source domain is preserved consistent with the inherent structure of the target domain (Lakoff, 1993, p. 215). For example, in the well-known metaphor, LOVE is a JOURNEY, the inferential relation that holds between a problem in a love relationship and the possibility of a break-up must be consistent with the inferences existing in the source domain, namely JOURNEY. Thus, for instance, the relationship profiled as a VEHICLE may present a problem, which may lead to a halt/break-up. Furthermore, this topology has been shown to be operative on a superordinate level. That is, it is not CAR that is mapped onto LOVE RELATIONSHIP, but VEHICLE. This leads to the possibility of a relationship being metaphorised also as a boat, a train, etc. Lakoff's work concludes that what gives global coherence to the inter-domain metaphoric mappings is actually image-schematic.

Hence, the current proposal can be seen as a generalisation of the structure preservation principle, operable not only in metaphoric but also in literal extension. It concerns not only synchronic mappings among propositions but also diachronic lexical-semantic mappings across periods of many centuries. Introducing image schemas as the gestalt prototype corresponding to featural patterning within the behavioural-profile approach opens the possibility for treating all diachronic lexical-semantic changes as image-schematically driven. Image schemas, being immanent to a given sense with their abstract architecture and their inferential structure, may be the driver for the sense's extension. However, the scope of the image-schematic structure would simultaneously constrain this extension, so jumps beyond the conceptual scope set by the underlying image schema are in principle banned. Therefore, we expect that feature-based dissimilarities across clusters of behavioural profiles represent permissible transformations within image-schematic gestalts. This is how the present analysis aims to achieve a theoretical and empirical unification across the following axes: prototype theory and preservation of image-schematic topology and behavioural-profile analysis.

3. A case study: *káno* versus *ftiáchno*

Ioannou (2020) attempts to show how the overlapping of features across two clusters on the same conceptual plane for the term *plērōdō* in Ancient Greek may represent a generic space in a conceptual integration framework (Fauconnier and Turner, 2002, 2003) among the senses represented by those clusters. It is not clear why these features would represent a generic space, rather than a random overlapping. Two key properties that could clarify the situation are *schematicity* and *immanence*. Schematicity is a characteristic self-evidently proper to an image schema that underspecifies the rich meaning of two or more senses not necessarily pertaining to identical semantic frames. At the same time, an image schema as a categorising abstraction would sanction 100% of both senses, being immanent to both. For immanence, see Langacker (2008). Both schematicity and immanence seem to be compatible with the gestalt nature of image schemas; therefore, I propose the image schema to be the common categorising principle between two or more related senses.

The following sections test the empirical plausibility of this hypothesis, comparing the evolution of two Greek verbs: *káno* and *ftiáchno*. The first is of particular interest because its form in Ancient Greek, *kámno*, codes a prototypically intransitive verb meaning WORK, BE_WEARY, GET_TIRED. Quite early in antiquity the verb's semantic grid started to incorporate a direct object, and ended up meaning DO. It has become the basic form for expressing this meaning, and is

¹ See the OED for the etymology of *pay* (verb).

one of the most frequent verbs in Modern Greek. *Ftiáchno* descends from the mediaeval verb *efthiázo*, originally meaning STRAIGHTEN. Eventually, the range of direct objects it could semantically select increased, but, as we will see, with strict limitations on the objects' semantic type.

3.1. The case of *kámno*

3.1.1. *Kámno* in antiquity

The analysis codes 554 instances of the term *kámno*, from the eighth century BCE to the fourth century BCE, extracted from the *Thesaurus Linguae Graecae* (TLG),² for a series of semantic and syntactic features: MEANING, TENSE, OBJECT SEMANTICS, PERIPHERAL ELEMENT, PERIPHERAL ELEMENT SEMANTICS. The choice of tagged features was made on theoretical and empirical grounds. Given that the verb starts as prototypically intransitive, later extending to transitive use, it is indispensable to code for both the categorial and semantic types of the nuclear and peripheral elements, such as OBJECT, ADVERB or PREPOSITIONAL PHRASE, in the argument grid of the verb. Hypothetically, the verb's constructional scope maps onto the image-schematic make-up of the verb, which is why the constructional scope is coded in such detail. However, delving into the data shows that the subject is always an ANIMATE OBJECT, and usually HUMAN. Coding for it would give a false correlation that would shadow the contribution of other correlations to variation, so it is not tagged. In contrast, TENSE is tagged as a feature, which may serve to elucidate the conceptualiser's standpoint with respect to the temporal boundaries of the events denoted by the term and the ability to apprehend them as bounded or unbounded entities (Langacker, 2008, section 3.2.3). For example, AORIST and PRESENT_PERFECT – both of which are PERFECTIVE instantiations of TENSE – adopt a posterior viewpoint on a process, whereas PRETERITE takes an internal view. Associations between the verb's TENSE and the semantics of its arguments may reveal what more formally would be termed the 'lexical aspect' of the verb (cf. Rothstein, 2004). Factors relating to grammatical Aspect are involved here, but coding ASPECT in its own right dramatically decreases the observed variation. However, the detailed coding of TENSE tends to incorporate Aspect, so no information is lost.^{3,4}

We must also note the senses for which the term was coded. The range of possible meanings is based on the Liddell-Scott-Jones (LSJ) dictionary of Greek. In addition, wherever potentially significant nuances in meaning were detected, these were coded for. In all such cases, translations of the relevant passages containing the specific instances were consulted so that no arbitrary meaning was attached. Such nuances may be found, for instance, in the coded sense PUT_EFFORT. LSJ does not list a separate entry, but it does define a use of *kámno* accompanying a verb as a participle, with the definition 'doing something with effort'.

Once the coding is complete, the analysis submits the sum of the features, ordered into factors (variables) and their levels (instantiations) by observations (utterances) into an MCA (cf. Levshina, 2015; Baayen, 2008), which is a method designed to detect correlations among the various factors and levels on the basis of co-occurrence. The visualisation of the MCA yields conceptual maps where the various levels cluster at greater or lesser relative distance. Clustered elements imply frequent or exclusive co-occurrence, whereas greater relative distance implies relative absence of contextual co-occurrence.

Fig. 2 is a first look at the frequency of distribution of the various meanings of *kámno* for the eighth century BCE to the second century BCE.

The prototypical meaning of *kámno* is GET_TIRED. Despite being only the second most frequent for the period analysed, it is historically attested first. GET_ILL, the most frequently occurring meaning, is a metonymic extension of GET_TIRED, whereas DIE, the third most frequent, is a metonymic extension of GET_ILL. A number of other meanings, such as PUT_EFFORT, SUFFER, PERFORM and WEAKEN can be understood as directly stemming from GET_TIRED. These relationships support the case for GET_TIRED being the prototypical meaning.

What follows is the visualisation of an MCA performed for the aforementioned factors. The nature of the factors MEANING, TENSE and OBJECT SEMANTICS is intuitively grasped. As noted above, the PERIPHERAL ELEMENT factor includes the grammatical categories and subcategories of elements that are not part of the nuclear semantic grid of the verb, such as PARTICIPLES that modify the subject, NOMINALS specified for CASE (such as ACCUSATIVE of reference; see Courtney, 2004), ADVERBS, etc. Subsequently, PARTICIPLES may semantically be ACTIVITIES, ACCOMPLISHMENTS, ACHIEVEMENTS and STATES; NOMINALS may be characterised for their designation at a level of schematicity similar to that for the semantics of objects (e.g. BODY, INSTRUMENT, ABSTRACT_OBJECT and ARTEFACT) and ADVERBIALS for AMOUNT, TIME, etc. (see Appendix A).

² <http://stephanus.tlg.uci.edu/>.

³ Ancient Greek PRESENT lacks any morphologically marked distinction between SIMPLE and CONTINUOUS. Nevertheless, all instances of PRESENT in the corpus were of the SIMPLE type.

⁴ For a detailed list of the factors and levels tagged for both verbs in all three periods, see Appendix A.

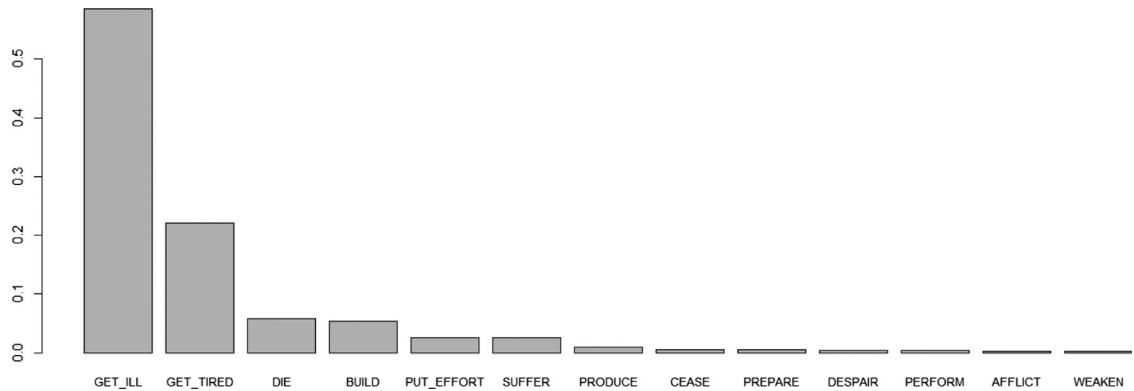


Fig. 2. Frequency distribution for senses of *kámnō*, 8th–2nd c. BCE.

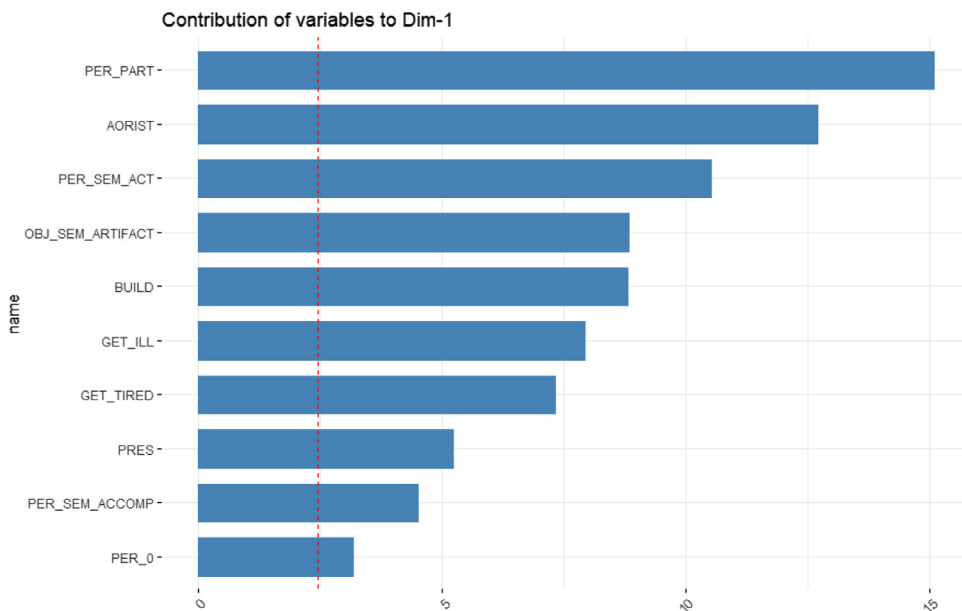


Fig. 3. The ten levels with the highest contribution to variation for *kámnō*.

MCA-based clustering of semantic and syntactic features on the basis of systematic co-occurrences generates a conceptual map with various clusters at a greater or lesser distance from each other. Fig. 3 shows the ten levels that contribute most to variation, where each level is an instantiation of the variables coded for.

Fig. 4 shows the same levels distributed across the MCA plot. Levels at the closest relative distance co-occur on the basis of frequency and/or exclusiveness. Respectively, the levels distant from those clusters generate separate patterns of co-occurrence. The plot's axes define four quadrants that help identify polarisation in terms of correlation.⁵ The first and second quadrants (the order is given anticlockwise starting from the top right) have contexts in common, but differ from the third and fourth. Similarly, the first and fourth have contexts in common, but differ from the second and third. The first quadrant has no contexts in common with the third, and the second has none in common with the fourth.

The levels that are more or less clearly clustered together are the following: first, PRESENT TENSE with the meaning GET_ILL; second, ACCUSATIVE of reference with AORIST TENSE, the meaning GET_TIRED and PARTICIPLE with the lexical aspect of ACTIVITY; and third, an ARTEFACT with the meaning of BUILD and the lexical aspect of ACCOMPLISHMENT. The PARTICIPLE–ACTIVITY pair is more distant from the rest of the members of its cluster

⁵ Polarisation of correlation in MCA though does not imply negative correlation.

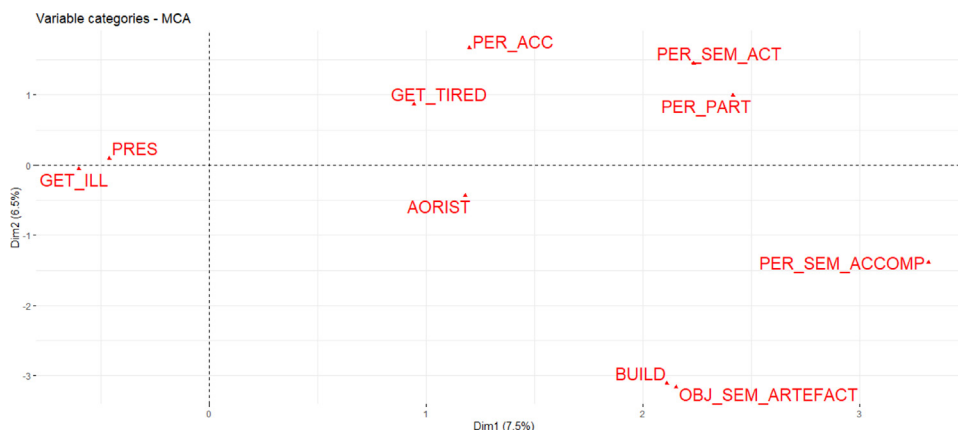


Fig. 4. MCA plot for *kámnō*, 8th–2nd c. BCE.

because the PARTICIPLE, itself strongly associated with an ACTIVITY verb, is also proper to the context of the meaning BUILD, except that the semantic type of the PARTICIPLE is ACCOMPLISHMENT, a plausible association.

In Fig. 4, a general observation that strikes us is the fact that the verb is predominantly intransitive in its ACTIVE form. No senses of to GET somebody ILL or to GET somebody TIRED were found. However, senses such as BUILD are strictly transitive, and are not found in the PASSIVE VOICE in any environment (1).

- (1) **hē naūs kámnetai*
 DET.FEM boat.FEM.NOM build.PASS.PRS.3SG
 'The boat is being built'

This inability of an object to become the subject of the passivised form of *kámnō* analogously to English *tire*, in conjunction with the verb's general intransitivity, points to a deficient agentivity for the semantics of the verb, even in its transitive form (2). It is worth noting that in many cases the transitive *kámnō* is accompanied by a participle, such as *teúchōn*, which specifies the activity as MAKE or CONSTRUCT. Given that the prototypical meaning of *kámnō* is intransitive, it is as if the specific grammaticalised construction is instantiated in such a way that the tiring process represented by *kámnō* is brought into focus and given the status of the main process,⁶ although conceptually it may seem to be peripheral. This way, the sense of GET_TIRED conceptually fuses with that represented by *teúchō*, namely BUILD.

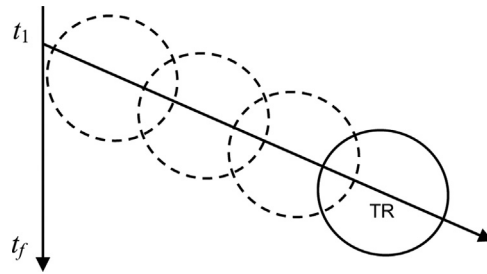
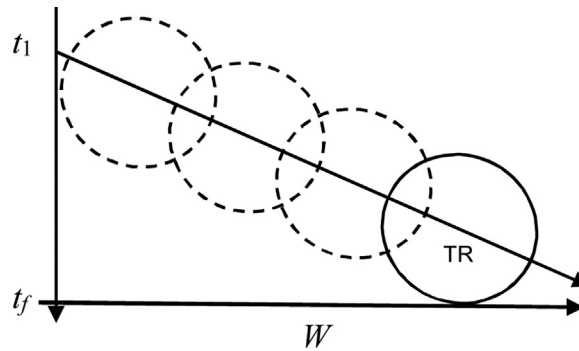
- (2) *thṛēka ton Hēfaistos káme teúchōn*
 breast-plate.ACC PRN Hephaestus.NOM build.AOR.3SG make.PRS.PART.NOM
 'The breast-plate that Hephaestus wrought with toil' (*Hom. Il. 8.193*)

The constructional repercussions of this conceptual interchange are important, especially with respect to the pervasively intransitive character of the verb. They point to the possibility of licensing an object, through a conceptual schema different from the typical trajector-landmark configuration that is met in transitive constructions (see Langacker, 2008). What is needed is an image-schematic construction that renders two dimensions compatible in its gestalt: the centrality of the verb's intransitive meaning of GET_TIRED on the one hand and the transitive meaning of BUILD as compatible with more prototypical meanings of *kámnō*, such as GET_TIRED on the other.

Let us then present a first approximation to the image-schematic conceptual schema of the sense GET_TIRED (Fig. 5), to be refined as we proceed.

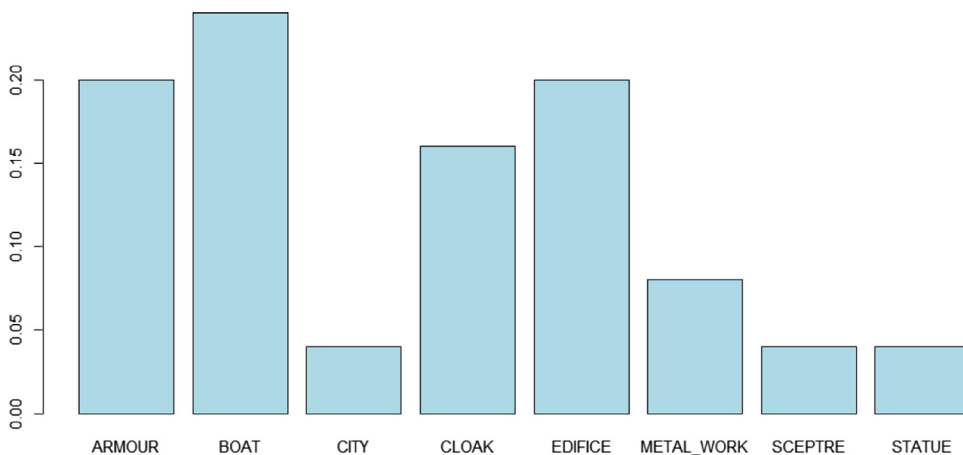
The image schema in Fig. 5 captures the states of lessening of one's strength, as a function of time for the interval $[t_1 \dots t_2]$. This could render *kámnō* a perfective verb, marking the conceptualisation of its initial and final state, with intermediate states that culminate in the final state of tiredness (but see below). Nevertheless, this culmination is not simply the consequence of time passing, but also the function of a parallel work *W* produced, collinear with the evolution of tiredness (Fig. 6).

⁶ Thanks to an anonymous reviewer for this observation.

Fig. 5. Prototypical conceptual configuration for intransitive *kámnō*.Fig. 6. Work *W* as collinear to the lessening strength profiled by *kámnō*.

As represented in Fig. 6, the landmark being built is not proper to the verb's conceptualisation. Consequently, we expect that it is understood as conceptually integrated with what *kámnō* inferentially evokes, which is the work produced. This is actually borne out if we take a look at the objects of *kámnō*. When the verb has the meaning of BUILD or CONSTRUCT (Fig. 7), the semantic objects, which cover the 26 instances in the corpus, are all the result of heavy manual work. This work is usually with artefacts that exceed the human size, on the one hand and imply accumulation of physical tiredness on the other (3).

- (3) ... *téktōnes, hoí ke kámoien néas*
 carpenter.NOM.SG REL PTC build.AOR.OPT.3SG boat.ACC.PL
 '... the carpenters that could build boats ...' (*Hom. Od. 9. 126*)

Fig. 7. Objects of *kámnō* as BUILD.

The rest of the objects, when *kámnō* is transitive, are semantic complements of the senses PRODUCE/LABOUR (4), PREPARE (5) and PERFORM (6), with the respective meanings of BABY, FOOD and ATHLETIC TASK.

- (4) *áttrion néon kám' ifi matrós ōdís*
 weft.ACC.SG new.ACC.SG labour.AOR.3SG force.INSTR mother.GEN.SG pang.NOM.SG
 'the newborn that the mother's throes laboured with pain' (*Sim. Rhod. Egg*)
- (5) *Chóndros ... hón Héfaistos kámen hépsōn*
 wheat.NOM.SG RES.ACC.SG Hephaestus.NOM prepare.AOR.3SG seethe.PRS.PART.3SG
 'The porridge that Hephaestus seethed with effort to make' (*Matr. Parod. conv. Att.100*)
- (6) *Hós r' hupédekto barún kaméesthai áethlon*
 who.NOM PTC undertake.AOR.3SG heavy.ACC perform.FUT.3SG task.ACC
 'Who had taken upon him to perform the heavy task ...' (*App. Rhod. Arg. III. 580*)

Essentially, the additional object of the verb *kámnō* is a case of transitivity, with a constructional extension of the type $N_1 V \rightarrow N_1 V N_2$. The latter can be formulated as the result of an integration that at a constructional level copies the integration of the vector *W* with that of energy potential, in the image-schematic structure in Fig. 6.

Hence, what follows is a representation of the process of transitivity of the verb with a specific object. Let us take one that denotes FOOD. As noted earlier, a given situation that has standardised its elements and relations among them as an ontology is called a semantic frame (Fillmore, 1977, 1982). The semantic frame at hand, following Langacker (1987), can be called a CULINARY FRAME. What are the possibilities of a verb such as *kámnō* denoting a process within the ontology of cooking? A notion employed to explain the motivation for semasiological change is the *bridging context* (Evans and Wilkins, 2000; Geeraerts, 2017). This is understood as the contextual conditioning of an intervening polysemic state (Sweetser, 1990). The bridging context between two related meanings A and B leads to the contextual enrichment and inferential identification of A. In turn, A gains independent identification and becomes lexicalised. In our case, the cooking context overlaps the use of *kámnō* in the context of getting tired, working or preparing something. Interestingly though, the bridging context does not come as a self-generated conceptual connection motivated by the internal dynamics of a word's semantics 'for free'. In some sense, the semantics of a given lexical unit is blind to its evolving possibilities, simply because they are potentially infinite. The problem touches upon onomasiology as a process of concept 'designation' (Baldinger, 1980), which, as I argue, always has an ad hoc component on the part of a speaker, albeit unconscious, when they come to 'name' an entity (Geeraerts, 1993, 1999, 2002, 2006; also Štekauer, 2005a,b). This is because when it comes to the matter of designating a choice, the term to be chosen competes with a wide range of possible synonymous or near-synonymous candidates. Hence, the bridging context emerges only as the secondary effect of a perspectivalisation of the semantic frame through the use of the term that is introduced into it; this is known as 'conceptual onomasiology' (Geeraerts, 2017), a kind of frame construal in which the bridging context is not deterministically present in principle.

The above account raises the question of what constrains the choice of a specific term among a range of possible candidates. I argue that, in accordance with the assumption that the ontology of semantic frames does not seem to condition the evolution of one sense into another, the insertion of an additional argument is mediated by the image schema underlying the polysemic term. Concretely, the components of the image schema of *kámnō* are distributed across two semantic frames, having the effect of integrating parts of both into a new meaning. Hence, the CULINARY frame profiling COOKING is onomasiologically extended towards EFFORT, while GET_TIRED, the entrenched meaning of *kámnō*, is extended towards PREPARE. The integration is licenced by a bridging image-schematic structure that inferentially co-aligns the continuum of lessening strength with the continuum of increasing work. The process (Fig. 8) is reminiscent of Fauconnier and Turner's (2002) blending theory.

The depiction of the process in Fig. 8 pinpoints the possibility that onomasiological choices are not made on the basis of elements within an elaborate culturally entrenched context, but at a schematic level of categorisation. What are the possibilities of *kámnō* becoming lexically entrenched as COOK? Such a scenario would involve a contextual specification of the term for edible objects that can be cooked and a subsequent binding of that term with the specific context (Glynn, 2014b). However, this specification never took place, as the range of objects selected by *kámnō* is much wider. Along with foods, it includes artefacts and great constructions, tasks and babies. That precisely implies that the so-called 'selectional restrictions' (Katz and Fodor, 1963; Wilks, 1975a) take place at a higher level of categorisation, in what appears in Fig. 8 to be a bridging-and-categorising image-schematic space, and not at a level of featural constraints or preferences (op. cit.).

What are these schematic restrictions? The profiling of subsequent states of decreasing strength on the part of the AGENT-trajector (TR), against an inferred background of increased work, on the part of a PATIENT-landmark (LM).

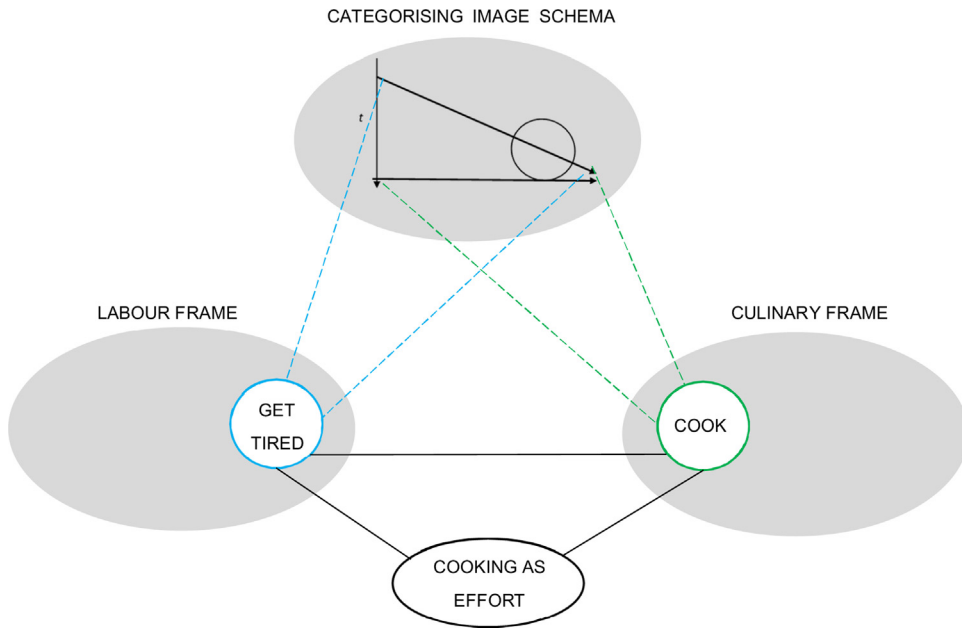


Fig. 8. Image-schematic categorisation bridging *COOK* and *GET TIRED*.

Nevertheless, the internal structure of the landmark is not visible to the selecting verb. This is possibly due to the fact that a process such as *GET_TIRED* is trajector-oriented and prototypically intransitive. This implies that the restrictions on the object must really be schematic, rather than a specific restriction like *EDIBLE OBJECT*. It is as if the process bypasses the internal structure of the landmark, imposing only the restriction that, during the execution of the process, there must be some physical effort. This may be the reason that the majority of objects (e.g. *CITY*, *EDIFICE*, *CLOAK*, *BOAT*, *CITY WALLS*), despite all being artefacts with an internal structure, are so big that their manipulation exceeds the scope of a single person's apprehension (Fig. 9).

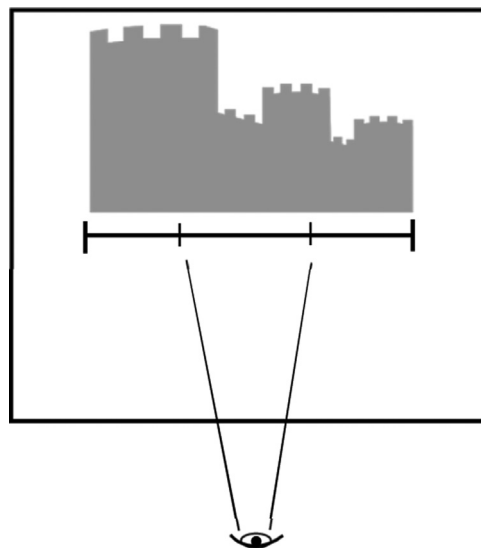


Fig. 9. Asymmetry between object and apprehension's scope.

The semantics of the verb encompasses the object's boundaries completely, thereby losing the object's internal structure. In other words, the scope of the verb cannot gain access into the *heterogeneity* of an object such as BOAT or WALLS, displaying a lexical aspectual type that does not profile internal change (Langacker, 2008: p. 153).

What are the MCA data that support such an assumption? First, the co-occurrence of AORIST with all instances of *kámnō* when it means BUILD. AORIST, being perfective regarding its grammatical aspect, adopts a viewpoint posterior to an event. Taking a scope external to the event is precisely what is expected (7)

- (7) *teîchos, de kúklōpes kámon*
 walls.ACC.SG PRC Cyclopes.NOM build.AOR.3PL
 'the walls that the Cyclopes built' (*Bacch. Lyr. Epin, Ode 11.74*)

This may also be the reason that in grammaticalised constructions like (2), we never encounter a reverse construal with *kámnō* as the verb and a present tense participle such as *teúchō* as being the main verb (8).

- (8) **thōrēka ton Hēfaistos teûche*
 Breast-plate.ACC PRN Hephaestus.NOM make.AOR.3SG
kámnōn
 build.PRS.PART.NOM
 'The breast-plate that Hephaestus wrought with toil' (*Hom. Il. 8.193*)

The construal that the present participle of manner induces in this construction more generally is that of a viewpoint internal to the nuclear process. It seems that *kámnō* in this role would force an impossible construal, as it cannot take a viewpoint internal to the event (Fig. 10).

Although this is indeed an instance of an almost formulaic construction in Homeric epics, the real question is why it is *kámnō* that has lexically elaborated construction (8) in this categorial disguise. This is a more general concern for all instances of these grammaticalised constructions in Homeric epics. Identifying the aspectual asymmetries among the members of the pairs of near-synonyms that co-occur in this construction is an interesting topic for further research.

Let us examine the clusters of the MCA plot for this period (Fig. 4) to see if their distributions correspond with the account of *kámnō* presented so far. The PARTICIPLE feature shares space with the intransitive and transitive meanings alike. Its conceptual contribution to transitivity has already been explicated. Regarding intransitivity, we note that its semantic type is ACTIVITY, the lexical aspectual type that does not show any internal structuring of the profiled process. ACTIVITIES, such as RUN, DANCE (9), FIGHT, conceptualised as unbounded, do not present clear-cut or defined temporal limits.

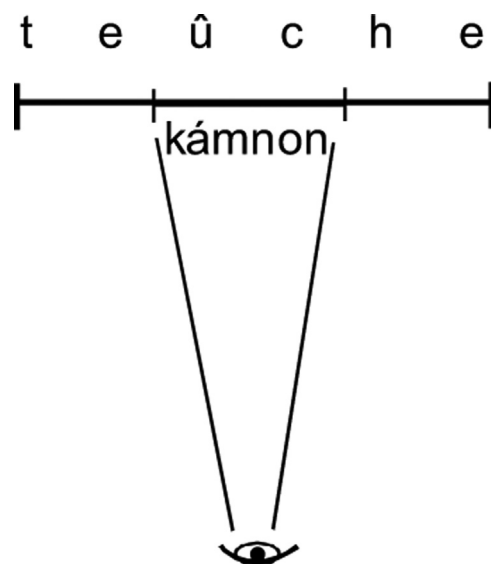


Fig. 10. Impossible construal for *teûche kámnōn*.

- (9) *ούποτ' ἄν κάμοιμ' ὀρχοῦμέμῃ*
 never PTC get tired.AOR.OPT.3SG dance.PART.PRS.NOM
 'I would never get tired of dancing' (*Arist. Lys. 541*)

No participles of accomplishment senses, such as BUILD, REACH, FALL and EMPTY, were found in the corpus. Extensive work in the literature on the parallels between verbal and nominal domains in terms of heterogeneity, telicity and boundedness (cf. Mourelatos, 1978; Bach, 1986; Krifka, 1989; Jackendoff, 1991; Langacker, 2008) suggests this observation is relevant. It ties in with the aforementioned finding on the inability of *kámnō*, when transitive, to 'look into' the heterogeneity of the thing represented by its object. Therefore, if the cumulative sequence of states of tiredness, and its collinearity with the work produced, are the conditions licensing the transitivity of the verb *kámnō* at an image-schematic level, then we can conclude the following: the observed blocking on the profiling of the object's internal structure must dictate the permissible range of objects selected by the verb, as well as for the semantics of the verb itself.

Another observation concerning the TENSE of the encountered participial instances in the corpus, is that they are always in PRESENT TENSE⁷:

- (10) *ἔκαμην δῆρὸν κατὰ νεδύος ἅμμε φέρουσα*
 get_tired.AOR.3SG too_long upon womb.GEN PRN bear.PART.PRS.NOM
 'She got tired bearing us for so long in her womb' (*App. Arg. IV 1354*)

These PARTICIPLE–ACTIVITY–PRESENT occurrences point to two interesting possibilities. First, given that *kámnō* lacks internal heterogeneity, it is licensed to adopt a viewpoint internal to an ongoing process only if that process also lacks internal structure. Although this construction may look identical to that with the verb meaning BUILD (3), due to the presence of the PRESENT PARTICIPLE, we should not forget that the constructions are quite distinct. One is transitive, where *kámnō* takes an object with a heterogeneous internal make-up, whereas the other is intransitive. Conversely, it is interesting to look at the types of impossible constructions that the two versions of *kámnō*, namely intransitive (11) and transitive (12), never sanction.

- (11) *They were building a boat.*
 (12) *They got tired building (a boat).*

Although conceptually plausible, the present analysis prohibits expressions of the type in (11), which are never attested in the corpus. The reason must be simply that the verb cannot 'fuse' – in Jackendoff's (1990, p. 53) sense of argument integration with its predicate – with objects representing heterogeneous THINGS. The problem is not a generalised inability of *kámnō* to acquire imperfective aspect: as with the meaning of GET_TIRED this construal is often attested (13).

- (13) *ὁ δ' ἀριστερὸν ὄμον ἔκαμνεν*
 PRN.NOM PRC left.ACC shoulder.ACC get_tired.PRET.3SG
 'His left shoulder was growing weary' (*Hom. Il. 16. 107*)

The third cluster in Fig. 4 that may yield further insight into the link between the behavioural profile of *kámnō* and the underlying image schema is the cluster GET_ILL–PRESENT. The cluster is entrenched to such a degree that it has been lexicalised as a noun under the form of the participle *kámnōn*. Further evidence for its being a lexicalised pattern is that it features neither in the female form *kámnousa* nor as the adjectival modifier of a noun, for example, *ἄνδρες κάμνοντες* (i.e. 'ill men'). Although plausibly analysable as a metonymically triggered sense from GET_TIRED or GET_WEARY, the sense GET_ILL is never attested with the meaning of 'someone getting ill', highlighting the fact that the form lexicalised with the term is not AORIST but PRESENT. This fact does not really agree with the aforementioned metonymical shift between GET_TIRED and GET_ILL. It seems that the metonymy holds between BE_WEARY and BE_ILL, the latter possibly being a better coding for the term in this use. This tells us that *kámnō* is not only incompatible with an object's heterogeneity, but also with the conceptual characteristics of telicity and culmination. A person *is* weary and for the same reason ill. Hence, the metonymy at play here is not so much that of CAUSE-and-EFFECT between a culmination of bad physical condition that results in illness, but that of a physical state externalised through some other detectable physical

⁷ The factor TENSE for PARTICIPLES was not coded for in the MCA, to avoid proliferation of sub-features within features within factors (i.e. [PERIPHERAL ELEMENT [PARTICIPLE [PRESENT]]]).

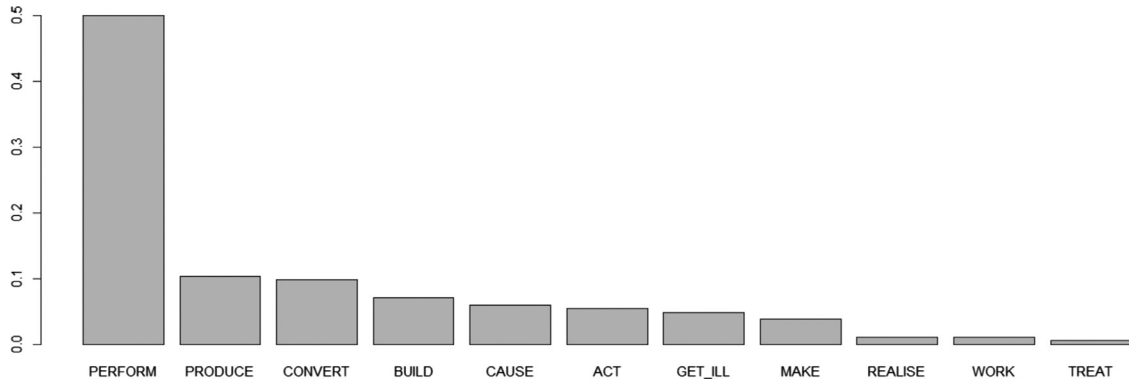


Fig. 11. Frequency distribution for senses of *kámno*, 10th–13th c. CE.

sign, hence an experiential association of PHYSICAL-STATE–EXPRESSION-OF-A-STATE metonymy (cf. Kövecses and Radden, 1998; Panther et al., 2009).

The analysis now turns to the evolution of the term in Mediaeval and Modern Greek, paying particular attention to the constraining role that the image schema underlying the term *kamnō* may have on the conceptual and constructional profile of the term diachronically.

3.1.2. *Kámno* in Mediaeval Greek

Let us now turn to the MCA of *kámno* for Mediaeval Greek.⁸ The data consist of 185 instances for the tenth century CE to the thirteenth century CE. The basis for defining the meanings of the terms for this period is the *Kriaras' Lexicon of Mediaeval Greek Demotic Literature*.⁹ The frequency of the various senses for *kámno* is shown in Fig. 11.¹⁰

We observe that the sense GET_TIRED has disappeared; the same is almost true for the sense GET_ILL. Their positions have been taken over by senses such as PERFORM and PRODUCE, with almost all senses now reduced to a more schematic DO/MAKE sense. Equally important is the fact that the verb seems to have been entrenched as transitive. Analogous to Fig. 3 for Ancient Greek, Fig. 12 shows the ordering of the ten factors that contribute most to the variation for the current period.

Next, Fig. 13, analogous to Fig. 4, shows the distribution of the levels in Fig. 12 on the MCA plane for Mediaeval Greek (see Appendix A for a list of factors/levels).

Now the semantics of *kámno* has radically shifted not only towards transitivity but also towards being resultative. The two senses that appear to be prototypically entrenched into a cluster of semantic and syntactic features for the period under analysis, namely CONVERT/MAKE and CAUSE/MAKE, have the structures in (14) and (15), respectively.

(14) X *kámno* Y NOUN/ADJECTIVE

(15) X *kámno* Y CLAUSE

Examples are given in (16) and (17).

(16) *authéntin tón ekámasin mésa is tín Sirían*
 governor.ACC.SG PRN.ACC.SG make.AOR.3PL inside to DET Syria.ACC
 'They made him governor in Syria' (*Dig. Acr. 2.276*)

(17) *mí mé kámis ná ipágo is Tón Ádin*
 NEG PRN.ACC make PRC go.SUB.1SG to DET Hades.ACC
 'Don't make me go into Hades' (*Dig.Acr. 3.327*)

⁸ The long *ō* of *kámno* has already been shortened by this period, which is why it is not annotated.

⁹ A shortened version of Kriaras' dictionary can be accessed here: http://www.greeklanguage.gr/greekLang/medieval_greek/kriaras/search.html?lq=%CE%BA%CE%AC%CE%BC%CE%BD%CF%89.

¹⁰ The open-access software *R* was used for all statistical analyses (R Core Team, 2016).

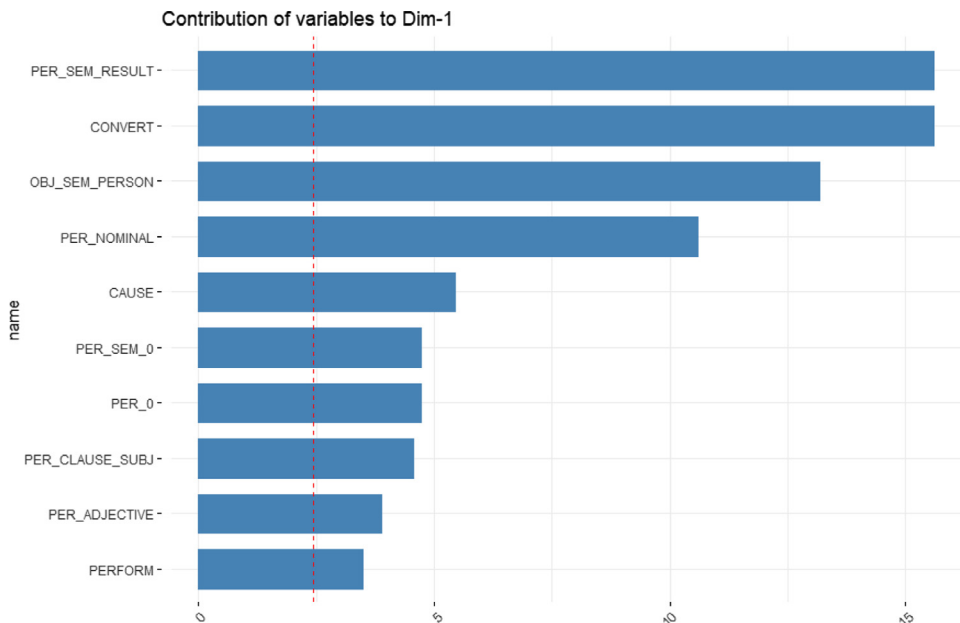


Fig. 12. The ten levels with the highest contribution to variation for *kámno*, 10th–13th c. CE.

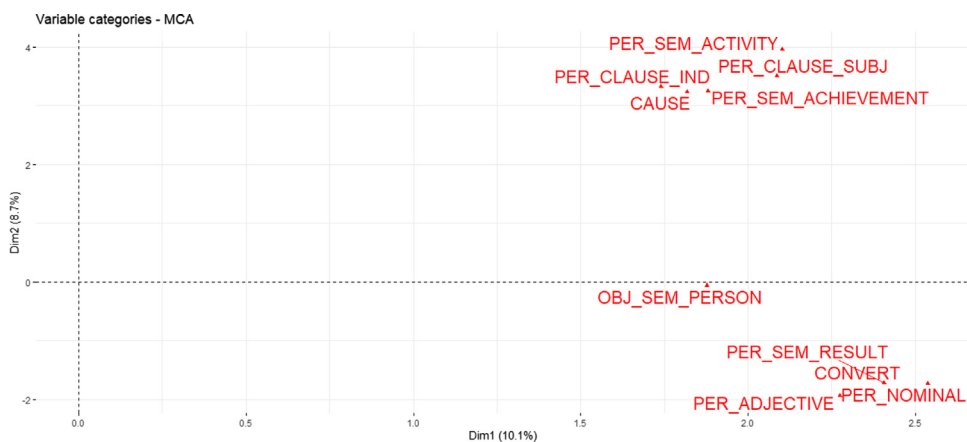


Fig. 13. MCA plot for *kámno*, 10th–13th c. CE.

It is worth noting that there are occasions where the construction in (17) actually means the effort put into an action, as an initial intent necessary for the realisation of it (18).

- (18) *Káme ná élthis*
 make PTC come.SUB.2SG
 ‘Try to come’ (*Nicon Scr. Eccl.*
et Theol. Testam. 8)

The earlier and historically prototypical meanings of GET_TIRED and GET_ILL have virtually disappeared, giving their positions to PERFORM. Conceptually, PERFORM can be seen precisely as profiling ‘work’, above, within the image schema of *kámnō*. This meaning has by now gained its own entrenched niche on the conceptual plane in Fig. 14, where the MCA plot in Fig. 13 is extended with 5 more levels along the scale of contribution to variation.

Interestingly, the semantics of the nominal that acts as the object when the verb is transitive with the sense of PERFORM is ACTIVITY, which manifests as WAR, WRITING, RUNNING, etc., and never a physical thing to be constructed (19).

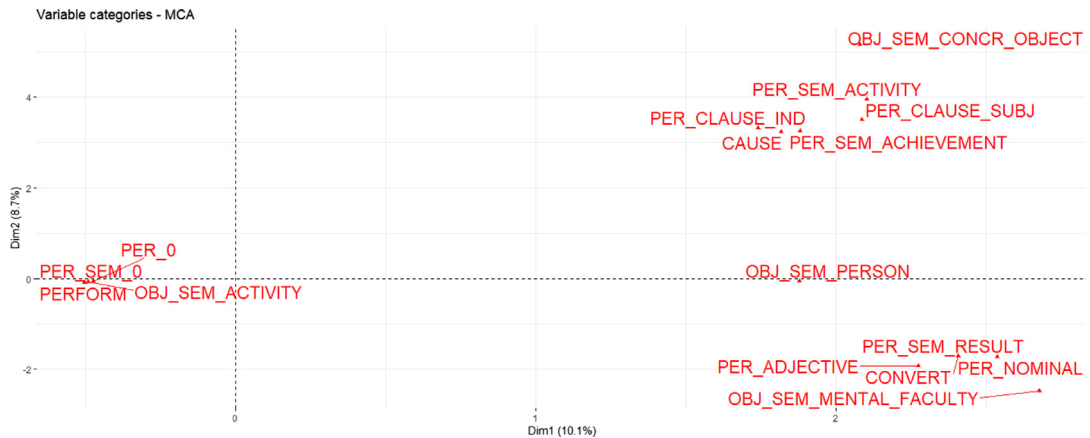


Fig. 14. Enriched MCA plot for *kámno*, 10th–13th c. CE.

- (19) *ekámete méga pólemon eis tás klisúras*
 perform.AOR.2PL great.ACC battle.ACC in DET pass.ACC
 'You had a great battle in the narrow pass' (*Dig. Acr.* 3.332)

Both the resultative constructions for the senses of CAUSE and CONVERT as well as the behaviour of the sense PERFORM, essentially manifest the same restrictions imposed by the image schema in Fig. 6 above. These restrictions were determined as the deficient agentivity of the trajector with a concomitant inability of the verb to gain a scope internal to the thing represented by its landmark. The process of sequential states of decreasing strength seems to have been schematised to that of DO, putting the focus on the work produced, reified as ACTIVITY (Fig. 15).

On the right top of the MCA plot (Fig. 14), the presence of a CONCRETE OBJECT co-occurs not with a verbal sense that denotes a complex process of change internal to the object, such as CONSTRUCT, BUILD (20), FIX, but with the sense of CAUSE (21). There is a proliferation of works that deal with the semantics of CAUSE not only as a presuppositional prime making up the complexity of other verbs such as *kill* (cf. Wilks, 1975b; Jackendoff, 1990) but also with the asymmetry between the explicit profiling of its lexicalised instance in an utterance such as *cause to die* versus its conceptual incorporation in the lexical semantics of a verb (Pinker, 2007).

(20) *The gentleman built the house*

(21) *The gentleman who caused the house to be built* (*J. F. Cooper, 1886*)

Only (20) can mean the actual agentive instigation of the process of BUILD that implies the agent's involvement in space and time (Pinker, 2007), and a concomitant alteration of the internal state of the object. Thus, looking again at the top right of Fig. 14, we see that aspectual types such as ACCOMPLISHMENTS are licensed only if they are inferentially – not lexically – incorporated into the semantics of the verb *kámno*. This precisely corroborates the possibility of *kámno* having no conceptual access to the heterogeneity of the states of an object, even if the latter is ultimately involved in a process culminating in subsequent states of change (22).

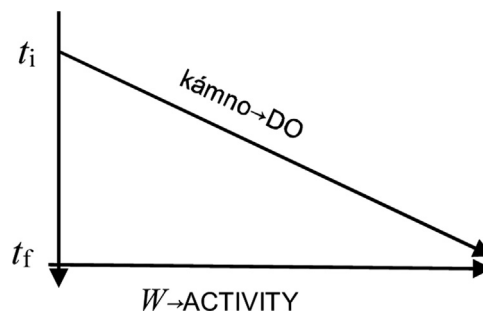


Fig. 15. Schematisation of *kámno* into DO and reification of *W* into ACTIVITY.

- (22) *Opía tonne kámi ... na*
 PRN.NOM PRN.ACC make.AOR. PRC
 SUB.3SG
charí ke is charán
 cheer.up.PASS.AOR. CONJ to happiness.ACC
 SUB.3SG
strafíne tin kardían
 turn.INF DET heart.ACC
 'She who will make his heart happy'
 (Anon. Erot. Byz. Phlorius et Platzia Phlora I. 800–801)

The contrast becomes clear when we make a comparison with the left-hand side of Fig. 14, where *kámno* with the sense of PERFORM in PRETERITE TENSE is primarily correlated with a nominalised process of the aspectual type ACTIVITY. Given the standard assumption of Activities being unbounded processes, the association with PRETERITE – a tense of imperfective grammatical aspect that takes a viewpoint internal to the process – seems expected, as the difficulty of zooming into a heterogeneous process has been lifted (23).

- (23) ... *ke tris níktas ekámnamen sigkilísmata erotiká*
 CONJ three.ACC nights.ACC do.PRET.1PL roll.PL.ACC erotic.PL.ACC
 '... and for three nights we were rolling with erotic passion' (Dig. Akr. 6.369.33)

Hence, the constitution of the PERFORM-cluster concurs with the conclusions about the implications of the CAUSE-cluster.

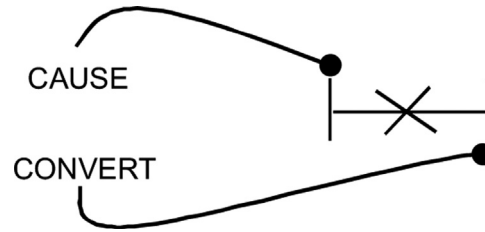
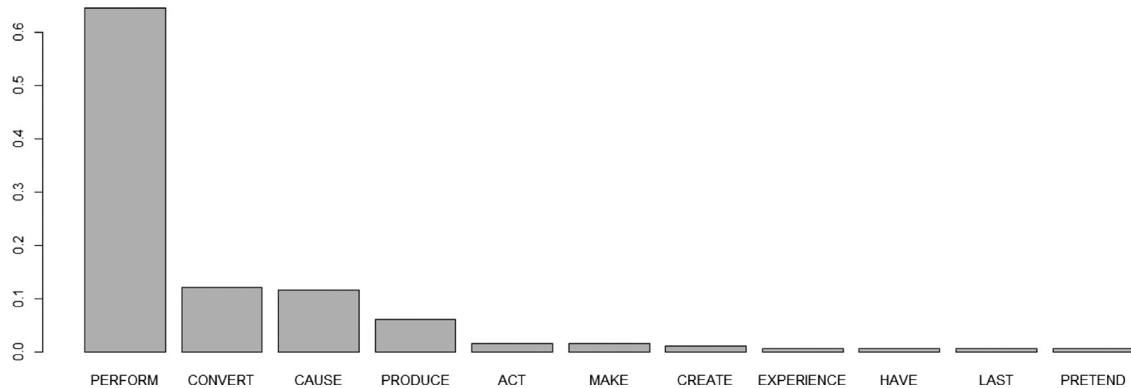
Finally, the bottom right side of the MCA plot in Fig. 14 features the behavioural profile of a construction parallel to that of CAUSE, namely the RESULTATIVE construction either with NOMINALS or ADJECTIVES. The direct OBJECT prototypically has the semantics of PERSON, which is shared by both the causal and resultative clusters. The resultative construction is parallel to the causal one, in the sense that the object is not lexically fused with the heterogeneous structure of the process that the THING undergoes. In other words, the thing represented by the object goes through a process of transformation, but the latter is not profiled as inherent to the verb *kámno*.

Attempting to give a tentative hierarchy for the selectional restrictions on the verb based on the order in which the featural clusters gradually appear in Fig. 14 in accordance with their contribution to variation,¹¹ we get the following picture: the less internal the heterogeneity of the event, the more this event can be constructionally fused into the processual nucleus of *kámno* (24).

- (24) ******kámno* + nominal+RESULTATIVE
 *****kámno* + nominal+PROCESS
 ****kámno* + nominalised ACTIVITY
 ***kámno* + nominalised ACCOMPLISHMENT
 **kámno* + CONCRETE_OBJECT

Explaining the data and linking them to the image schema in Fig. 15, I argue that the existing focus on the effortful character of the trajector's action as the construction's nuclear relation, forces the attention to zoom out over the landmark's internal scope. The semantic potential of the object itself, in other words its internal constitution determining the verb's telicity (cf. Verkuyl, 1972, 1993), does not seem to present any necessary correspondence to the selectional restrictions of the verb as would be the case, for instance, of FOOD with *eat* or BOOK with *read*. This is precisely the reason that the sense PERFORM only imposes the very general requirement of the object being the nominalisation of an ACTIVITY. This is also why *kámno* as a causative or resultative is never found in Mediaeval Greek with the sense MAKE with an object that represents a heterogeneous/quantised THING as would be, for example, the utterance *He made the*

¹¹ The R-function used to reduce the relation of the ordering of the appearance of clusters with the degree of their contribution to variation was 'fviz_mca_var(data, select.var = list(contrib = x))' from the factoextra package. Similar results at a numerical level are obtained using the function 'dimdesc' in the FactoMineR package, which looks into the contribution and associations of clusters.

Fig. 16. Inaccessibility of the internal semantics of processes to *kámno*.Fig. 17. Frequency distribution for senses of *káno*, Modern Greek.

knife sharp. These constructions are absent from the corpus. Instead, we find resultatives (16) and causatives (17), and phrases where the resulting adjective as a property is not an inherent characteristic proper to the object's telicity (25).¹²

(25) *kakín kardían án ékame*
 bad.ACC.SG heart.ACC.SG if make.AOR.3SG
 'If his heart turned sad' (*Bell. Tr. Ep. 3079*)

Whether taken to represent a causative or a resultative force, the semantic scope of *kámno* falls at either the initial or the final state of a given process collinear with the internal change of an object, but never during it (Fig. 16).

Let us now look at the last stage of *kámno*'s evolution, looking into its behavioural profile for Modern Greek.

3.1.3. *Ká(m)no* in Modern Greek

The analysis now turns to the conceptualisation of the verb in Modern Greek, mostly appearing as *káno* in its standard form. As before, let us start with the distribution of its meaning (Fig. 17), here based on 200 randomly coded instances from the *Greek Web Corpus* accessed through the *Sketch Engine* platform.¹³

What we see is a reinforcement of the tendency towards a general meaning of PERFORM as well as of the resultative senses of CONVERT and CAUSE. These three senses occupy 88% of the entire spectrum of the verb's meaning.

Again, we look at the ten levels that contribute most to the variation of the term (Fig. 18) and their clustering on an MCA plot (Fig. 19).

The first observation is that the sense PERFORM on the left-hand side of Fig. 19, although the most frequent (from Fig. 18), does not appear on the plane associated with any specific semantic features. The reason is that the semantic range both of its syntactic OBJECTS and of TENSE has been widened, so Fig. 19 exhibits patterns with exclusive contextual restrictions. This is an expected consequence of the increased use of a term.

On the bottom right, CONVERT somebody into possessing an ATTRIBUTE is instantiated through the resultative construction that is already present in Mediaeval Greek. CAUSE somebody to do something, corresponding to English utterances like *He made him cry*, also occurs in this quadrant, despite the sense CAUSE itself not appearing in Fig. 18.

¹² A notion parallel to that of *telic qualia* in Pustejovsky (1995).

¹³ <https://www.sketchengine.eu/>.

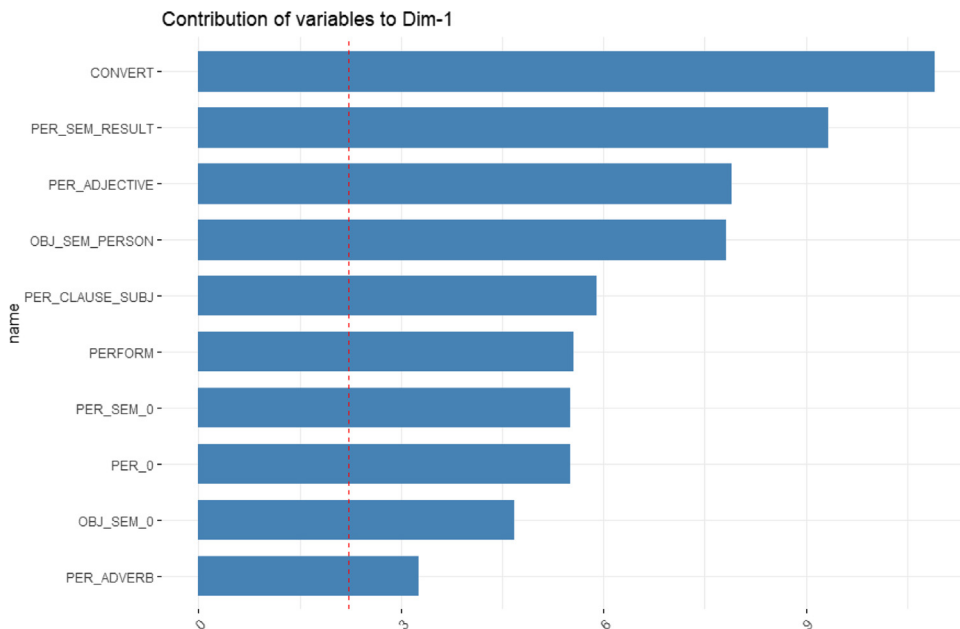


Fig. 18. The ten levels with the highest contribution to variation for *káno* in Modern Greek.



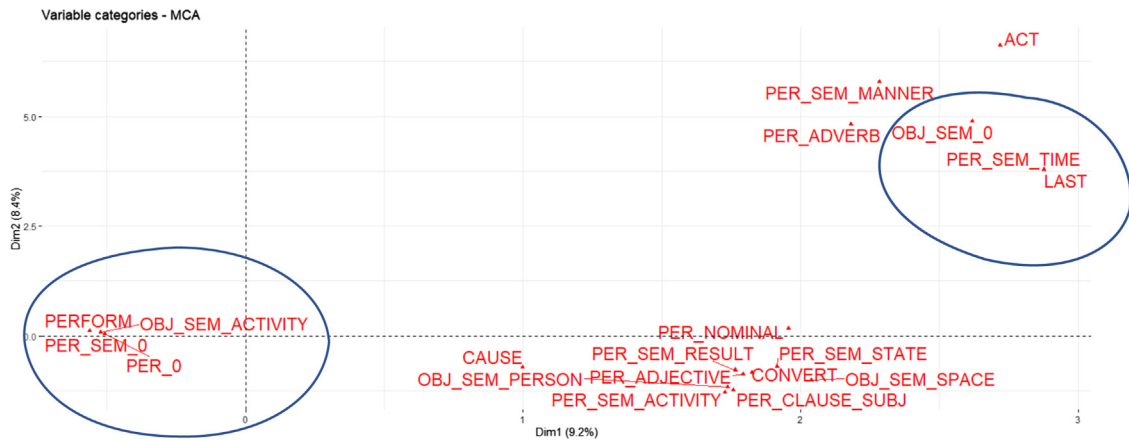
Fig. 19. MCA plot for *káno* in Modern Greek.

Also found in Mediaeval Greek, its direct OBJECT is PERSON, and it has a resultative subjunctive CLAUSE as a PERIPHERAL element

On the top right is ACT in a specific MANNER without altering the state of any OBJECT. This case is particularly interesting because it signals a further schematisation of the verb from performing an activity to that of simply behaving. Refer to (26) to (28) for examples from the corpus.

(26) *íthela na káno tus ftochús plúsios*
 want.PRET.1SG PTC make.SUB.1SG DET poor.ACC.PL rich.ACC.PL
 'I wanted to make the poor rich'

(27) *ékanes kalá pu mu to ípes*
 do.AOR.2SG well CONN PRN.GEN.1SG PRN.ACC.3SG say.AOR.2SG
 'You did well to tell me'

Fig. 20. Enriched MCA plot for *káno* in MG.

- (28) *aftó me ékane na niótho kalítera*
 PRN.NOM PRN.ACC make.AOR.3SG PRC feel.SUB.1SG better
 'This made me feel better'

If we examine the distribution of a wider range of variables on the MCA plot in Fig. 20, we see that other patterns worth mentioning arise.

The first cluster of interest is that of the sense LAST for a period of TIME expressed through some adverbial or nominal temporal specification (29).

- (29) *Ékane chrónia stin Amerikí*
 do.AOR.3SG year.PL.ACC in.DET America.ACC
 'He was in America for years'

This use often profiles SPACE, instead of time (30).

- (30) *Échi káni filakí*
 do.PRS.PRF.3SG prison.ACC
 'He has been in prison'

The LAST cluster is of particular interest because it displays a further schematisation of the meaning of *káno* so that it conceptualises an entity's state of being situated in space and time. The enriched cluster of PERFORM that appears on the left-hand side of the plot, coming directly from Mediaeval Greek, comprises nominalisations that denote ACTIVITY. Given that all aspectual types have been used in coding, the preference for unbounded processes, analogous to that observed in Mediaeval Greek, shows a diachronic persistence in the way the verb is conceptualised with respect to aspect.

The overall picture of the selected objects is very similar in its results to those of Mediaeval Greek. Of a total of 200 expressions, there are only four instances of the syntactic objects that have a concrete substance: INVITATION, DRINK, LIST and MOVIE. Although concrete objects, even these four cannot be classified as either heterogeneous, quantised or prototypically bounded entities. Instead, they are the result of writing, acting, performing or preparing. They all profile the effort on the part of the subject rather than the construction of an object. Interestingly, drink preparation is parallel to that in Ancient Greek (5), with food being one of the first objects that the verb selects in its diachrony.

All this leads us to the following conclusion: *káno*, when it comes to the selectional restrictions on its object, is repelled by THINGS that present an internal structure. Yet, if combined with them, the resulting meaning approximates that of OCCUPY ONESELF WITH the THING at hand (31), specified in its detail entirely by the context (*Greek Web* 2014).

- (31) *ékane ta tzámia sto ápse-svíse*
 did.AOR.3SG DET window.ACC.PL in.DET very fast
 'He cleaned the windows very quickly'

Table 1
Unconstrained Greek uses.

káno	do	ftiáchno	make
ikogénia	*family	ikogénia	family
proinó	*breakfast	proinó	breakfast
tenia	*movie	tenia	movie
chimó	*juice	chimó	juice

In examples like (31), *káno* may fuse its schematic and underspecified semantics with the contextual specification at speech time, so it ends up meaning CLEAN, REPAIR, PAINT, etc., even if the subject is not the agent of the denoted process (32).

- (32) *póso* *tha su pári na*
 how long PTC PRN.GEN.2SG take.AOR.SUBJ.3SG PTC
kánis *to aftokínito?*
 do.AOR.SUBJ.2SG DET car.ACC.SG
 ‘How long will you take to clean/repair/paint the car?’

4. *Káno* versus *ftiáchno* and the relevance of image schemas in onomasiological choices

4.1. Tracing *ftiáchno* etymologically

It is instructive here to compare the behaviour of *káno* with its natural rival in Modern Greek, *ftiáchno*, a contrast parallel to that between English *do* and *make*. Nevertheless, this parallelism is not absolute. For example, objects that in English permit only *make*, in Greek are unconstrained regarding which verb is used. Illustrative examples are given in Table 1.

To make a comparison between *káno* and *ftiáchno*, we will first examine the etymological origin of the latter. This will help us reconstruct the image-schematic prototype of *ftiáchno* in order to establish whether any differences between the two verbs can be attributed to image-schematic differences. Modern Greek *ftiácho* comes from Mediaeval Greek *efthiázo*,¹⁴ which comes from Ancient Greek *euthéiázō* meaning STRAIGHTEN, which is derived from the classical adjective *euthús* (MASC), *euthéia* (FEM), *euthú* (NEUT) meaning STRAIGHT. Interestingly, in about the tenth century CE, the period with the earliest attested instances of the term, the meaning has already shifted from its etymological origin of STRAIGHTEN, to that of CONSTRUCT and RESTITUTE. The sense of RESTITUTE, which includes more specific meanings such as REPAIR, CORRECT, RESTORE and HEAL, seems to be a direct metaphorical semantic extension of STRAIGHTEN.¹⁵ The metaphorical connection between STRAIGHT and CORRECT is commonly found in many other languages: English *right* (33) and *correct* stem from proto-Germanic **rehtan*: STRAIGHTEN and Latin *correctus*: STRAIGHTENED, respectively; ultimately both come from a PIE root **reg*: MOVE STRAIGHT.

- (33) I have to get things *right* (literally straight)

Beyond the exciting theme of the metaphorical network of the concept STRAIGHT, of particular interest in our case is the gestalt make-up of the classical derivative *euthéiázō*, which has been hypothesised to be determinative of not only the semantic extension but also the constructional extension of the verb. Hence, Fig. 21 is an image-schematic representation of the term.

The constitutive parts of the image schema comprise an inferential perpendicular relation between two axes, x and y, conceptualised as a telic state of the spatial relation between z and x. The telic state is projected as a process in time *t*, with cumulative substates of increasing ‘straightness’. Schemas like Fig. 22 involving curved lines can be seen as an enhancement of Fig. 21.

Let us now look at the distribution of the immediate predecessor of MG *ftiáchno*, mediaeval *efthiázo*, for all 137 attested instances of the verb (Fig. 23) extracted from TLG, covering the tenth century CE to the thirteenth century CE.

¹⁴ The verb in Mediaeval Greek and later on appears with a proliferation of forms: *efthiázo*, *efthiáno*, *ftiáno*, *fiáno*, etc. In Modern Greek we also find forms such as *fkíáno*, *fkíáchno*, *fkíázo*, etc.

¹⁵ The basis for defining the meanings of the terms for the period is again Kriaras’ *Lexicon of Mediaeval Greek Demotic Literature*.

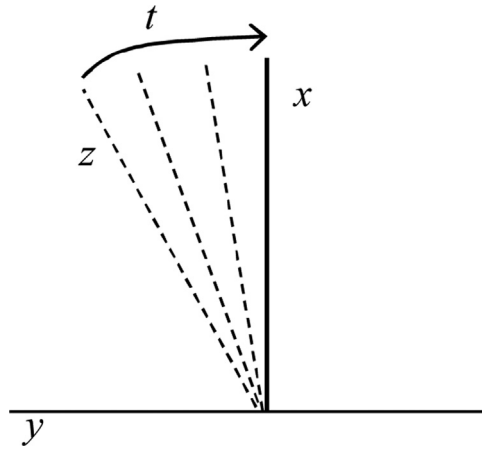


Fig. 21. Image schema for *eutheíázō*: STRAIGHTEN.

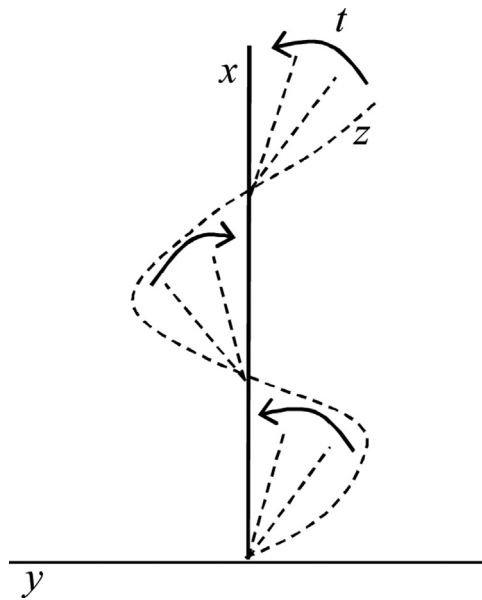


Fig. 22. Enhanced image-schema for *eutheíázō*: STRAIGHTEN.

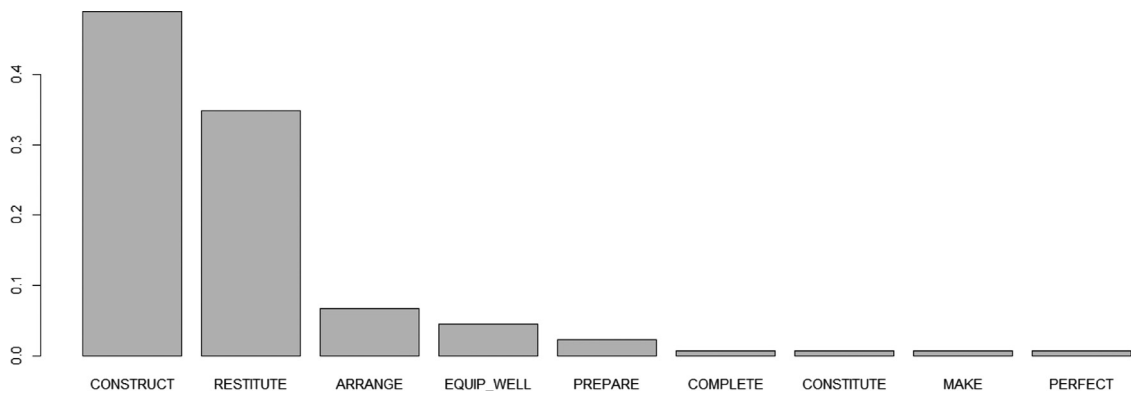


Fig. 23. Senses of *ephiázō*, 10th–13th c. CE.

The metaphorical sense of RESTITUTE, which is the second most frequent sense, derives precisely from the projection of *z* as the telic – and natural – state of *x* in Figs. 21 and 22. The actual state of *x* is conceptualised as deficient compared to the perpendicular relation between *z* and *y*. This conceptualisation gives rise not only to the senses REPAIR (34), RESTORE and CORRECT (35) but also to HEAL (36).

(34) *ke me túta efiásame ton*
 CONN with DEM repair.AOR.1PL DET
tíchon ópu itone chalasménos
 wall.ACC.SG REL be.PRET.3SG ruin.PRSPF.PART.NOM.SG
 ‘So with these we repaired the wall that had been ruined’ (*Hist. Imp. Turc. 7.86.15*)

(35) *na ftiastún me theikí chári*
 PRC correct.AOR.PAS.SUBJ.3PL with divine.ACC.SG grace.ACC.SG
ta próta Láthi
 DET first.NOM.PL mistake.NOM.PL
 ‘The previous mistakes to be corrected through the grace of god’ (*Mar. Phal. Lament. 70*)

(36) *estráfin ékso o vasiléfs na fthiási*
 turn.AOR.3SG outside DET king.NOM.SG PTC heal.AOR.SUBJ.3SG
tin pligí tu
 DET wound.ACC.SG PRN.GEN
 ‘The king went out to treat his wound’ (*Bell. Tr. Epic. 4118*)

Of the sum of the coded instances, only seven contain peripheral elements: two consist of the DATIVE and ACCUSATIVE of reference modifying the verb with the sense EQUIP_WELL, while the other five are ADVERBS of MANNER.

It is worth noting two points here: first, all adverbs of manner have the meaning of WELL (37).

(37) *ke tin avlín aniksen ke*
 CONN DET garden.ACC.SG open.AOR.3SG CONN
ton bachziá efkíasen ipérkala
 DET orchard.ACC.SG arrange.AOR.3SG marvellously
 ‘He widened the garden, and he arranged the orchard marvellously’
 (*Synad. Chr. of Ser. 1.19.17*)

Second, although *efthiázo* corresponds to English *make*, we do not find resultative uses of the term in Greek as we do in English (38).

(38) *The Liverpool coach explained what made him angry.*

These two characteristics, namely the lack of resultative uses and the lack of adverbials with negative charge, point towards the following: the term *efthiázo* schematically incorporates the telic state of the object understood as the natural resultative state following the action of an agent selected by the verb. This observation implies that the things represented by the selected objects must have an internal quantised and heterogeneous structure. Given that there are no peripheral elements, such as ADVERBS, INDIRECT OBJECTS and RESULTATIVES, the analysis will proceed not with an MCA but with the visualisation of a bivariate association for the variables MEANING and OBJECT_SEMANTICS. This will also help us look at the relation between senses and the division of objects into CONCRETE and ABSTRACT THINGS.

The mosaic plot in Fig. 24 represents the segmentation of the universe of data into binary relations between all instantiations of MEANING and all instantiations of OBJECT_SEMANTICS. The vertical extension of the tiles corresponds to the relative frequency of the various THINGS used as objects, among all THINGS. The horizontal extension of the tiles represents the relative frequencies of the various senses.

To take an example, on the horizontal axis we see that the sense CONSTRUCT occupies more than half of the extension of the plot, an observation in accordance with Fig. 23. Nevertheless, its distribution along the vertical axis differs by OBJECT, where it is mostly combined with EDIFICE. To a lesser degree, CONSTRUCT combines also with CLOTHING, INSTRUMENT, VEHICLE and ORNAMENT in descending order. This shows that all objects of CONSTRUCT are CONCRETE THINGS. Although this may seem rather logical, it is not in any case self-evident.

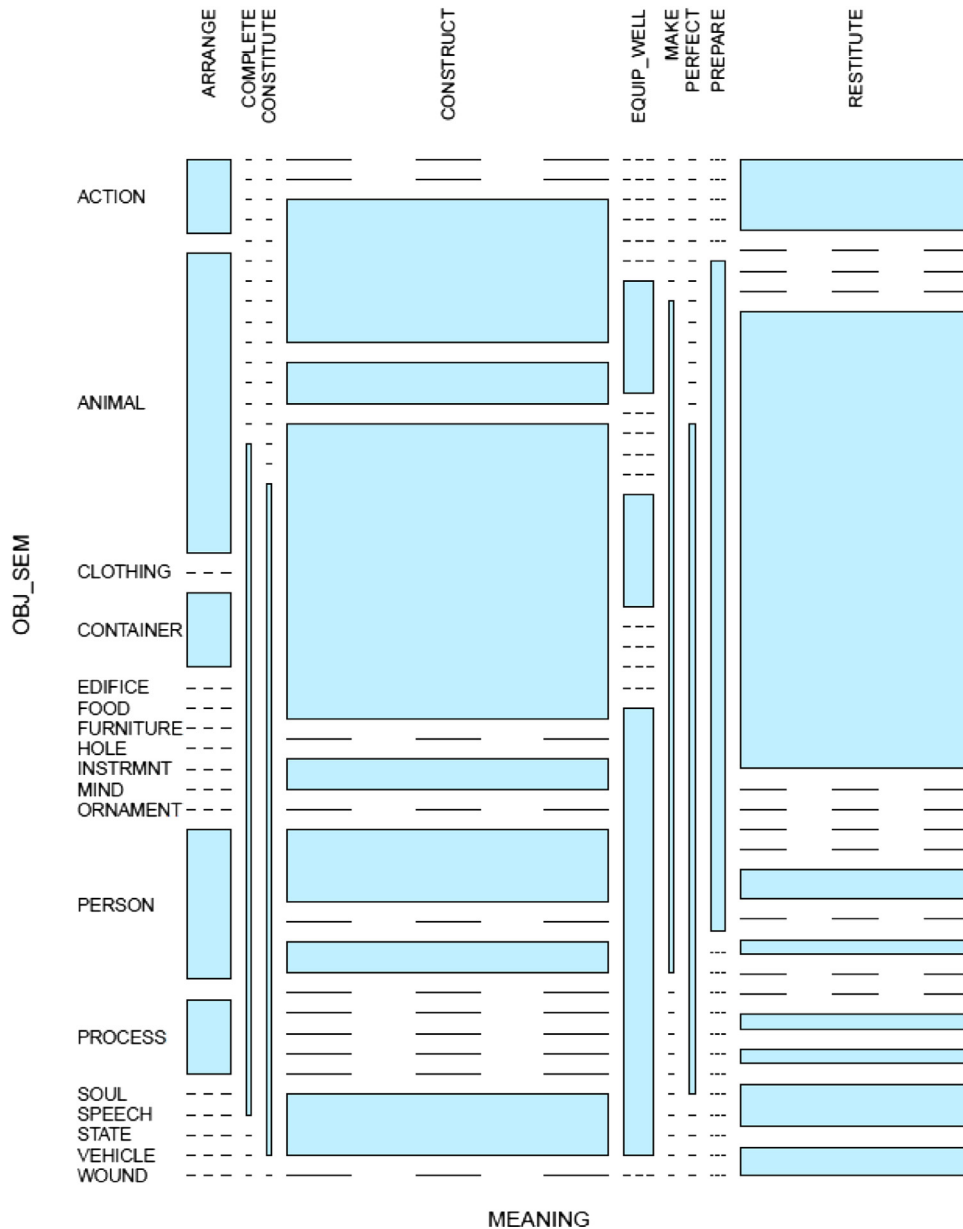


Fig. 24. Mosaic plot for *eftiázo*, for MEANING and OBJECT SEMANTICS.

CONSTRUCT may easily be used in metaphorical expressions, such as *build courage*, *construct an argument*, *make up a plan*, etc. This is precisely shown in the second most frequently used sense, namely RESTITUTE, which categorises the more specific senses RECONSTRUCT, REPAIR, RESTORE, HEAL, CORRECT. RESTITUTE combines mostly with EDIFICE, with the more specific sense RECONSTRUCT, REPAIR. In descending order, we also find ACTION, VEHICLE, WOUND and MIND. The uses with ACTION, WOUND and MIND are clearly metaphorical when paired with the specific senses of CORRECT (39) and HEAL.

- (39) *ki éftiase me Tes cháres tu*
 CONN correct.AOR.3SG with DET fairness.ACC.PL POS.3SG
ta tósa sfálmata su
 DET QNT mistake.ACC.PL POS.2SG
 'He corrected so many of your mistakes with his fairness' (*Mar. Phal. Rim. Par. 269*)

The conclusion drawn from the mosaic plot in Fig. 24 is that the most frequent senses, namely CONSTRUCT and RESTITUTE, are systematically attracted by CONCRETE objects. This is not an obvious conclusion because the most frequent senses might easily be distributed among many, but less frequently occurring, objects, be these ABSTRACT or CONCRETE.

Another observation concerns the nature of CONCRETE THINGS. In contrast to the case of *kámnō*, they present a wide range of physical objects, such as EDIFICES (houses, churches, castles, etc., as well as other large structures like orchards, walls, cemeteries and canals), FOOD (solid and liquid), CLOTHING (textiles, clothes, shoes, hats, etc.), INSTRUMENTS (musical instruments, tools, etc.) and FURNITURE, ORNAMENTS (rings, necklaces, etc.). Although the majority are rather large structures, there are many concrete things that can be constructed by a single person, in contrast to the few objects of *kámnō*, which either exceed the scope of apprehension of a single conceptualiser or are ACTIVITIES without time boundaries.

Both literal and metaphorical meanings are nicely mapped onto the image schemas of Figs. 21 and 22. For CONSTRUCT-related clusters, the straightness of the schematic line represents the ‘correctness’, of the telic form of a THING that takes shape through cumulative states of construction. For RESTITUTE-related clusters, the lack of straightness represents a deficient state to be reversed towards a metaphorical straightness.

If both *kámnō* and *efthiázo* involve a telic state, identified as the culmination of decreasing strength and the straightness of a line, respectively, how can we account for the differences in terms of the semantic make-up of objects selected by each of the terms?

The difference lies in the ability of *efthiázo* to look into the internal constitution of the object selected by it, in contrast with *kámnō* which, as argued in section 3, cannot. *Efthiázo* is a genuinely transitive verb, as seen by the occurrence of both ACTIVE and PASSIVE (40) instances of the verb (118 ACTIVE, 17 PASSIVE).

- (40) Egkólpion . . . efthiasthén to skevofilakío
 medal.NOM construct.PART.AOR.PASS.NOM DET sacristy.DAT
etéthi
 put.AOR.PASS.3SG
 ‘The medal, after it was constructed, was put in the sacristy’
 (Isaac COMN. PORPH. Scr. Eccl. Typicon 11th–12th c. CE)

In principle, then, the landmark of the construction constitutes part of the scope of the process denoted by the verb. Nevertheless, not only is the landmark predicted constructionally, but is also *categorised* by the image-schematic gestalt of the process. This has the following consequence: the image schema selects objects that represent THINGS that can elaborate the culmination of the process. Again, in parallel with what we observed in the case of *kámnō*, selectional restrictions take place at a higher level of categorisation, namely that of the categorising image schema, and not at a level of featural constraints.

Hence, in accordance with the formulation of diachronic polysemy as constrained by the schematic affordances offered to a conceptualiser by an image schema, and analogous to the conceptual fusion of COOK as GET_TIRED presented above in Fig. 15, Fig. 25 shows the conceptual integration of EMBELLISH as STRAIGHTEN through the onomasiological insertion of STRAIGHTEN in the semantic frame of FILLING (see FrameNet for the characterisation of the frame).¹⁶ The image schema underlying STRAIGHTEN is the mediating or bridging structure that preserves the schematic compatibility between the two senses, but also represents an onomasiological choice of schematic construal of the frame.

Note here that REACHING PROPERNESS as a characteristic of EMBELLISHING is a property that emerges in no way inherent to the senses or frames. It is understood as reaching the standard of what is contextually defined, at a given historical moment, as beautiful.

The analysis makes certain predictions. The schematic make-up of *efthiázo* will not only be a licensing factor for specific selected objects but will also exclude others as schematically incompatible. Additionally, microvariational patterns of partial overlapping, such as those in Table 1, must find their motivation in the same schematic principles. I turn now to these issues, looking at the behavioural profile of the MG term.

4.2. *Ftiáchno* in Modern Greek

Based on the coding of 200 random instances of *ftiáchno* collected from the *Greek Web Corpus*, Fig. 26 shows the distribution of the senses of the term in Modern Greek.

¹⁶ In turn culturally embedded in the idealised cognitive model of BEAUTY (Lakoff, 1987).

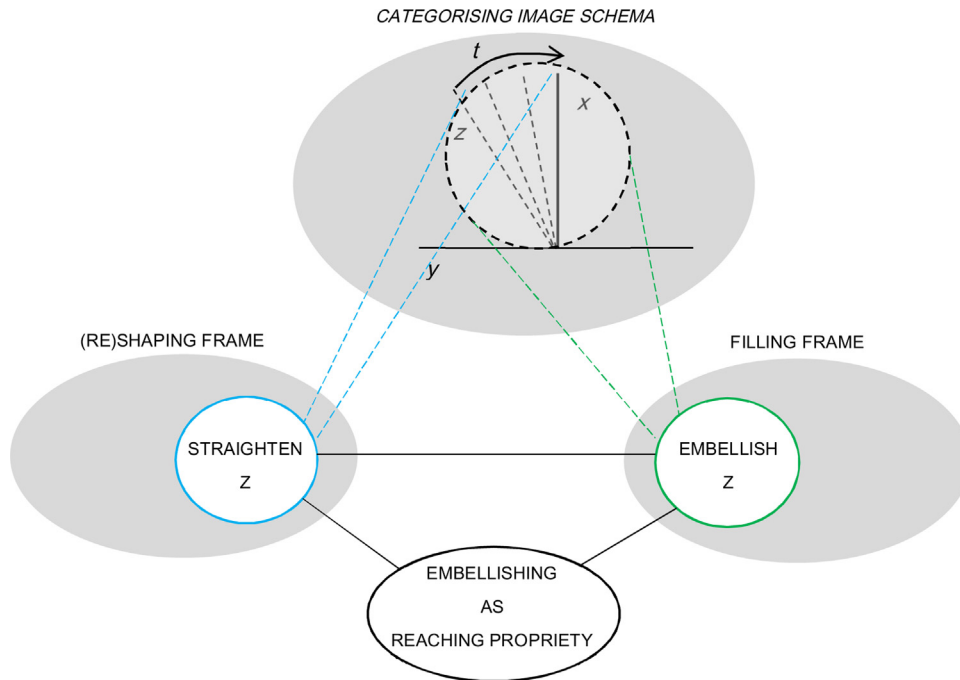


Fig. 25. Image-schematic categorisation bridging *STRAIGHTEN* and *EMBELLISH*.

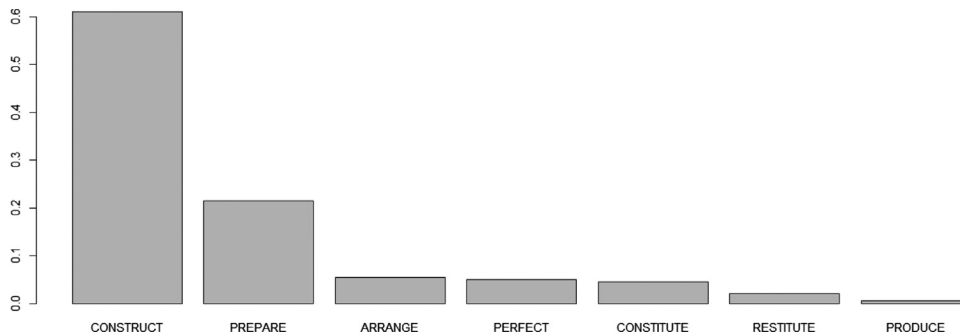


Fig. 26. Distribution of meaning of *ftíachno* in MG.

A first inspection shows a great affinity between *ftíachno* and *efthiázo*. Six out of the seven meanings are also found in Mediaeval Greek. CONSTRUCT is still the most frequent meaning, with PREPARE and ARRANGE now following.

An interesting characteristic of the evolution of the verb is the fact that its semantic subject now shows a tendency to be additionally filled by inanimate entities. Given that, in the case of Modern Greek, the analysis codes not only for the SUBJECT_SEMANTICS but also for the VOICE of the verb, matters relating to the agentivity of the SUBJECT are included. Let us have a look at the MCA plot that codes for the correlation among the variables MEANING, TENSE, SUBJECT_SEMANTICS, OBJECT_SEMANTICS and VOICE. No peripheral elements constructionally linked to the verb were detected, so they were not coded for. Analogously to the figures before, Fig. 27 shows the variables' order of contribution to variation, and Fig. 28 represents their clustering on the conceptual plane. Given that REFLEXIVE VOICE (R) (see below) appears to be the feature with the greatest contribution to variation, I have chosen to give all factors and levels.¹⁷

¹⁷ More accurately, REFLEXIVE VOICE is formally expressed as ACTIVE, with a MIDDLE diathesis (Allan, 2003). Nevertheless, avoiding composite characterisations such as ACTIVE form with MIDDLE diathesis and reflexive/indirect reflexive/intransitive USE (Allan, 2003: 14–25) on the one hand and following classifications of the uses at hand as conceptually REFLEXIVE (cf. Evans & Green, 2006) on the other. Hence, I have coded these instances as REFLEXIVE.

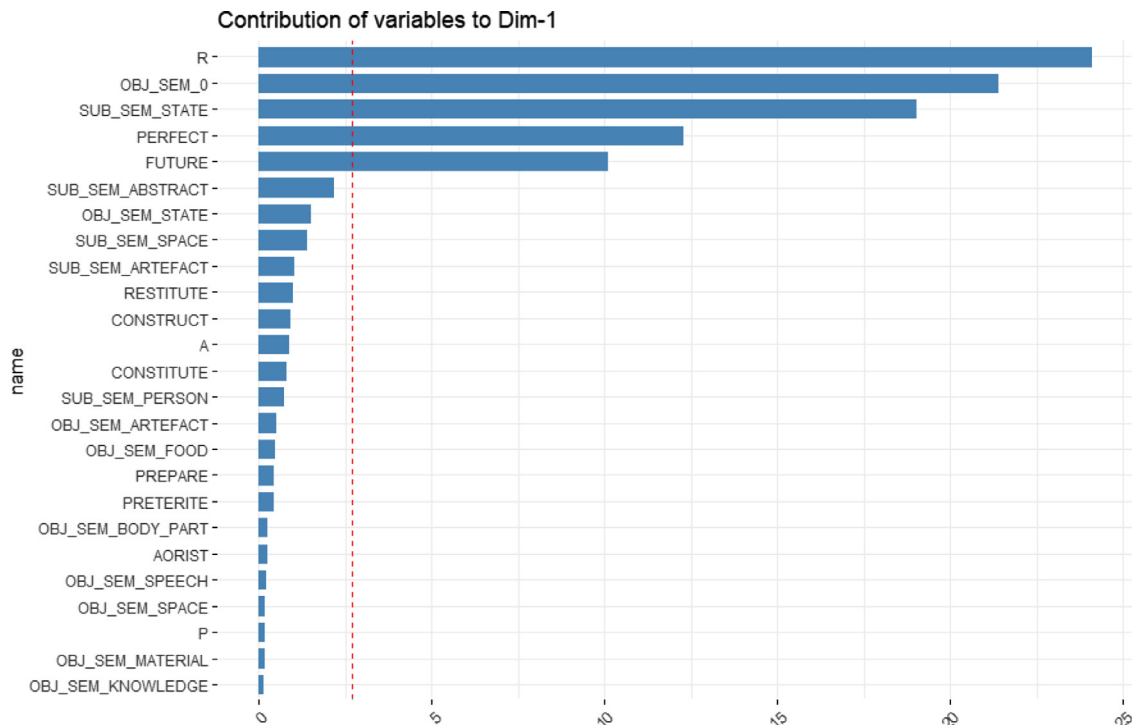


Fig. 27. Contribution to variation for *ftiáchno* in MG.

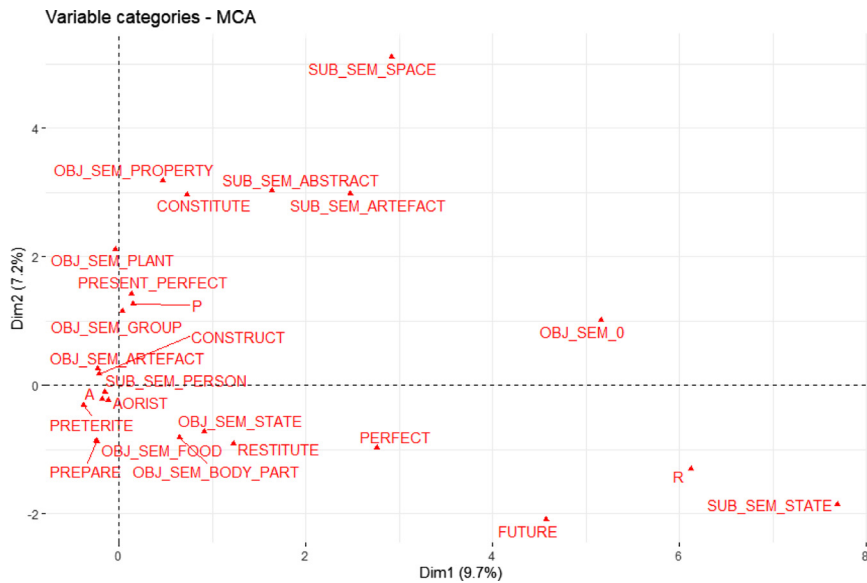
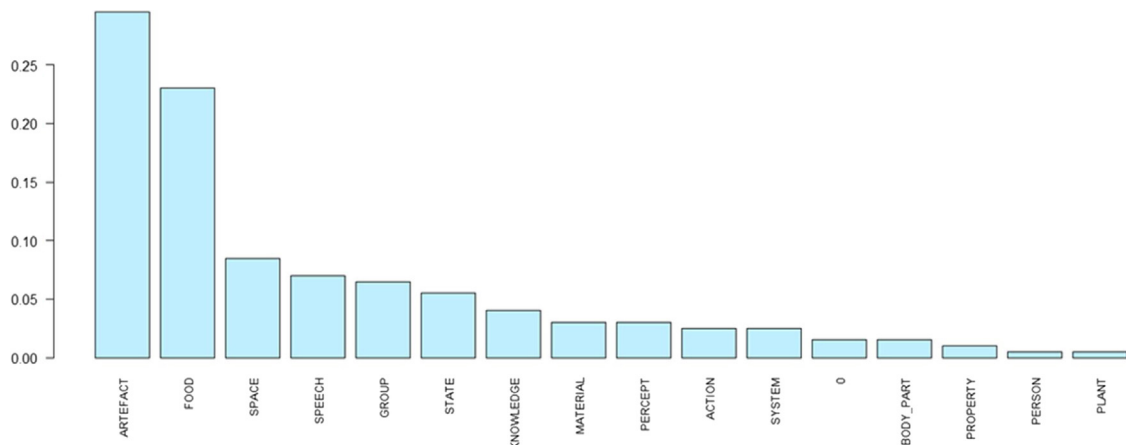
The first observation of interest is that the sense CONSTRUCT is found close to the origin of the plot. This positioning implies that the sense displays a broad spectrum of contexts so that it is equally attracted by semantic and formal features across the plot. In this sense CONSTRUCT is not only most frequent but also conceptually prototypical. Nevertheless, we see that ACTIVE and PASSIVE VOICE display the same behaviour, themselves forming a tighter cluster with CONSTRUCT. The co-occurrence of CONSTRUCT, ACTIVE and PASSIVE as prototypical of the term *ftiáchno* makes sense given that the profiling of a patient/undergoer of an action as a subject of a passivised construction has long been found to be a function of transitivity (cf. Burzio, 1986).

The second observation regards the co-occurrence of both perfective and imperfective PAST, namely AORIST and PRETERITE, with the sense CONSTRUCT. This observation sets *ftiáchno* in opposition to *káno* regarding *ftiáchnos* ability to select objects that have boundaries, either physical or metaphorical, as well as its lexical-internal heterogeneity. This construal internal to the telic process is an argument for the image-schematic distinction between the two terms compared in the present work. Let us then have a look at the objects selected by *ftiáchno* in Fig. 29, in a fine-grained classification.

We see that the objects of *ftiáchno* belong mostly to two categories: ARTEFACTS and FOODS. The former are things with clear boundaries. The latter, although they may not have clear spatial boundaries, for example, SOUP, are given boundaries by the temporal frame that binds their preparation. Additionally, they both have an internal structure that makes them heterogeneous. In the case of FOODS, the heterogeneity is mostly profiled through the structure of recipes that, analogous to ARTEFACTS, constitute a culminating process that leads to a telic state of 'readiness' (41).

- (41) *Éftiaksa* *mia* *sintagi* *alá* *den*
 Prepare.AOR.1SG one.FEM.ACC recipe.ACC CONN NEG
pétiche. *Ti* *éftekse?*
 succeed.AOR.3SG what.NOM be at fault.AOR.3SG
 'I prepared a recipe, but it didn't succeed. What went wrong?'

Another cluster that forms on the MCA map comprises inanimate subjects with the sense CONSTITUTE. Interestingly, these combine with objects that denote some PROPERTY (42).

Fig. 28. MCA plot for *ftíachno* in MG.Fig. 29. OBJECT distribution for *ftíachno* in MG.

- (42) *Téties prokrisis ftíachnun ton*
 DEM qualification.NOM.PL make.3PL DET
charactíra mias omadas
 character.ACC one.GEN team.GEN
 'It is these qualifications that make up a team's character'

This is a metaphorical use of the term, stemming from a double integration: on the one hand between a CONSTRUCTING AGENT and the CONSTITUTING PARTS of an entity; on the other hand between the CONSTITUTING PARTS and the CONSTITUTED LANDMARK (43).

- (43) *diaforetikí tragudistés ftíachnun*
 different.NOM.PL singer.NOM.PL make.3PL
éna ómorfo sínolo
 one.ACC nice.ACC.SG sum.ACC.SG
 'Different singers make up a nice whole'

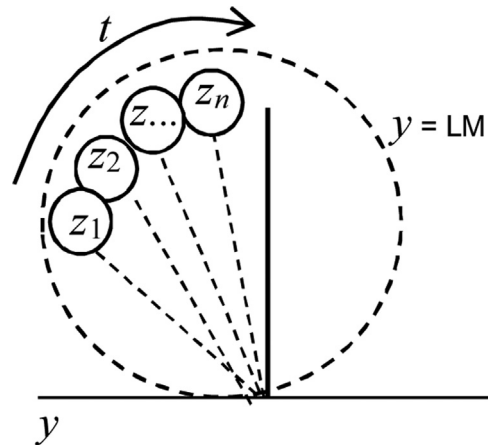


Fig. 30. Image schema for *ftáchno* with non-agentive constituting subjects.

An image-schematic integration is shown in Fig. 30. The heterogeneity of a landmark is profiled as a collective trajector.

Once this integration has taken place, the object of construction can also be understood to be an abstract entity with such a property.

Another interesting cluster on the MCA plot in Fig. 28 is that of a STATE as a SUBJECT, linked with the process of PERFECT – itself also being attracted towards a STATE as an OBJECT – and REFLEXIVE diathesis. The aforementioned possibility of a semantic subject being filled by inanimate entities is met in two cases: first, when the verb means CONSTITUTE, where the Subject is either a material or abstract part of a physical or imaginary/abstract entity; second, when the verb is in an active form but its Subject is the undergoer of the process, which is always IMPROVE/ PERFECT (44).

- (44) *Tha ftáxi o kerós?*
 improve.FUT DET weather.NOM
 'Will the weather improve?'

Examples like (44) and (45) have been coded as REFLEXIVE. Although ACTIVE in grammatical voice, these examples manifest a REFLEXIVE diathesis (cf. Evans and Green's [2006] schematic formulation), where the trajector and landmark coincide (Fig. 31).

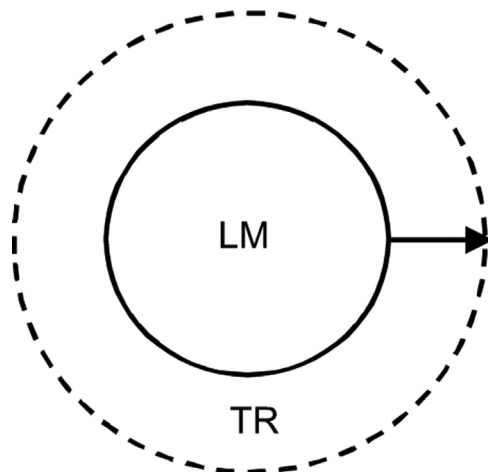
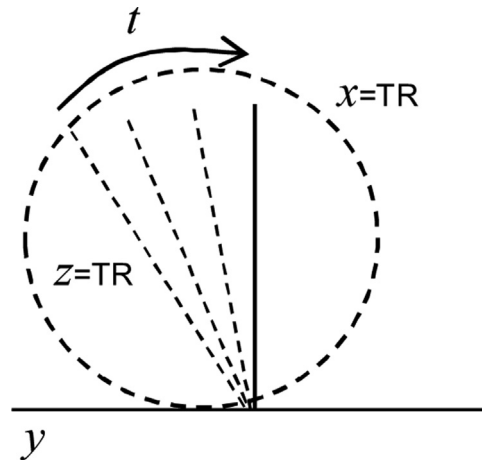


Fig. 31. Reflexive diathesis image schema.

Fig. 32. Reflexive image schema for *ftíachno*.(45) *The oil spread out*

The reflexive schema in Fig. 32 as a complex elaboration of Fig. 31 is particularly relevant. It constitutes a further step in the image-schematic integration of Fig. 30. Now, not only have the constitutive parts been integrated with the trajector, but also the trajector with the landmark.

Both trajector and landmark are now the same entity, each at a different stage of what is conceptualised to be a final state inherent to the entity's telicity, a kind of Aristotelian entelechy. The correlation of the feature REFLEXIVE with FUTURE TENSE on the MCA plot seems to be conceptually convergent, as if the image schema in Fig. 32 inferentially projects its telic state. The process is understood as IMPROVEMENT and the final state as PERFECTION (46).

(46) *Mas éftiaxe i diáthesi*
 PRN.GEN.3PL improve.AOR.3SG DET mood.NOM.SG
 'Our moods got fineimproved'

It is clear that the image-schematic make-up of a term is a blueprint that drives the possibilities of extension. Although both terms, *ftíachno* and *káno*, can in principle overlap in the same contexts, the possibility of each profiling the same frames is highly constrained.

In the last section, the analysis will give a brief overview of the possibility of accounting for inter- and intra-microvariation, along the lines of Table 1.

5. Motivation of microvariation and its relevance to onomasiological studies

Despite the general overlapping between the Greek–English pairs *káno–do* and *ftíachno–make*, we have seen that there are cases where Greek appears indifferent as to which of the two terms it uses. Some of these cases were given in Table 1 above. Why can objects such as FAMILY, JUICE, BREAKFAST and MOVIE be selected by both *káno* and *ftíachno*?

Káno profiles successive states of decreasing strength co-aligned with a zoomed-out view of the work associated with it, whereas *ftíachno* profiles the internal heterogeneity of an object whose telic state is identified with the complete ordering of its heterogeneous make-up. Consequently, COMPETITION cannot be selected by *ftíachno*, and POEM cannot be selected by *káno*. However, FAMILY as an entity has two conceptual dimensions: one that profiles its internal structure as a heterogeneous entity, and another that profiles the physical and emotional effort a person puts into the making of a family: that is, work. It is interesting that if CHILDREN is selected as the object instead of FAMILY, only *káno* can be used. Accordingly, the act of having sex, as a physical labour independent of obtaining children, is expressed only with *káno*:

(47) *Kánane sex sto balkoni ke épesan*
 do.AOR.3PL sex.ACC in.DET balcony.ACC CONN fall.AOR.3PL
 'They had sex on the balcony, and they fell over'

Similarly, a MOVIE has a dual conceptual nature that can profile either the internal structure of a MOVIE as a PLOT or as the process of making a movie. In the latter case, the process put on stage is mainly that of DIRECTING and the actors' participation during filming. Finally, objects that belong to the semantic category of FOOD also present this dual conceptual dimension: internal structure reflected in following the steps a recipe on the one hand and the physical dimension whose duration spans over the period of cooking on the other.

There are many more examples that could be examined in addition to those already mentioned. However, in the context of onomasiological studies, the conclusion to be drawn is the following: in principle distinct terms can be used equally to express aspects of a new context where this ability is either motivated, limited or banned. This may result in two terms either conceptualising a situation synonymously, profiling different aspects of it, or presenting mutual exclusiveness for given contexts. One of the factors that regulate these choices, as has been argued throughout, is the prototypicality encoded in the image-schematic make-up of a term, traced etymologically.

6. Conclusions

This work is a diachronic, corpus-based study that traces the development of semantic and constructional aspects of the terms *káno* and *ftiáchno* in Greek, meaning roughly DO and MAKE, respectively. This was done through an analysis and visualisation of their behavioural profiles for subsequent states of their evolution. It was shown that the featural clusters underlying the profiles of polysemic terms underspecify the contextually bound richness of a set of related senses. Addressing the problem of the relation between the notions of prototype in diachronic semantics and of the underspecification of featural clusters in behavioural-profile analysis, it was hypothesised that what is actually represented by these featural configurations are the image schemas underlying the historical senses of the evolving terms. Lakoff's notion of structure preservation in metaphoric extension was generalised as a hypothesis that applies diachronically to lexical–semantic extension in general. This was tested through the analysis of the behavioural profiles of the two terms, in three stages of their evolution: Ancient, Mediaeval and Modern Greek.

It was shown that the image schema of *kámno*, originally meaning GET TIRED, comprises a series of subsequent states of decreasing strength, proportionally inverse to, but co-aligned with, the work produced. The inability of this process to encompass the heterogeneity of its landmark as an entity with clear-cut boundaries and internal structure results in severe selectional restrictions. Hence, *káno* attracts mainly nominalisations of ACTIVITIES, or THINGS that, although inferring LABOUR on the part of the trajector, cannot be apprehended as artefacts manipulable by a single person. In contrast, *ftiáchno*, originally meaning STRAIGHTEN, schematically profiles an arrangement internal to a physical entity

The process infers telic concepts (e.g. CONSTRUCT and REPAIR) with ARTEFACTS as syntactic objects, and concepts that favour metaphoric interpretations (e.g. PERFECT, IMPROVE and CORRECT) with ABSTRACT ENTITIES as syntactic objects. The inherent telicity also favours image-schematic transformations that integrate the trajector with the CONSTITUTIVE MATERIAL and subsequently the latter with the landmark, thus resulting in a REFLEXIVE intransitive interpretation. Finally, the apparent free variation observed for the two verbs in some contexts is explained as a differential profiling over the possibilities that a dual conceptualisation of the object itself offers.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.lingua.2020.102938](https://doi.org/10.1016/j.lingua.2020.102938).

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