

Constructions and image-schema preservation. A historical-comparative analysis of PAY in Greek and English



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Abstract

This is a corpus-based comparative analysis of aspects of the evolution of the terms *plirono* and *pay* in Greek and English, respectively, both meaning PAY. It is based on a manual coding of the extant instances of the Greek verb from 6th c. BCE to 3rd c. CE, and 340 instances of the English verb from 13th c. to 15th c. CE. It is grounded on the hypothesis that the image-schematic gestalts immanent to the conceptualisations of linguistically coded terms are preserved through semantic extension, otherwise known as *invariance principle*. It identifies and compares some constraints that the distinct image-schematic origins of *plirono* and *pay* have imposed onto the semantic evolution of the terms. It is argued that the image-schemas underlying the conceptual constitution of them are these of CONTAINER and BALANCE, respectively. Consequently, a comparison follows between the terms, regarding two aspects: the semantic listing of elements within their frame-semantic structure, on the one hand, and the grammatically expressed constructional encoding of these elements, on the other. Subsequently, some asymmetries found between the terms' constructional paradigms are related to the constraints imposed on their evolutionary paths by the underlying image-schematic structure. Conclusively, it is shown that, although the situational ontologies may appear identical in terms of the semantic listing of their frame-semantic elements, the perspectival construal over these ontologies is distinct. Entrenched grammatical realisation constitutes a second level of perspectivisation over the conceptual make-up of a frame.

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1. Introduction

1.1. Wholeness and discreetness in linguistic theorising

The contrasts between stability and change (Evans and Green, 2006:128–133; Croft, 2000), analogy and anomaly (Piotrowski and Visetti, 2016, pp. 3–6), universality and variation (Brdar et al., 2012), schematic categorisation and extension (Langacker, 2008, chpt. 8), form a natural set of pairs that are of central interest to Cognitive Linguistic inquiry. This set of pairs reflects a more general tension that boils down to the following question: to what extent is the dynamic and

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open-ended character of linguistic phenomena constrained by more general principles stemming from cognitive traits? Furthermore, another set of concerns that has an additional bearing on the empirical validity of our linguistic modelling relates to the compositional nature of the conceptual correlates of the linguistically relevant objects. On the one hand, their constitution is discrete. On the other, their apprehension is readily projected as a coherent whole or construed holistically as a single unit, otherwise known as *gestalt* (Langacker, 2008, pp. 34, 99). What is then the point onto which their discrete and gestaltist (Col et al., 2016, p. 30) nature converge? Although there is indeed a definite discreteness in the linguistic observables that make up a construction, at the same time, there exists an immanent schematic conception that motivates their conceptual correlates' participation as elements within a single model, like a semantic frame, image-schema or ICM (e.g. Lakoff, 1977, 1982, 1987, 1989; Johnson, 1987; Fillmore, 1977, 1982, 1985). These schematic conceptions have the following features: their boundaries are fuzzy, they manifest characteristics of continuity (e.g. Ruiz de Mendoza Ibáñez, 1996), they are non-reductive in nature (Langacker, 1987, pp. 411, 494), and constitute a “phenomenological whole” (Brandt, 2004, chpt. 3).

It seems intuitively justifiable to draw an effective link between the discrete character of linguistic constructions and the possibilities of constructional variability and change. The link originates in the apparent concatenative nature of phrasal structuring, long advocated by the traditional view at composition, whereby, either in a more syntactocentric or formal semantic framework, a syntactically aligned meaning is constructed in a bottom-up fashion (e.g. Chomsky, 2000, p. 3; Partee, 2004, pp. 153–181). However, in the view of a holistic treatment of the relation between the elements of constructions and the conceptual models that these activate, namely the gestaltist view, the connection faces a challenge: How can the holistic nature of the motivating conceptual *gestalts* underlying the various constructions be made compatible with change? How is constructional change – manifested discretely – mapped into a unit that is holistic and non-reductive? Additionally, to what extent do these *gestalts* play a constraining role over the constructional changes that take place? Although well-established insofar as their problematic is concerned, these issues remain open as to the exact nature of their theoretical formulation, their methodological consequences as well as their representation.

1.2. Mapping propositions into schemas

In a linguistic framework broadly understood as cognitive, a feasible way to resolve the paradoxes of these tensions stems already from works such as Lakoff (1987), Johnson (1987) and Ruiz de Mendoza Ibáñez (1996), where central importance is given to image-schematic structure and the way the latter relates to the constitution of what in Lakoff (1987) is called *propositional structure* – roughly referring to the semantic frame and script-like composition of ICMs. The fundamental aspects of their work relevant to our discussion are summarised as follows:

- a. Image-schematic structure is an abstract cognitive model that provides structure to more elaborate *Idealised Cognitive Models* or differently *ICMs*, roughly corresponding to the Fillmoreian *semantic frames*.
- b. Image-schematic structure drives semantic extension.
- c. Image-schematic structure constrains semantic extension.
- d. Image-schematic organisation conserves its inferential structure in target.

Accordingly, the relevance of image-schemas as pre-conceptual structures with prime experiential content that abstractly pattern a great part of humans' conceptual structuring has long been highlighted in literature (Johnson, 1987, pp. xiv, xvi). Lakoff (1987, chpt. 4), on the other hand, in the context of demonstrating that human knowledge about the world is organised in the form of ICMs, draws on previous work (Fillmore, 1982; Lakoff and Johnson, 1980; Fauconnier, 1985; Langacker, 1987) and more comprehensively refers to four ways of structuring ICMs (Lakoff, 1987, p. 68): propositional structure, image-schematic structure, metaphoric mappings and metonymic mappings.

Nevertheless, it has also been long observed that there is a high degree of interplay between these structuring principles. For example, metaphor is considered by many scholars as a mental projection that itself is based on metonymies as experiential associations (Radden, 2002; Kövecses and Radden, 1998; Barcelona, 2011, p. 39). Similarly, image schemas have long been analysed as patterns that provide the structural base for metaphor to operate (Lakoff, 1990, pp. 47–51, 54–64, 73). More relevantly to our discussion, an important aspect of the interaction between image schemas and metaphor is the preservation of the organisation projected by the image schema structuring the source in the target domain (Lakoff, 1990, p. 54), a property otherwise called *the invariance principle*. In this light, image schemas provide the “blueprint” for the interpretation of a domain in terms of the other (Velasco, 2001, p. 49). Thus, in a metaphor such as MORE IS UP and LESS IS DOWN, there is a consistent mapping between the image schema of a path and that of a linear scale, preserving at the same time the transfer of inferences like that of quantitative inclusion (Lakoff, 1993, pp. 214–215). In a relevant sense, in a modelled situation such as this of prices being plummeting or soaring, we are licenced to conceptualise prices as being HIGH, only because these can also be LOW, and, in turn, we can conceptualise MORE

as HIGH only because we can also conceptualise LESS as LOW. Summarising, the core idea behind postulating the invariance principle is that the metaphorically projected propositional structure not only preserves a selective range of features present in the metaphorical source, but also an inferential structure of the image-schemas that sustain the structuring of the metaphorical source in first place. Under this light, we can understand image-schemas as *mediating structures* immanent in both metaphoric source and target domain, which facilitate the mapping between the two and ensure the preservation of the primary schematic structure that sustains them conceptually.

1.3. Historical semantic change and image schemas as prototypes

In work of diachronic prototype semantics (Geeraerts, 1997, 2006a,b), the link between two categories [A] and [B], with the latter representing an extension of the former, is formulated as a schematic categorisation of the two related categories, which comprises the commonness of both. Furthermore, when the category that instantiates [A] extends its meaning towards (B), an upward extension may take place too. The schematisation sanctioning ([C]) is adjusted so that it accommodates both [A] and (B). Fig. 1 depicts this process, where extension of [A] into (B) (square brackets depicting entrenched senses, whereas parentheses non-entrenched ones) forces re-adjustment of the schematic prototypicality of [C], so that it accommodates both the original sense as well as [A]'s extension. That way, both [A] and (B) retain their category membership (Langacker, 2008, pp. 225–6). Accordingly, the dashed line from [A] to [C] represents an extension simultaneous to this of [A] towards (B) (see also Ioannou, 2017, pp. 257–8).

An analogous prototype-based analysis has also been presented in Clarke (2010, pp. 125–129) for Ancient Greek, through the analysis of specific terms such as *trefo*, meaning roughly FEED. There, the author addresses the vexing problem of the relation between entrenched and instantiated senses and the flexible character of a common proto-sense that, paradoxically, may actually be not attested. In its essential architecture, the schema in Fig. 1 can be used to represent the mediating role of image schemas as described above. In a relevant sense, the image-schematic structure that underlies the organisation of two propositions, with the second being extension of the first, comprises the schematic prototypicality of both.

Nevertheless, a question arises as to the extent of the applicability of the schema above for the sum of diachronic semantic shifts at large. To what extent does an extended structure retain the prototypical schematic base of its origin? Additionally, what is the degree to which the schematic prototype is adjustable so that it accommodates a given possibility of semantic extension? It seems to be fairly uncontroversial that *over*, for instance, as long as it activates a prototypical scene roughly conceptualised as a PROXIMAL ABOVE (see Tyler and Evans, 2003, chpt. 4), would never accommodate under an extended schematisation the meaning of, say, ASIDE. Nevertheless, to the best of my knowledge, the issue of the permissible range of the possibilities for a variant perspectivisation within an image schema has not been addressed in the relevant literature.

Hence, this paper intends to inquire into the inherent dynamics of image-schemas seen as prototypical gestalts that impose constraints over the construing possibilities of a historically changing conceptualisation. To this end, it will compare aspects of the evolutionary line of the sense PAY in English and Greek, through the evolution of the terms *pay* and *plirono*, respectively. The remainder of the paper has the following structure: Section 2 introduces briefly the notions of image-schematic invariance hypothesis and its recent extension to semantic frames. It after looks at the possibility of integrating constructions as perspectivisation mechanisms over invariant semantic frames across languages, as a special case of near synonymy. Section 3 elaborates the idea that image schemas have a crucial role to play in the organisation of constructions, being embedded in them as prototypes that regulate the extension of possible constructional change. It thus first takes a closer look at the constructional organisation of the semantic frame of COMMERCIAL TRANSACTION frame in Greek and English, locating some asymmetries in the expression of the sense PAY in terms of valence and

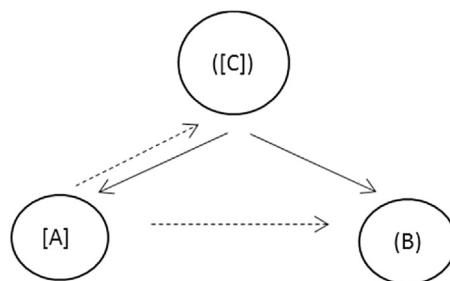


Fig. 1. Categorical extension (Langacker, 2008).

argument encoding. In section four the analysis turns to determining the image-schematic origin of the prototypical sense of PAY for the two languages and explains the asymmetries found in terms of image-schematic motivation. A summary and conclusions follow.

2. Semantic frames and constructions as perspectivisations

2.1. Image-schemas, semantic frames and invariance

In earlier literature, the analysis of semantic extension is mostly limited to a profile-shift within a single image schema, albeit metaphorical or not. Furthermore, when the extension refers to propositions as systems of conceptual integration of the sort described in Lakoff (1990), considerations upon the make-up of constructions that externalise these propositions seem to be treated as irrelevant. This was something to be expected in early cognitive linguistic analyses, as the turn towards metaphor as a conceptual phenomenon gave rise to a theoretical stance according to which metaphor is “not just a matter of language – that is mere words” (Lakoff and Johnson, 1980, p. 6). The tendency became generalised, so that usually works on semantic extension are based on consideration of propositions rather than grammatical constructions (Crisp, 2002; Crisp et al., 2002). Full attention then was paid to the conceptual structures motivating metaphorically complex propositions, such LOVE is a JOURNEY (Lakoff and Johnson, op. cit.).

Nonetheless, in the light of more recent analyses that take into account the relevance of semantic frames shaped in the mould of symbolically entrenched constructions, analyses such as Lakoff and Johnson (1980) may seem rather pre-theoretical. Works not only from a strictly cognitive linguistic framework on diachronic prototypicality of senses such as those of Geeraerts (1997, 2006a,b) and Clarke (2010) but also recent research that looks into interpretive effects of clause structure (cf. Goldstein, 2016)¹ have moved towards the direction of integrated analyses that are at the same time theoretically robust and usage-based or data-driven. In this light, it is obvious that a theoretical link is missing: that between the image-schematic structure motivating the make-up of a proposition and the construction as a symbolic unit of parallel conceptual importance (Langacker, 2008, chpts. 1, 6). Additionally, cases of semantic extension that are not directly susceptible to metaphoric processes have rather been left untreated (Sullivan, 2013:2) in works inquiring into schematic motivation. The reason is that, along with constructions deemed to be a superficial phenomenon, semantic shifts of literally construed propositions might look rather incidental cases of no interest. Nevertheless, conceptual and grammatical structures are more recently treated as harmonious to each other, without any grammatical schematicity being purely formal and for that matter semantically vacuous (Goldberg, 1995, 2006, p. 219; Langacker, 2008, op. cit.). In this light, the argument for a common motivational origin for both constructions as well as the propositions that those externalise gains significance. Consequently, it stands to reason to hypothesise that any shifts in the constitution of a grammatical schema follow a traceable conceptual path that connects them with their schematic origin. Accordingly, the need for a more comprehensive framework that can encompass constructions as externalisations of propositional structures into a theory of conceptual-schematic motivation is definitely at stake.

Invariance has been theorised as relevant to two pairs: The first concerns the make-up of propositional frames and the image-schematic gestalt underlying these. The second, a more recent one, concerns the constructions that externalise semantic frames and the construal of the latter, on the other. The most representative piece of work that exploits this idea is Sullivan (2013), where she summons together formulations on metaphoric extension and semantic frames as manifested through concrete constructions. Relevantly to the present analysis, her work is an important step forward in the field, for the following additional reason: it restates the invariance principle of Lakoff, referred to above, adapting it so that it encompasses the *preservation of semantic frame structure*. In her view, it is not only image-schematic structure that is preserved during the metaphoric mapping but also more detailed structure that cannot be reduced into the pre-conceptual experiential schemas. Specific constructions externalising conceptual domains are taken to structure sub-regions of these domains. Furthermore, Sullivan links this process to the variant ability of these sub-regions to be interpreted metaphorically (Sullivan, 2013, chpt. 3). In this light, metaphoricity is licensed through specific entrenched lexicogrammatical units and not merely through conceptually entrenched relations holding between conceptual domains in the abstract.

Hence, in the light of the recent advancement in drawing a felicitous and long-missing link between semantic frames, constructions and preservation of gestaltist structure, an interesting and largely unaddressed question arises regarding the relevance of image-schematic structure as a prototypical schematisation, when embedded in a larger construction (addressed also in Ioannou, 2017, sec. 2.2). The present work intends to extend invariance hypothesis, attempting to draw two links: First, one between Lakoff's invariance principle regarding image-schematic structure and constructions,

¹ See also fn.7.

understanding the latter as externalisations of propositional structure or otherwise semantic frames. Second, between invariance principle and its applicability to non-metaphoric language, to the end of gaining a more comprehensive view at semantic shift, in the broader context of treating literal and metaphoric extension as manifestations of a single continuum (Radden, 2002, p. 409).

2.2. Constructions as second-level profiling over a semantic frame

The externalisation of a symbolic unit is largely subsumed to the conceptual space (Langacker, 1987, pp. 77–79). Understanding constructions as a natural part of a symbolic assembly's meaning-transmission function at large (Langacker, 2008, chpts. 6–7) gives to their conceptual treatment a firm theoretical underpinning. This treatment widens the theoretical and analytical possibilities, incorporating constructions as profiling devices that bring a proposition – otherwise an abstract theoretical construct disconnected from its usage-based dimension – into the field of *construal* (Langacker, 2008, chpt. 3). The relation can be represented in Fig. 2, where constructions are seen as perspectivalisation over a semantic frame that represents the semantic scope of a conceptual base.

The relation could be considered parallel to that holding between the conceptual content of a verb constituting its semantic scope and the alternative grammatical construals of active and passive perspectivalisation. The difference lies in the fact that, in the case of grammatical construal such as passivisation, the variation between active and passive is in principle free, motivated by discourse. In contrast, the constructions instantiating a semantic frame are entrenched and fixed into a single construing possibility. The profiling variation in this case is expected to surface as difference between distinct languages, such as English and Greek, where, otherwise identical frames, display different externalising constructions, to a lesser or greater extent, a phenomenon that could find its lexical analogue in the case of near synonymy. The relevant difference would be that the one at hand holds between synonymous terms across distinct languages.

Consequently, understanding distinct terms such as *buy* and *pay* as perspectivalisations over a single frame, namely the COMMERCIAL FRAME, helps us conceive theoretically the construing role of constructions over a single term such as *buy* as a second-level perspectivalisation, as schematically shown in Fig. 3.

The relevance of conceiving the constructional make-up of a frame-semantic relation as a perspectivalisation in its own right over this relation becomes apparent when we consider synonymous terms across different languages. These, although part of otherwise identical frames, e.g. COMMERCIAL FRAME, very possibly manifest differences in terms of the entrenched grammatical make-up of their constructions. In the light of the assumption that the whole of lexicogrammar as a continuous space is meaningful and conceptually motivated, these differences can be seen as an analogue

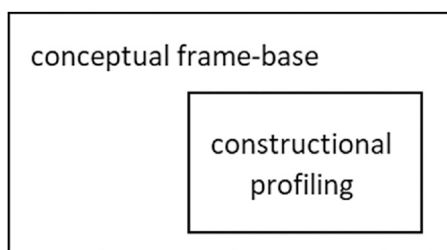


Fig. 2. Constructions as frame-profiling.

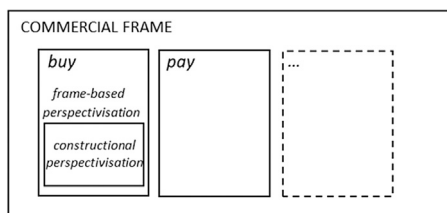


Fig. 3. First- and second-level perspectivalisation over a single frame.

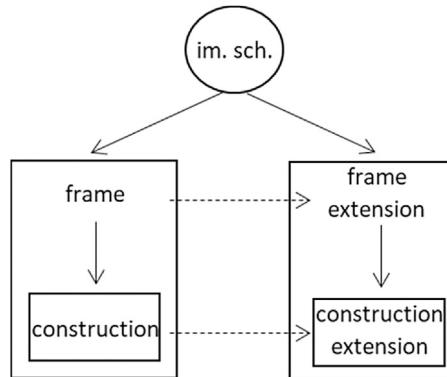


Fig. 4. Image-schema to construction invariance.

to lexical near-synonymy, as mentioned above. The asymmetries to be found at a grammatical level correspond to differences in a second-level conceptual organisation of a sense such as PAY.

Hence, in the light of the aforementioned assumption that propositional structure is operational over image schemas, this paper argues for the necessity for a more comprehensive view at invariance hypothesis as well as for testing the extension of its applicability onto non-metaphoric language at large. It consequently puts forward the working hypothesis that image-schematic structure may be relevant not only in the transition from an image schema to its metaphoric extension but all the way down to the grammatical constructions externalising them, in accord with Fig. 4 that extends Langacker's (2008) schema in Fig. 1 as well as Sullivan's (2013) treatment of extension as frame-based.

Hence, it is expected that the differences encountered between two otherwise frame-semantically synonymous terms, insofar as the constitution of their grammatical constructions is concerned, may be traced in the gestaltist organisation of the image-schemas that underlie the corresponding frames and constructions. Additionally, as a matter of equal importance, any diachronic changes found in the constructional organisation of a semantic frame for a given term must be within a range of permissible transformations determined by the structuring image-schema that underlies the conceptualisation of a term.

Accordingly, the present work asks the following questions: how does the idea of image-schemas being schematic prototypes relate to the range of constructional changes taking place concomitantly to semantic extension? Are image schemas equally immanent to the constructions externalising propositional frames as are to the propositional frames themselves? The constructional expressions of semantic frames manifest synchronic inter-linguistic variation as well as diachronic intra-linguistic shifts. To what extent are these constructional shifts co-aligned to semantic-frame shifts? If a closer look at the constitution of the constructional schemas of synonymous terms across languages is to reveal that the aforementioned working hypothesis is on the right track, then we attain good evidence for drawing a very interesting connection between synchronic variation and diachronic stability, relevantly to the discussion and questions presented in the introduction of the present work. Image-schematic invariance may account for inter-language micro-variation within two propositionally identical frames as much as for intra-language diachronic stability.

3. Image-schemas as prototypes embedded in constructions

3.1. The semantic frame of COMMERCIAL TRANSACTION in English

Adopting a usage-based approach to natural language (Langacker, 1987; Tomasello, 2005) has advanced a treatment of lexical units as access points to encyclopaedic knowledge (Evans and Green, 2006, p. 221). These do not hold simply any more a core of linguistic meaning proper with a periphery contextually enriched. Alternatively, lexical meaning forms a continuum with that of pragmatic environment. The latter is precisely what gives rise to it in first place.

Frame semantics is seen as a natural theoretical and analytical consequence of that view at linguistic knowledge. Words have a "meaning potential" constrained semantically by a particular grammatical construction (Allwood, 2003, p. 56), whose bounded scope emerges as an organised frame of knowledge, the term *frame* precisely highlighting the gestaltist nature of these units. Thus, a semantic frame is understood as a conceptual structure that encodes "a particular type of situation, object or event and the participants and prop[ertie]s involved in it" (Ruppenhofer et al., 2010, p. 5), constructionally demarcated. In this light, a frame encodes a situational ontology (Andor, 2010, p. 166) of some sort, albeit the latter having a conceptual or "phenomenological" status (Langacker, 2008, p. 31; also Riemer, 2005, chpt. 1 for

discussion) rather than an objective one of platonic vein (Evans and Green, 2006:231). Frames contain participants representing THINGS that are syntactically realised prototypically as nouns, and modes of relating these meaningfully, prototypically corresponding to a set of PROCESSES and syntactically realised as verbal relations. The syntactic manifestation of participants brought together through relations gives rise to the notion of *valence* that determines the number and type of participants required. Participants may be more or less central to a relation's scope, representing core and peripheral arguments, respectively.

One of the earliest examples described in the frame-semantic literature is the COMMERCIAL TRANSACTION FRAME (Fillmore, 1982; Evans and Green, 2006, pp. 225–228), itself part of the COMMERCIAL FRAME. Understanding the various relations appearing in a frame as perspectivisations over it (Fillmore, 1982, pp. 121–3), within COMMERCIAL TRANSACTION there can be found terms like *buy*, *sell*, *pay*, *cost* etc. that focus on a specific aspect of the gestaltist unit, thus “taking perspective” over it, so to speak. As a consequence, the participants required regarding both their number as well as their type differ. Thus, for *buy*, the constructional requirement is bivalent, necessitating the presence of a BUYER and GOODS participants:

1. *John bought a car.*

For *pay*, on the other hand, the required participants are typically these of BUYER and SELLER (Evans and Green, 2006, p. 226):

2. *John paid Tom.*

Differently, for *sell*, the relation is trivalent, in the sense that its scope typically requires three participants: SELLER, BUYER and GOODS:

3. *Tom sold John a car.*

Nevertheless, the primary scope of a verbal relation is many times susceptible to expansion, extending its core through oblique arguments. Thus, the constructional frame of *buy* and *pay* can also take a *from*- and a *for*-phrase as their peripheral participant that expresses the SELLER and GOODS, respectively:

4. *John bought a car from Tom.*

5. *Tom paid John for the car.*

Alternatively, *pay* may also profile the AMOUNT PAID participant, thus profiling three arguments within its invariant scope, with the possibility for a fourth oblique argument:

6. *John paid Tom \$9,000 for the car.*

In parallel to the use of the term “meaning potential” above, a frame such as that of COMMERCIAL TRANSACTION structures a set of semantic relations that as a sum constitute the frame's “event-sequence potential” (Evans and Green, 2006, p. 227). As we will see later on, conceiving the constructional relations as a single summary configuration of greater schematicity is crucial to understanding the limits of the constructional core of a frame.

The various “routes” then that an “event-sequence potential” can take through a semantic frame such as that of COMMERCIAL TRANSACTION are demonstrated in Table 1, where the various verbal relations appear as rows and the semantic roles realised by the frame participants through constructional realisations as columns. Brackets correspond to the possibility for optional arguments and \emptyset to the impossibility for one (Fillmore and Atkins, 1992, p. 79; Evans and Green, 2006, p. 228).

The observations for each row are divided into invariant and variant structure, with variant structure presented in brackets. Invariant structure is realised either as a Subject or a Direct Object, whereas variant structure is expressed either as an Indirect Object or as an Oblique Argument. Thus, for instance, the invariant structure of *charge* obligatorily realises SELLER as the Subject and AMOUNT as the Direct Object, whereas it can be expanded through the addition of an Indirect Object realising the role of BUYER and an Oblique Argument as GOODS:

7. Invariant structure: *He charged \$10,000*

8. Variant structure: *He charged him \$10,000 for the car.*

Table 1
Semantic and constructional event-sequence of the COMMERCIAL TRANSACTION FRAME.

	BUYER	SELLER	GOODS	AMOUNT
<i>buy</i>	Subj	(from)	D-Obj	(for)
<i>sell</i>	(to)	Subj	D-Obj	(for)
<i>charge</i>	(I-Obj)	Subj	(for)	D-Obj
<i>spend</i>	Subj	∅	(for/on)	D-Obj
<i>pay</i>	Subj	(I-Obj)	(for)	D-Obj
	Subj	(to)	for	D-Obj
<i>cost</i>	(I-Obj)	∅	Subj	D-Obj

It is worth noting here the dual row for the sequence of *pay* in Table 1, due to the ditransitive alteration that permits the role of SELLER to be expressed either as an Oblique or Indirect Object. The analysis returns to the relevance of the matter below.

3.2. The semantic frame of COMMERCIAL TRANSACTION in Modern Greek

The semantic frame for COMMERCIAL TRANSACTION in Modern Greek appears quite similar. Despite the recent efforts for constructing a Greek *FrameNet* (Dalpanagioti, 2013), there is not – as yet – an electronic corpus comparable to that of English *FrameNet*² (cf. Fried and Nikiforidou, 2010) that could support a semantic-frame coding to which someone might have automatic and direct access. Consequently, the coding for the Greek COMMERCIAL TRANSACTION FRAME for this study has been based on manual annotation of 500 randomly selected entries of the verb *pay* and 200 entries for each of the rest of the verbs,³ from the Greek Web Corpus of *Sketch Engine* (*GkWaC*),⁴ a corpus containing a total of about 149,000,000 words drawn from internet sources. The concordance tool has been used for identifying the syntactic context of each verb, thus identifying the semantic type as well as the grammatical realisation of each semantic participant.⁵ The event sequences are depicted in Table 2.

Juxtaposing Tables 1 and 2 yields in general a comparable picture. The semantic-participant slots that are filled by the syntactic role of Nominative Subjects – obviously for Active Voice – are totally overlapping. The Oblique and Indirect Arguments overlap too in general, with the additional element of Genitive Case in the case of Greek, realising the oblique argument of SELL and PAY too.⁶ The use of the Genitive for these cases makes sense, given the reduction of the Greek nominal declension paradigm that started taking place during the Hellenistic period in Greek Koiné and the eventual syncretism of Genitive with Dative in a later period, possibly around the 8th to 10th century CE (cf. Humbert, 1930, pp. 199–200; Browning, 1983, p. 37; Horrocks, 2010, pp. 284–285; but see Luraghi, 2003, p. 331 for an earlier dating). Thus, Genitive is used for an argument that fills in the slot of a semantic participant such as SELLER or BUYER, when the perspectivisation of the frame brings them in the position of indirect object of the act of TRANSACTION.

3.3. Asymmetric dative shifts in Greek and schematic origin

The TRANSACTION schema is obviously sanctioned by the ditransitive construction and, for that matter, the dative shift is expected to occur in both languages. Nevertheless, beyond the identity of participants and the extensive overlapping of their realisation in relation to the verbal perspectivisation of the frame, there are important asymmetries to be noted. In Greek, although at first glance the differences in case realisation among different rows in Table 2 may be attributed to the standard process of dative shift, typically operative in English, at a second reading they reveal important

² <https://framenet.icsi.berkeley.edu/fndrupal/>.

³ The increased number of selected instances for *pay* in relation to the rest of the verbs is not random, as *pay* is the focus of this analysis and a more precise coding is instrumental.

⁴ <https://www.sketchengine.co.uk/gkwac-corpus/>.

⁵ From the corpus – as an anonymous reviewer notices-have been excluded contexts with weak pronouns in the place of arguments. This choice is based on the fact that, through a preliminary search into the corpus, it was noted that utterances with a weak pronoun preceding the verb PLIRONO were skewing the results towards marked interpretations, such as that of the interpretation of the nominal argument as BENEFICIARY (see also fn.7).

⁶ For CHARGE, the fact that the alternation holds between GEN/ACC and not between GEN/TO, shows that maybe the oblique argument here is the AFFECTED entity, and not the recipient, a matter not immediately relevant to the present analysis.

Table 2

Semantic and constructional event-sequence of the COMMERCIAL TRANSACTION FRAME in M. Greek.

	BUYER	SELLER	GOODS	AMOUNT
<i>Agorázo BUY</i>	Subj	(apó FROM)	ACC	(ACC/ <i>gia</i> FOR/me WITH)
<i>Puló SELL</i>	(GEN/se TO)	NOM	ACC	(ACC/ <i>gia</i> FOR)
<i>Chreóno CHARGE</i>	(ACC/GEN)	NOM	(<i>gia</i> FOR)	ACC
	(GEN/se TO)	NOM	ACC	(ACC)
<i>Xodévo SPEND</i>	NOM	∅	(<i>gia</i> FOR/se TO)	ACC
<i>Pliróno PAY</i>	NOM	(ACC)	(<i>gia</i> FOR)	ACC (/me WITH)
	NOM	(GEN)	ACC	∅
	NOM	(se TO)	∅	ACC
<i>Kostízo COST</i>	(GEN/se TO)	∅	Subj	ACC

differences as compared to English constructions, which necessitate a closer look at the evolution of the respective semantic frames.

Ditransitive alternations or dative shifts, as the phenomenon is usually called, consists in an alternative construal of a ditransitive clause, where the so-called indirect object of a ditransitive verb like *give* surfaces as the latter's direct object:

9. *John gave a book to Mary*
10. *John gave Mary a book.*

The analysis of these shifts has a long history in transformational grammar (Chomsky, 1955/1975, p. 492; Barss and Lasnik, 1986, pp. 348–350; Kayne, 1983, p. 195; Larson, 1988). The general tenet of all these analyses holds that both constructions stem from an underlying unified representation. Albeit with certain variation in formalisation and interpretation, utterances such as (10) are analysed as deriving from a deep phrasal structure that is transformed so that the obliqueness of the second argument *Mary* acquires a formally required direct objecthood, often interpreted in terms of case assignment, in parallel with the analyses of constructions such as passive (cf. Larson, 1988, sec. 3.1). Nevertheless, as Goldberg argues (2006, pp. 26–34), the CAUSE-RECEIVE conceptual schema that underlies an example like (10) need not sanction (9) too for reasons of structural or semantic uniformity. Conceptual and constructional level are carefully dissociated so that the latter surfaces precisely only through “interaction” between the CAUSE-RECEIVE predicative schema and a specific verb class (Goldberg, 2006, p. 20). As a consequence, the surfacing form is the result of “fusion” or integration between the semantics of a verb on the one hand and the conceptual schema with its own constructional requirements, on the other. This view allows for a natural accommodation of the inherent fuzziness of the various constructions, captured theoretically as *coercion* (cf. Pustejovsky, 1995, pp. 106–121; Michaelis, 2004). This would imply that grammatical permissibility is the result of compatibility between constructional schemas and the semantics of a verb. If the semantics of the verb tends to stretch the schema beyond the latter's conceptual range, ungrammaticality arises.

Additionally, a constructional approach to semantic structure and the fruitful disassociation of constructional patterns from the verbal semantics has another consequence. A single verb does not deterministically surface in a given constructional disguise. In contrast, it may integrate with another constructional pattern, more prototypically fitting or not, as long as the latter is compatible with the semantic requirements of the former. In other terms, it is *perspectivised* by it.

Accordingly, semantic identification between utterances such as (9) and (10) is the result of integration between the semantics of the verb *give* and the constructional predicate schema of CAUSE-MOTION, where *book* takes over the participant role of MOVED OBJECT and *Mary* the END-POINT of motion. Interestingly, compatibility between the two predication schemas may be formulated as a mutual convergence onto the image-schematic gestalt of PATH (but see Rappaport Hovav and Levin, 2008, sec. 3), where all participants of a TRANSFER verb such as *give* can variably map onto distinct perspectival points over the PATH image schema, as shown in Fig. 5.

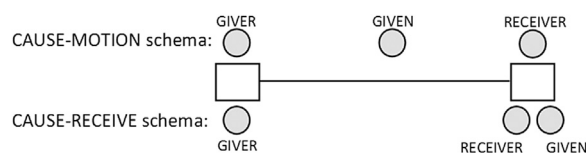


Fig. 5. Variable mapping of arguments of *give* over the image-schema of PATH.

The variant compatibility of the two constructions with the underlying PATH image-schema renders them in turn both compatible with the semantics of the verb *give*. Thus, *give* extends its construal towards the meaning of CAUSE. This is the reason that *give* can be used in the following example:

11. *John gave me a headache.*

Accordingly, it is ungrammatical to use the expression *give a headache* as if it involved a real transfer, and this is the reason that (12) is semantically awkward (Green, 1974, pp. 156–167; Oehrle, 1976; also Jackendoff, 1990, chpt. 9):

12. *?John gave a headache to me.*

Independently of assuming a common or not semantic-base input for pairs such as (9–10), the importance of a constructionist approach to their analysis lies in assuming a construction of a common schematic origin that coerces them both into a given construal. Similarly, the “to-dative” and “for-benefactive” ditransitive constructions, although they seem to originate from a distinct input (Baker, 1988; Larson, 1988), are both compatible with the double-object construal (Goldberg, 2006, pp. 26–28):

13. (a) *Mina bought a book for Mel*
 **Mina bought a book to Mel*
 (b) *Mina sent a book to Mel*

→ *Mina bought/sent Mel a book*

Turning now to the frame of COMMERCIAL TRANSACTION, it is only plausible to analyse much of its frame-sequence potential as being sanctioned by the image-schema of TRANSFER over a PATH (but Rappaport Hovav and Levin, op. cit.). Thus, verbs such as *sell* and *buy* on the one hand and *pay* on the other involve the transfer of GOODS and MONEY, respectively. For *sell* the transfer takes place towards the BUYER, for *buy* from the SELLER and for *pay* towards the SELLER. Additionally, given that the situational ontologies projected both in English and Greek are identical – insofar as the relations and participants involved are concerned – someone would only expect that dative shift alternations would be symmetrical across both languages. In other words, in the light of the conclusion drawn above on the semantic relevance of a verbal relation regarding the latter’s compatibility to a constructional schema, symmetry in that respect is what to be expected, in much the same way English and Greek are symmetrical in the realisation of the predicate GIVE, expressed as *give* in English and *dino* in Greek, respectively:

14. (a) *John gave a book to Mary*
 (b) *John gave Mary a book*

15. (a) O *Gianis edose ena vivlio sti Maria*
 Det John give.3PS.PST Det book.ACC to-Det Mary.ACC
 ‘John gave a book to Mary’
 (b) O *Gianis edose tis Marias/sti Maria ena vivlio*
 Det John give.3PRS.PST Det Mary.GEN/TO Mary.ACC Det book.ACC
 ‘John gave Mary a book’

To some extent, this prediction is born out. For instance, both *sell* and *puló* understood as TRANSFER OF GOODS behave identically, with genitive case and fronted prepositional phrase expressing the indirect dative object, collapsing in the post-classical age the distinction between dative and genitive:

16. (a) *Tom sold a car to Mary*
 (b) *Tom sold Mary a car*

17. (a) O *Gianis púlise ena autokinito stin Maria*
 Det John sell.3PRS.PST Det car.ACC to-Det Mary.ACC
 ‘John sold a car to Mary’
 (b) O *Gianis púlise tis Marias/sti Maria ena autokinito*
 Det John sell.3PRS.PST Det Mary.GEN/TO Mary.ACC DET car.ACC
 ‘John sold Mary a car’

Nevertheless, if we take a closer look at the second predicate of the reciprocal relation of COMMERCIAL TRANSACTION that in English can alternatively realise its indirect argument with a *to*-NOUN expression, namely PAY, we find a set of finer asymmetries. These call for a qualification of the assumption presented above that the commonness of make-up of a verb alone in terms of its semantic participants suffices for constituting a common conceptual base for two terms or that this commonness is enough for determining the verb's compatibility with a given constructional schema.

In concrete terms, PAY is understood more formally as sanctioned by the CAUSE-MOTION schema; the AMOUNT PAID is put into transfer from a source – the BUYER – to a goal – the SELLER (see also [Jackendoff, 1990](#), pp. 190–191). In this respect, PAY is identical in both English and Greek. Additionally, both terms can impose an alternative construal over this transfer, through the CAUSE-RECEIVE predicate. As expected, English *pay* displays the typical behaviour of a transfer-verb such as *give* and for that matter identical to *sell*, with the difference that the entity transferred is not GOODS but AMOUNT PAID: accordingly, GOODS are expressed as an optional oblique argument realised through the *for*-NOUN expression:

18. *Tom paid \$10,000 to Tom.*
19. *Tom paid Tom \$10,000.*
20. *Tom paid \$10,000 (for the car).*

Nevertheless, the Greek verb for PAY, namely *plirano*, is asymmetric in that respect. First of all, albeit still operative, the CAUSE-MOTION predicative schema is systematically less frequent (about 34% of the cases where AMOUNT and AMOUNT RECIPIENT co-occur):

21. *?I Maria plirose \$10,000 ston Giani.*
 Det Mary pay.3PRS.PST \$10,000 to-Det John.SG.ACC.
 'Mary paid 10,000 to John'

Second, although PAY in both languages profiles MONEY TRANSFER, the use of the generally applicable genitive case for the expression of dative object in cases of transfer here results in ungrammaticality, with no instances attested through the data collection:

22. **I Maria plirose tu Giani \$10,000.⁷*
 Det Mary pay.3PRS.PST Det John.ACC \$10,000
 'Mary paid John \$10,000'

Instead, what normally would be the dative object is expressed through Accusative, thus resulting to a construction with two accusatively marked arguments (around 66% of the cases where AMOUNT RECIPIENT and AMOUNT co-occur):

23. *I Maria plirose ton Giani \$10,000.*
 Det Mary pay.3PRS.PST Det John.ACC \$10,000
 'Mary paid John \$10,000'

Finally, it is not only the MONEY TRANSFERRED that is expressed as a direct object but the GOODS participant too, when the latter is overtly expressed (in 47% of the utterances in total), in sharp contrast with English data:

24. *I Maria plirose to autokinito*
 Det Mary pay.3PRS.PST Det car.ACC

⁷ The fact that this use as well as the use of a weak pronoun as in *I Maria tou plirose to autokinito* (the example brought to my attention by an anonymous reviewer) is restricted just to definite nominals (in a 100% of the cases in the data), may be an indication that here we have a case of GEN expressing the BENEFICIARY (see also [Horrocks, 2007](#) for some similar analysis). Although no relevant examples were found in the data, to my personal intuition the same effect holds when the amount is expressed with a specific determiner as in "I paid him *the* \$10,000 for the car". An anonymous reviewer provides me with a grammaticality judgment that in my opinion points at something similar in connection to example (25). Utterances such as "*tis plirano tis nikokiras mou to enikio kanonika*" 'To my landlady, I pay her the rent regularly' are grammatical. Interestingly, here too, definiteness seems to be at stake. What we have here is an interface of weak-pronoun lexicon and constructions that requires a detailed analysis that makes justice to the constraining role of their interaction on interpretation (see also [Goldstein, 2016](#) in this connection). I leave the specific matter open for a future analysis.

'Mary paid for the car'

Interestingly, in this case, the indirect object, which is optional, must be expressed in Genitive⁸:

25. *I Maria plirose (tu Giani) to autokinito*
 Det Mary pay.3PRS.PST Det John.GEN Det car.ACC
 'Mary paid John for the car'

Finally, no cases are reported with GEN alone expressing the SELLER (RECIPIENT of AMOUNT) or with ACC-ACC expressing the SELLER-GOODS, respectively. In contrast, ACC alone is used to express the RECIPIENT of AMOUNT paid, as in (28):

26. **I Maria plirose tu Giani*
 Det Mary pay.3PRS.PST Det John.GEN
 'Mary paid John'

27. **I Maria plirose ton Giani to autokinito*
 Det Mary pay.3PRS.PST Det John.ACC Det car.ACC
 'Mary paid John for the car'

28. *I Maria plirose ton Giani*
 Det Mary pay.3PRS.PST Det John.ACC
 'Mary paid John'

A summary of the distribution of each RECIPIENT type over each variable of AMOUNT and GOODS is given in Fig. 6. Fig. 7 gives the overall distribution of Recipient types for all variables.

How can we deal with these asymmetries? A feasible way of attempting an explanation is assuming that there is a case-organisation that in Greek casts a construing network over the semantic relation of PAY. Nonetheless, this network is not operative uniformly over all TRANSFER verbs, as would be expected under a standard link between a verb's valence and its grammatical context, an assumption stemming from case-frame theory (Fillmore, 1968). We may therefore hypothesise that the organisation reflects a motivation that descends from a semantic origin *beyond the frame semantics* of the term *plirono*, which otherwise is identical to this of the English term.

4. Image-schematic structure as constructional motivation

4.1. PAY in Greek and the image-schema of CONTAINER

In an earlier section, in the context of the discussion on the relation between language discreteness on the one hand as manifested in constructions and continuity as underlying the gestaltist nature of image-schemas on the other, the present work put forth the hypothesis that image schemas can be understood as prototypes that categorise two instances of a polysemic term. This possibility has two facets: First, a licencing one, whereby the schema immanent to the construction sanctions the latter. Second, a constraining one (see also Johnson, 1987, pp. 41–64), whereby a construction cannot express relations that fall out of the licensing range of the image schema, albeit present and coded within a frame in terms of the latter's situational participants.

What is the image schema relevant to *plirono*'s construction? In accord with the view that one of the criteria for prototypicality is the historical origin of a term (Tyler and Evans, 2003, p. 47), it is to be expected that the image-schematic prototypicality of *plirono* is to be traced in the historical evolution of the term. Thus, reference to its historically primary meanings is due.

The verb *plirono*, with the form of *pleróo*, has the primary meaning of FILL in antiquity, as inferred by its distribution over seven centuries, shown in Fig. 8. The data comes from a manual annotation of 4500 instances of the term (see more details below, also Ioannou, 2017; Fig. 8).

It is a transitive verb that prototypically affords two obligatory arguments and one optional: an AGENT that instigates the filling action, an inanimate PATIENT that is schematically understood as a FILLED CONTAINER, and an argument that fills the latter, henceforth FILLER. The first is realised with nominative, the second with accusative and the third with genitive:

⁸ XXX.

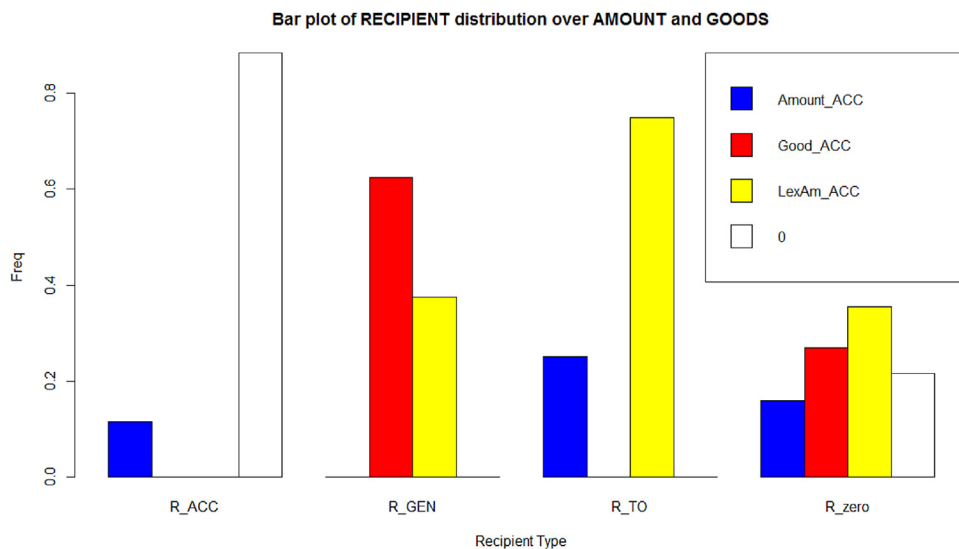


Fig. 6. Recipient distribution.

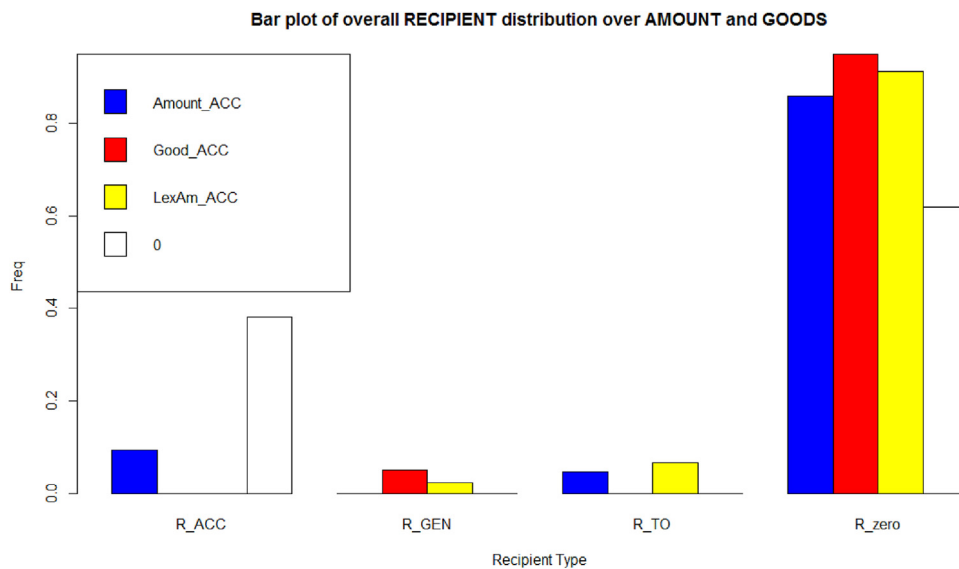


Fig. 7. Overall recipient distribution.

29. *Díónusos* . . . *oínou kratéra plerósas* (Dyris, Hist.Frag.1339)
 Dionysus.NOM wine.GEN glass.ACC fill.PST.PRT.3PRS.SG
 'After Dionysus filled up the glass'
30. *Týrannos eplérosen akrópolin údatos*
 Tyrannus.NOM fill.PST.PRT.3PRS.SG citadel.ACC water.GEN
 'Tyrannus filled the citadel with water'

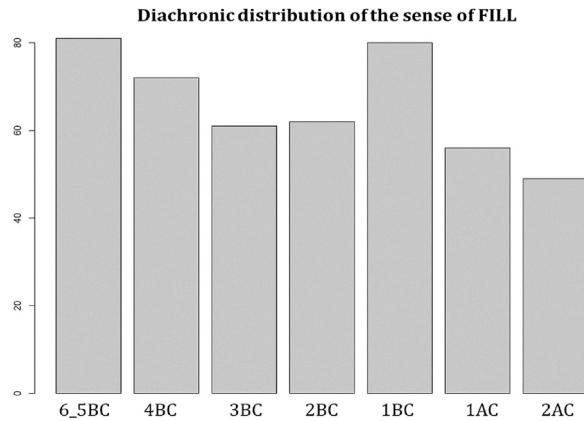


Fig. 8. Distribution of FILL.

Formulating the relevant construction in image-schematic terms, we can observe that a core-part of it consists in a dynamic interpretation of the container image schema, prototypically depicted as a static scene, as in Fig. 9 (Johnson, 1987:33–36, 331; Tyler and Evans, 2003, pp. 25–27, 178–199; Evans and Green, 2006, p. 181; but see Dewell, 2006).

In Fig. 9, the container image schema constitutes a simplex and non-processual relation (Langacker, 2008, chpt. 4), as expressed for instance in (31):

31. *He is in the store.*

Nevertheless, embedded as a sanctioning schematic element within a verbal construction such as FILL, it obtains a processual character and – for that matter – a dynamic interpretation. The TR located in the container-LM fills it up, having as an upper boundary point of its outward movement the boundaries of the container. Essentially, the image-schematic scene conceptualising FILL as a transitive construction contains a relation partitioned into two, with two separate TRs and a single LM. The first partition links the agentive TR with the container-LM and the second the non-agentive TR but with the same landmark. The schema is as follows (see also Ioannou, 2017, op. cit.; Fig. 10):

What may the relevance of the image-schematic constitution of Greek *pleróo* be for the evolutionary path of the term towards the sense PAY? As we have seen, the energy transfer for both processual relations, namely for the filling AGENT and the FILLER, is directed towards the FILLED-container that serves as a landmark. Nevertheless, a standard variation pattern that repeatedly surfaces already from the 5th c. BCE omits the FILLER argument, when the latter is recoverable by the semantic nature of the CONTAINER. Thus, the most common variation pattern along these lines is the omission of a PERSON FILLER when the CONTAINER is instantiated as a BOAT:

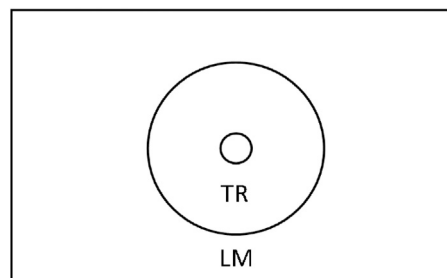


Fig. 9. Container image schema.

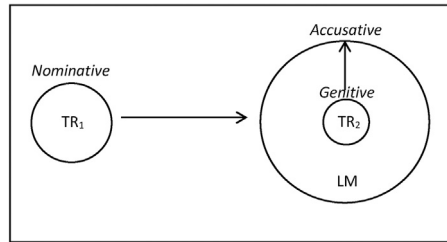


Fig. 10. Image-schematic configuration of the construction of *pleróō*.

32. *Epleroun oi Athenaioi tas naus* (Thuc. Hist. 8.95.4)
 fill.PRET.3PRS.PL Det Athenians.NOM Det boats.ACC
 'The Athenians were filling the boats'

The pattern repeats with many sorts of CONTAINERS such as theatres, courts, stomachs, hearts, etc., where their FILLER is prototypically predicted by the CONTAINER itself. Thus, terms like *people*, *judges*, *food* or *blood* are, respectively, omitted:

33. *Hos de epleróthe to théatron...* (Orat. In Midiam 59.4)
 When PT fill.PASS.3PRS.PST Det theatre.NOM
 'When the theatre got full...'

Interestingly, this pattern is precisely what someone attains as a prototypical schema at a statistically significant level, if someone applies a Multiple Correspondence Analysis (MCA) on the data for the 6th and 5th centuries BCE, annotated in [Ioannou \(2017\)](#) for a set of features such as AGENT, VOICE, TENSE, PATIENT, FILLER, etc. The analysis follows relevant implementations of the method such as [Glynn \(2014b\)](#), where MCA is used as an exploratory technique in order to discover patterns of correlations either at a formal, semantic or textual/socio-cognitive level ([Glynn, 2014a](#)). In the contrastive pairing between positively and negatively contributing semantic participants to the variation for the main dimension of MCA for 6/5th c. BCE (the numbers representing the strength of contribution to variation), it is possible to observe that what contrasts as an ACTIVE VOICE constructional variant to PASSIVE VOICE is not SOG, as possibly expected, but SO. Respectively, the prototypical instantiation of the PATIENT participant is that of a VEHICLE ([Table 3](#)).

The picture is very similar for 4th c. BCE too. In terms of conceptualisation, this omission can be formulated as implying a shift of construal from the FILLER argument to the CONTAINER's boundary. The process must be understood as a fusion of the FILLER-argument with the inherent dynamics of a CONTAINER to-be-filled. Through this semantic compression emerges eventually a *quasi*-reflexive construction (see [Evans and Green, 2006](#), p. 337). As in (34) the movement of a spreading substance is not conceived as a trajector separable from its landmark, in much the same sense utterances such as (32–33) display the same reflexivity, with the difference that there is an upper bound defined by the boundaries of the container, understood as the potential of its containing capacity:

Table 3
 Contribution of variable instantiations to variation for 6/5th c. BCE.

First dimension of variation in MCA			
VOICE_PASSIVE	0.741	PATIENT_VEHICLE	-0.689
AGENT_ZERO	0.598	VOICE_ACTIVE	-0.440
CONSTR_SG	0.891	A_PERSON	-0.583
PATIENT_PERSON	0.770	CONSTR_SO	-0.981

34. *The oil spread across the pond.*

This type of reflexivity profiling TELICITY gives in turn rise to a generalisation of its transitive use as COMPLETE, concomitantly with a schematisation of the object as a projected end-point. In turn, with an object that profiles what can schematically be characterised as DUE and elaborated either as QUANTITY, OBLIGATION or NEED, it is correlated to the sense of FULFILL. This is how the presence of terms such as *chreía*, meaning NECESSITY and NEED, is sanctioned in the position of direct object:

35. *Ho theós mou plerósei pásan chreían* (Nov. Test. Ep. Paul. ad Phil.)
 Det god.NOM my fill.3PRS.FUT all needs.ACC
My God will fulfill all my needs.

We thus have first a schematic conceptualisation of the potential instantiations of a CONTAINER as DUE through a shift of profile within the image-schema, from its content to the end-point of the container's capacity marked by its boundary. In other words, the relation of containment is profiled as directional, between the current state of the CONTAINER's fullness and the latter's boundary as potential end-point value (Langacker, 2008, p. 44). This shift in turn is the result of a conceptual compression between an absent but understood FILLER trajector and a FILLED landmark.

What we finally obtain is a conceptual representation as in Fig. 11, where the image schema is a scale with an initial minimum-value point and a maximum-value end-point. If what is profiled is, instead of the CONTAINER, the scale itself, then profiling on the telic character of the scale yields the schematic sense of DUE.

The transformation is analogous to the metaphoric extension of the DOWN-UP scale to a scale of LESS-MORE (Lakoff, 1993, pp. 239–244), with three additional distinct features: first, the scope of the scale is not unbounded but limited within the boundaries of the container itself; second and consequentially, what is profiled in our case is not MORE but MAXIMUM. This is possibly the very reason behind the fact that the most frequent – by far – TENSE co-occurring with *pleróo* for 3rd c. BCE, where the sense of DUE prominently features, is PAST, with a total of almost 51% over all instances (111 of a 220 total). This implies the gradual entrenchment of a profile that takes a zoomed-out view over an event so that it encompasses in its scope the boundaries of it (Langacker, 2008, p. 65). Third, MAXIMUM on a scale of DUE is fused with the THING itself. In a relevant sense, the maximality of the material extension of an object itself represents the maximality of its value.

This schematic interpretation of CONTAINER as DUE is precisely what naturally links first the latter with DUE AMOUNT and in turn the term *pleróo* with the sense of PAY. It is interesting that the very root that used to mean NEED and NECESSITY, namely *chreía*, evolved into the meaning of DEBT, first time attested in the 4th c. CE, under the term *chréos*, one of the first attestations of the term as PAY:

36. *Toi daneistei... plerósein to chréos* (Eus., Eccl. et Theol., 22.957.4)
 Det loaner.DAT pay.INF.FUT. Det debt.ACC
 'He will pay the debt to the loaner'

This construction has been retained all the way down to Modern Greek, almost unchanged:

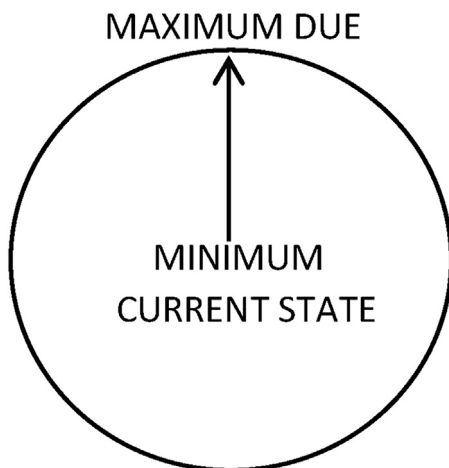


Fig. 11. Image-schematic configuration of CONTAINER as DUE.

37. Tha plirósei to chreos ston daneistí.
 FUT.PAR pay.3PRS.SG Det debt.ACC to-Det loaner.ACC
 'He will pay the debt to the loaner'

In accord with the collected data that represent the totality of extant instances for the term, 3th c. CE is the period where the term *pleróo* appears for the first time to unambiguously denote PAY. The following is the first attestation found in the corpus, from John Chrysostom:

38. Plerósantos óflema panta apodoso soi
 (Joan. Chrys., *De nat. J. B.* 2062.502)
 pay.PRT.PST debt.ACC all.ACC pay.1PRS.FUT you.DAT
 'Upon him paying, I will pay it all back to you'

As we see, whereas *pleróo* as PAY had already been entrenched as a sense from about the 3rd–4th c. CE, many times interchangeably occurring with the ancient term for PAY *apodídomi* – literally meaning GIVE OFF – the RECIPIENT of the economic transaction is still expressed for long time after through dative. The use of dative in this constructional context is to be expected, seemingly sanctioning the CAUSE-MOVE schema (see above sec. 13).

Nevertheless, if this were the case, then in the light of the fact that genitive case syncretised with dative until the latter's complete replacement by the former, the expected evolutionary route of the semantic frame of *pleróo* would more possibly shift directly from NOM-ACC-DAT to NOM-ACC-GEN, on par with what occurred with the rest of the verbs that involved TRANSFER, such as *dídomi* (give), *stéllo* (send) or *charízo* (donate), evolved into *dino*, *stelno* and *charizo* in Modern Greek:

39. Edose tou Giani to grama
 Give.3PRS.SG Det John.GEN DET letter.ACC
 'He gave John the letter'

The fact that this direct shift of pattern is not attested either in Ancient or Modern Greek suggests something important: Accusative did not substitute for a dative slot directly in a construction of CAUSE-MOVE. Consequently, it is possible that the latter construction has not been immediately relevant to the evolution of the semantic frame of *pleróo* into a NOM-ACC₁-ACC₂ case pattern. In other words, ACC expressing the RECIPIENT argument seems to be an independent development.

Interestingly, the verb *pleróo* co-occurs independently and in parallel with NON-ANIMATE objects – like CONTAINERS – with ANIMATE objects too, with the senses of SATE and SATISFY. In the case of both the senses PAY and SATISFY, there is a schematic prototype from which the senses stem, which profiles the TELIC state of COMPLETION. The construction started off before the appearance of the sense PAY, as FULFILL, about the 3rd c. BCE. The sense SATISFY may have two ascendances. Either it comes down from a sense SATE, as mentioned above, or from a sense COMPLETE. It is interesting to note that, if it is the former possibility that holds, then we deal with an instance of metonymy, namely one from SATE to SATISFY. If, on the other hand, SATISFY stems from COMPLETE, we have a case of elaboration of a schema.

It is also important to note here that *pleróo* as FILL never ceased to exist, as shown in Fig. 8. Instead, it co-exists as a prototypical meaning of the term *in parallel* with SATE, SATISFY, COMPLETE and FULFILL. This implies that an ANIMATE direct object would still be motivated conceptually and sanctioned by the CONTAINER image schema. Thus, for long, we have *pleróo* taking as its object either a prototypical CONTAINER with the sense of FILL, a non-animate object that profiles a schematic DUE with the sense of FULFILL and eventually PAY, or an animate object with the sense of SATISFY.

Nevertheless, although the senses SATISFY and FULFILL coexist long before PAY arises as a separate sense, the animate and non-animate objects never coexist within the same construction until very late, well into the 9th c. CE. This points at the following possibility, alluded to above: the path that the entrenchment of NOM-ACC₁-ACC₂ followed along the evolution of the term *pleróo* is not immediately linked to the ditransitive construction. Towards this possibility tends also the fact that the same case-frame in Modern Greek uses ACC₁ for the semantic participant GOODS:

40. Plirose to autokiníto \$10,000.
 pay.IND.PST Det car.ACC \$10,000
 'He paid \$10,000 for the car'

Thus, what sanctions the construction seems to be an integration either between the MAXIMUM on a scale of DUE with the maximality of the material extension of the GOODS or the DUE AMOUNT with the FULFILMENT of personal expectation on the part of the SELLER. In both cases, the DUE as schematisation of container profiling the maximal boundaries of it functions as a generic space of integration (see Fauconnier and Turner, 2002, pp. 39–58) either between the input spaces of GOOD and AMOUNT or these of SELLER and AMOUNT (Fig. 12).

Thus, the semantic participant of AMOUNT becomes both the measurement of a GOOD's value as well as the measurement of the SELLER's financial expectation that has to reach completion, so to speak. It is relevant to note here that the interpretation of a prototype as a generic space is a feasible idea and has been explored in works like Kövecses (2010, p. 280), where he identifies in principle any concept with sub-categorising potential as a generic space (see also Fauconnier and Turner, 2002, pp. 41–2).

4.2. PAY in English and the image-schema of BALANCE

For the case of Modern Greek *plirano*, the analysis above explored the possibility of tracing historically the image-schematic motivation of the term, as that is manifested through the constructional organisation perspectivising over the semantic frame of COMMERCIAL TRANSACTION. This possibility raises the same question for the case of English. How can the image-schematic origin underlying the term *pay* be meaningfully linked to the possibilities of the COMMERCIAL TRANSACTION frame's instantiation?

The first question to be addressed, though, concerns the very nature of the image-schema underlying English PAY, a non-trivial matter. As we saw, in Greek, the prototypical and oldest sense, namely FILL, convincingly testifies for CONTAINER being the prototypical image-schema underlying the term. But what about *pay*? In English, the term is a loan from Old French *paier*, originally meaning PACIFY. In accord with the Oxford English Dictionary, when the term is introduced in English and first attested in texts of the 13th c. CE, two clusters of senses related to the Old French *paier* are mainly present: APPEASE, PACIFY and BE ACCEPTABLE TO on the one hand, and PLEASE, SATISFY, CONTENT, on the other. Both clusters sanction a relevant schematic meaning of some agent bringing about conciliation with another animate entity, through some DISCHARGE of OBLIGATION. The following examples are typical of that stage in the term's meaning:

41. *Giet ne wile þe louerd ben paid mid his rihcte mol.* (MS Trin. Cambr., 13th c.)
 'Yet the lord won't stay appeased/content with his rich earth'

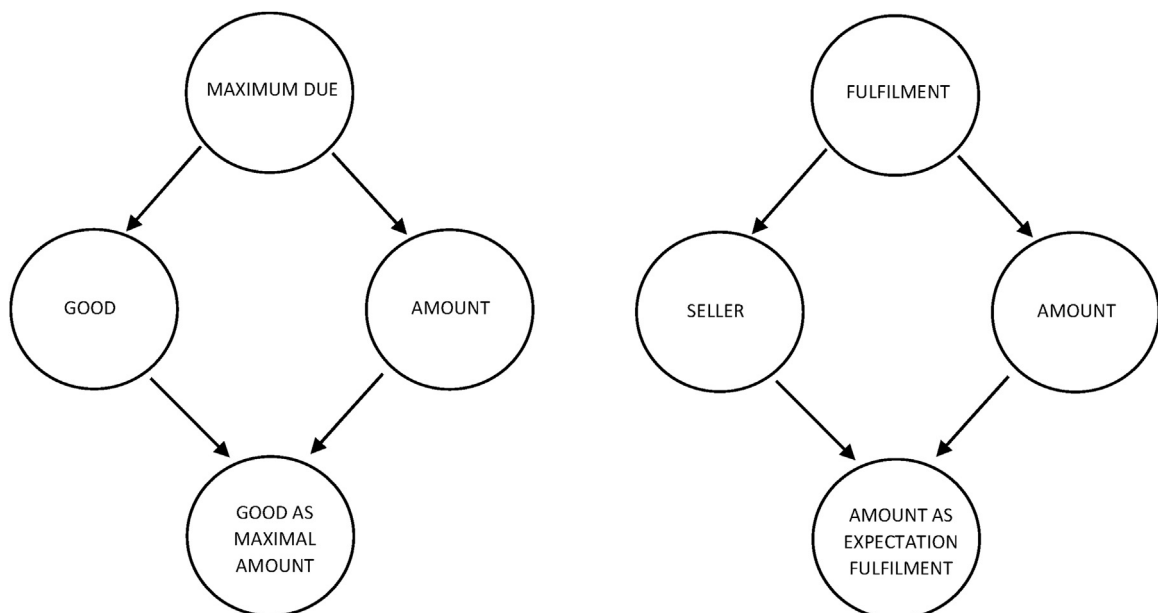


Fig. 12. Conceptual blending for the NOM-ACC₁-ACC₂ construction.

42. *Thei ouhte haue ynowh to doone to paye ayen to the king* (Pilgr. L. Manh., 15th c.)
 ‘They ought to do enough in order to please back the king’

Thus, the prototypical schematic origin of the term must project the meaning of appeasement/content of an entity, understood as a discharge of a state of tension wherein this entity is found. It is interesting to note here that through an analysis of 340 random instances of *pay* manually annotated for the semantic features of Direct Object, Indirect Object as well as Voice for 13th, 14th and 15th c. CE (extracted from the Corpus of Middle English Prose and Verse, University of Michigan), the same conclusion is borne out. It is shown that for both senses PAY and CONTENT for the 13th century where the term is for the first time attested in English, the semantic distribution of a single direct object in the argument structure of the term is shared by PAY and CONTENT, without any considerable variation found between them (ϕ -coefficient = 0.2; Fig. 13).

The same outcome is yielded through the application of hierarchical agglomerative clustering, if applied for the senses detected in the analysed concordances. The method results in a hierarchical representation of the “closeness” of the senses, based on the across-senses similarity of the encoded features, understood as “distance” in a relevant fashion (cf. Levshina, 2015, chpt. 15; Divjak and Fieller, 2014). As we can see, rather surprisingly, PAY is clustered with CONTENT and not with OFFER, as would possibly be expected on grounds of valence and (di)-transitivity (Fig. 14).

For the case of *pleróo*, the analysis explicated the participation of the image-schema of CONTAINER in a transitive construction, as the landmark upon which a prototypically animate agent acts, so that the CONTAINER fulfils its maximal potential. In the case of APPEASE/CONTENT, in contrast, the *tension reaches a minimum*. If we equate the state of appeasement with reaching a lowest point of discharge, then a downward scale as a motivating schema may appear to be appropriate. However, as we saw, although the metaphoric interpretation LESS-MORE in terms of an upward scale appears to be inferential to the situation of filling up a container, it is not sufficient to motivate the projection of maximality as a telic amount. Similarly, the inverse scale MORE-LESS does not seem to be sufficient for the schematisation of APPEASE either, given the presence of the additional element of a telic tensionless state.

To the end of identifying a possible candidate for the schematic motivation of English *pay*, I want to argue for a solution that makes use of the notion of *multimodality* in their interpretation. The emergence of image schemas stems from experiences that cut across a range of different modalities. This implies that they are not specific to a particular sense. In this light, not only are image schemas primarily non-imagistic, but are also “buried deeper” within the cognitive system (Evans and Green, 2006, p. 186), as abstract patterns free from conscious introspection (op. cit.). This view has the following plausible consequence. The motivation of a term may well be not conceptually limited to a particular proto-scene encoded through a crystallised schematic frame. Instead, it may be more abstract, sanctioning the organisation of frames that may be very distinct to each other regarding their ontology.

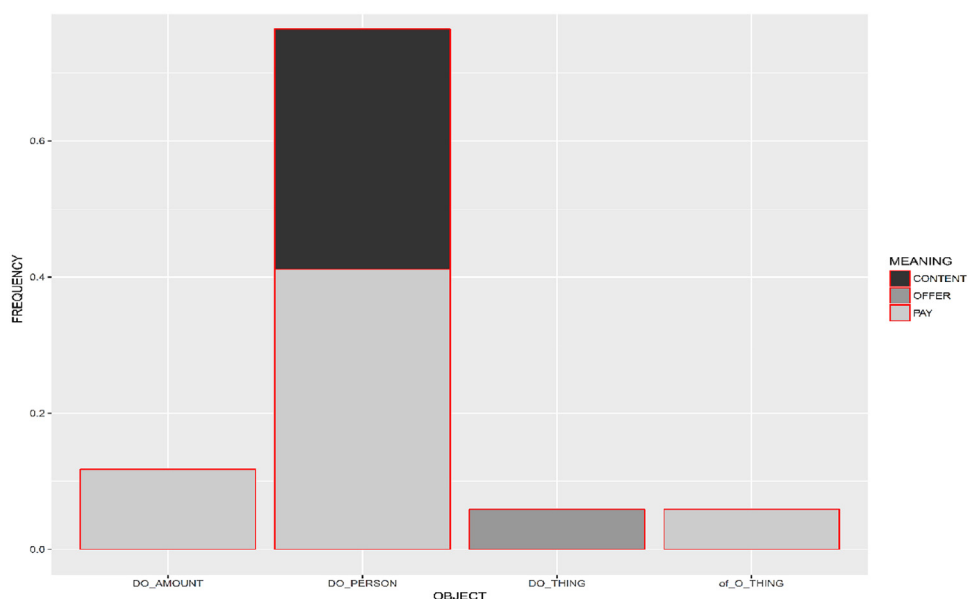


Fig. 13. Distribution of OBJECT over semantic types for the CONTENT, OFFER, PAY in 13th c.

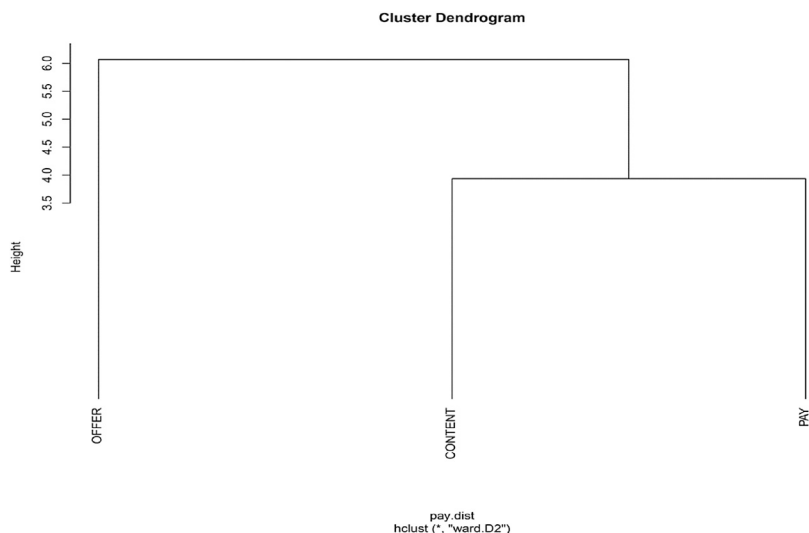


Fig. 14. Hierarchical agglomerative clustering for *pay*, 13th c. CE.

In the light of this assumption, in what follows I will suggest that the image schema that appears to more appropriately motivate the term *pay* in English is that of BALANCE. Although at first glance the construction of APPEASE may look beyond the image schema's scope, at a closer inspection the verb's semantic constitution maps meaningfully into it, not only in its literal meaning but also in its semantic extension as PAY.

Already in the first approaches to image schemas in literature, the image schema of BALANCE is analysed precisely in the light of its multimodal origin. Johnson (1987, pp. 74–76), arguing for the pre-conceptual nature of it, detects what he calls “systemic balance” in the bodily experience of any excess in heat, dryness, pressure etc., beyond a level of equilibrium. Thus, along with the unconscious mastering of balancing rules that we all obtain early in our lives as a consequence of our interaction with the world, we similarly respond to any felt imbalance and disequilibrium by adding heat, giving moisture, relieving pressure etc., until internal corporal balance is regained. Crucially, the meaning of balance emerges both through the “acts of balancing and through our *experience* of systemic processes and states within our bodies” (Johnson, 1987, p. 75), having a common root “buried deeper” in human’s cognitive system (Evans and Green, 2006, op. cit.).

What is the pre-conceptual structure of the image schema of BALANCE? It is a schematic dynamic system of forces, around an axis of equal distribution or mutual cancelation of them. Any unequal distribution around this axis generates a *tension*, sensed in spatial, visual, thermal or any other field (Arnheim, 1974, chpt. 1). The axis itself is the *point of rest* (Arnheim, 1974, pp. 13–14). Importantly, the forces to be balanced or “cancelled off” can be psychological as well as physical, depending on the reality that the image-schematic system maps into. The image schema of AXIS BALANCE is given in Johnson (1987, p. 86), depicted in Fig. 15.

Emphasising once more on the fact that depictions like this in Fig. 16 are not tied to particular images (Johnson, 1987, p. 79), I argue that the sense of APPEASE as well as its semantic extension as PAY are held together by the BALANCE schema. The latter acts as their prototype, on a par with the CONTAINER image schema being the prototype of FILL and its extension PAY in Greek. The components of the BALANCE schema that stand in a definite relation to each other, thus rendering it a system, neatly and meaningfully map onto the semantic components of APPEASE. Similarly to what holds of the case of *pleróo*, the BALANCE schema is embedded in a transitive construction, with two arguments: an APPEASER trajector and an APPEASED landmark.

More concretely, the schema’s components are an AXIS as a state of equilibrium and the FORCES distributed as potential or actual TENSIONS around it. On the other hand, the semantic components of APPEASE are the following: a point of psychological/mental balance or lack of unrest at which a landmark tends to return, and the forces exercised by a TR that restore the LM’s position of rest. However, and very relevantly to the present analysis, the exercise of force on the part of the TR does not restore the LM’s position directly and automatically, but only through the redistribution of the forces that surround its axis of equilibrium, which cancels the tensions off. Consequently, TR’s action of appeasement is one of *counterforce*, based on the property of *symmetry*, inherent to the schema (Johnson, 1987, p. 97).

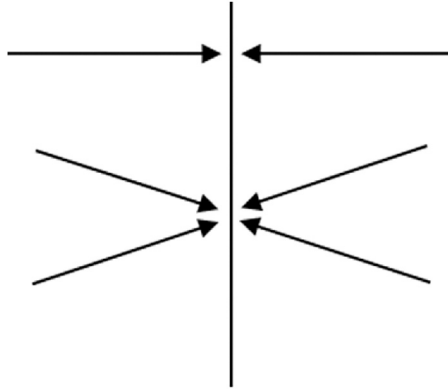


Fig. 15. Image-schema for AXIS BALANCE.

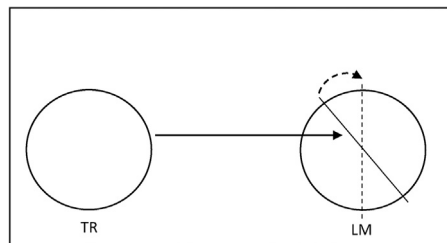


Fig. 16. Image-schematic configuration for the construction of APPEASE.

Johnson distinguishes among various types of balance that, although manifesting themselves in very disparate domains, stem from a unique prototypical schema. Thus, he identifies types such as *systemic*, *psychological* and *legal/moral* balance. The first reduces to the dynamic, interactive and distributive nature of the schema's components. The second yields the conceptualisation of mental and emotive stability, whereas the third includes concepts such as the weighing of legal penalties that restore the balance that has been upset by an unlawful action (Johnson, 1987, pp. 87–90).

In accord, I argue that APPEASE is feasibly sanctioned by the BALANCE schema, profiling the reduction of an existing tension until the landmark upon which the tension is acting reaches a point of internal rest or PEACE. Nevertheless, the reduction of the tension is not understood as arising automatically but as a result of a compensating force that cancels off the tension exercised upon the landmark, by a trajector. Thus, on a par with the depiction in Fig. 10 for the sense of FILL, a possible image-schematic figuration of the construction of APPEASE wherein the BALANCE schema is embedded, is given in Fig. 16.

We saw above that the Greek construction manifests characteristics of integration taking place between the MAXIMUM on a scale of DUE, with the maximality of the material extension of the GOODS on the one hand, and DUE AMOUNT with the FULFILMENT of personal expectation on the part of the SELLER, on the other. Hence, DUE constitutes a generic space whose schematic makeup facilitates the integration between the input spaces of GOOD and AMOUNT as well as between these of SELLER and AMOUNT. However, not only Modern but also Middle English data suggest a different path. In English, the GOODS have never been coded as a direct object:

43. **John paid the car.*

Instead, GOODS are always expressed with an oblique argument, introduced by *of* or *for*.

44. *they do not pay for pannage* (English Reg. of Gotstow, c.1450)
'They do not pay for acorn'

As a direct argument of *pay* is allowed, beyond the SELLER or otherwise PROVIDER of GOODS, only the COST expressed numerically and a noun that is directly understood in terms of a numerical value:

45. *Godstowe shold pay...xxv marke* (English Reg. of Gotstow, c.1450)
‘Godstowe should pay 25 marks’

46. *summe of hem...paye þefore a gret tribute euery ȝere.*
‘Therefore, they should pay a great tribute every year’

What is the reason underlying this asymmetry between Greek and English? In Greek, the extension of the sense PAY followed an extension of the range of arguments in the position of direct object within the construction of *pleróo*, from a non-animate entity that elaborates the schema of CONTAINER, to an animate entity. This extension is collinear to the evolution of the sense of FILL into SATISFY, respectively. In English, on the other hand, the evolutionary path followed the reverse direction. The prototypical and historically primary sense of APPEASE entails an animate object, which is what is attested prototypically. This, in turn, is extended towards a numerical value or a thing that specifies it, such as *tribute*, *rent*, *fair*, etc. In what follows, as for the case of *pay* in Greek, I intend to demonstrate that asymmetries of this type have an image-schematic origin that constrain the evolutionary path of a term and are attested all the way down to the realisation of its constructional possibilities. I also intend to show that the constraints imposed by the image-schema of BALANCE are present all the way through the sense of APPEASE to that of PAY.

4.3. Mapping constructional asymmetries onto variant image-schematic origins

We saw above that the generic space of TELICITY specified either as a MAXIMUM DUE or FULFILMENT is a dynamic structure that profiles both a CONTAINER as well as a state of FULLNESS. Something similar holds of the schema embedded in the transitive construction of *pay*. The latter profiles not only a state of rest but also a pair of forces that counter-balance each other and result to it. How plausible is in principle a theoretical link between the schematic system of BALANCE and PAY? We saw that Johnson (1987) presents a convincing argument for BALANCE being the image-schema underlying equilibrium, mental balance, corporal experience of any excess that affects it, etc. He also extends the relevance of it to culturally institutionalised systems such as the legal system, where penalties forcefully counter-balance an unlawful action. It is only natural to assume that there is a common schematic origin that links the architecture of legal system to that of COMMERCIAL TRANSACTION, where the AMOUNT PAID of the COMMERCIAL FRAME corresponds to the PENALTY in the LEGAL SYSTEM, whereas the GOODS correspond to the UNLAWFUL ACTION, respectively. This is the very reason motivating the metaphoric conceptualisation of the legal system in terms of a commercial transaction, where the legal penalty counter-balances the commitment of crimes:

47. *He will pay with years in prison for his crimes.*

This is additionally the reason that an archetypical object featuring in both systems is a balance as an apparatus for weighing, with a central pivot a beam, and two scales. In the realm of law, balance as an instrument of the personification of justice metaphorically interprets the jurisdiction as an impartial decision that cancels off the weight of actions with that of a sentence (Fig. 17).

The schema in Fig. 17 precisely corresponds to a specific two-dimensional version of balance in Johnson (1987, p. 86), named as “twin-pan balance”, where the one pan represents the tension exercised either by an unlawful action or a good, whereas the other represents the counter-balancing tension of penalty or amount paid, respectively (Fig. 18).

Hence, APPEASE as an action that compensates for a counterforce, thus bringing the system of a landmark to a state of rest, integrates with an elaboration of Fig. 16, extending APPEASE into PAY (Fig. 19).

There is another question that has to be addressed, though: Why is it that *pay* can profile as its LM the AMOUNT, but never the GOODS? In other words, why does the compensation profiled by *pay* cannot be seen as affecting directly the THING itself sold? In any case, we have seen that blending between the GOODS and AMOUNT is conceptually feasible in principle, as shown for the case of Greek.

The answer may come from the internal dynamics of the image-schemas themselves, revealing a principle buried deeper in the human’s cognitive system. This relates to the ability of metaphorically identifying the existence of an entity with its material presence, an identification that has already been treated in literature, through the directional association between EXISTENCE and PRESENCE (c.f. Lakoff, 1987, p. 397; Lakoff and Kövecses, 1987, p. 210). In Greek, the tensions of value of some GOOD and its materiality are conceived as co-directional, facilitated by the image schema that



Fig. 17. Balance in commerce and justice.

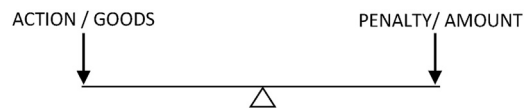


Fig. 18. Twin-pan balance.

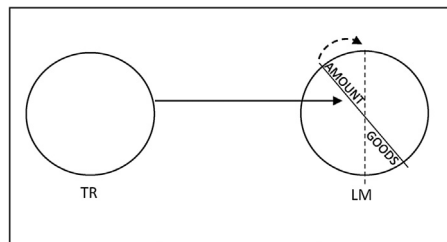


Fig. 19. Image-schematic configuration of the construction of PAY.

sanctions their integration, namely CONTAINER. In a relevant sense, material completeness is uni-directionally co-extensive to the completeness of the due value.

In contrast, in English, the extension of value is schematically represented as counter-directional to that of the GOODS's materiality. This is so because the extension of APPEASE as PAY retains as its profile a diminishing tension that, instead of a maximum, reaches a zero point. Hence, it stands to reason to argue that fitting an integration of two vectors conceptualised as uni-directional as well as co-extensive under a schema whose inherent dynamics split it into two counter-directional tensions presents a problem of conceptual compatibility (Fig. 21).

In principle, a numeric value can be construed either as an increasing or decreasing vector on the basis of a schematisation of the VALUE as DUE that is either FULFILLED or DISCHARGED, a fact attested in Greek and English, respectively. However, the constructional extension of a schematic DISCHARGE towards the semantic participant of GOODS seems to lead to a conceptual violation, as it forces a material THING to be construed as diminishing, when actually it sanctions the positive tension of the image schema of balance, as shown above. Accordingly, we understand why the prototypical expression of GOODS is an oblique argument expressing the pole against which a discharge must take place, either this concerns the VALUE of it or its SELLER. The GOODS' expression through a prepositional phrase shows precisely that this argument as a landmark is peripheral to the process profiled by *pay*, resisting to its fusion with the latter's schematic motivation.

5. Summary and conclusions

This work tried to draw a conceptually motivated link between image-schematic organisation and the constructional possibilities of externalising a semantic frame. In this light, it explored the hypothesis that constructional asymmetries across languages can be treated as a special case of near-synonymy. Under this view, constructions are entrenched

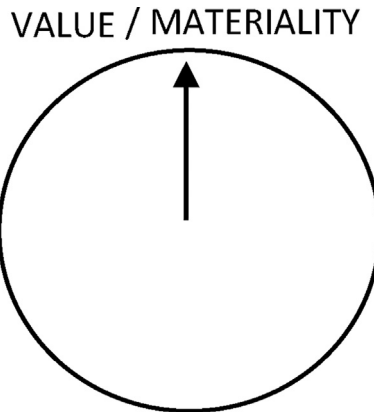


Fig. 20. Uni-directionality of co-extension between MATERIALITY and VALUE.

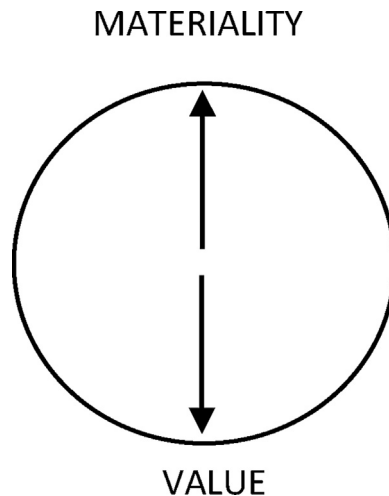


Fig. 21. Counter-directionality of co-extension between MATERIALITY and VALUE.

perspectivisation mechanisms over a given semantic frame, whose situational ontology across languages may appear stable and invariant. Hence, in the light of more recent work that extends invariance principle to the role that semantic frames play as a motivating gestalt, the present work attempted to draw a similar link between image-schemas and the constructions that externalise semantic frames.

It argued that the semantic relevance of constructions can be traced to the organisation and inferential structure of image schemas underlying the organisation of the semantic frames. In a relevant sense, grammatical organisation at a schematic level is inferential too, standing at correspondence with the internal organisation of image-schemas. This is an interesting possibility that would methodologically re-interpret both verbal valence and case distinctions. These could be treated as prototypical categories, in a relevant sense (cf. [Croft, 2001](#), sec. 2.4.5), stemming from the image-schematic gestalt that sustains their link. As alluded to above in the text, this view on case-organisation as a construing network over the semantic relations of any verb in a frame can account for the lack of uniformity over verbs that otherwise inherit the organisation of ontologically identical frames, as is the case of *pay* and *plirano* in relation to TRANSFER. In contrast to what would normally be expected in a treatment stemming from case-frame and case-grammar theory that link a verb's valence with its grammatical context, the present analysis allows for a motivated treatment of finer case distinctions. These descend from a semantic origin beyond the frame semantics of a given term.

The assumption was motivated by a specific number of asymmetries found between English and Greek, in the expression of the sense of PAY in the COMMERCIAL TRANSACTION frame for the two languages. Although the semantic participants and relations listed in the frame appear identical for both, the expression of them in constructional terms is asymmetric. More concretely, Greek affords Accusative Case for the expression of the GOODS participant, as if this were a direct object, whereas English codes it as an indirect oblique object expressed with a *for*-phrase. Additionally, the indirect object of SELLER, when this encodes the RECIEVER of AMOUNT, is expressed through Accusative and not Dative, as normally would be expected, given that the frame that the COMMERCIAL TRANSACTION partially sanctions is that of TRANSFER. This was taken as an additional indication that the constructional schema of transfer NOM-ACC-GEN and its dative-shift alternation is not immediately relevant to that of commercial transaction NOM-ACC₁-ACC₂.

Accordingly, the present work traced the origin of these asymmetries into the gestaltist organisation of image schemas underlying the prototypical meanings of the terms in Greek and English, namely FILL and APPEASE/CONTENT, respectively. It argued that the image-schema relevant to the motivation of the prototypical sense of Greek is that of CONTAINER, whereas for English that of BALANCE. First, the evolution of the term *plirono* was traced, through a proliferation of senses whose general strand passes from FILL to COMPLETE and from there to FULFILL, SATISFY and finally PAY, along with concomitant changes in the profile within the CONTAINER image schema. It was shown how the dual use of ACC for the expression both of the AMOUNT and AMOUNT RECEIVER may stem from a conceptual integration of both under the schematic compatibility of the relations into which the two arguments participate, namely FULFILL and SATISFY. In this light, through an association between the VALUE understood as a vector with MAXIMUM DUE to-be-reached and the material extension of the GOODS – conceptualised as a metaphoric relation between EXISTENCE and MATERIAL PRESENCE – both arguments are integrated also at a level of construction.

In English, on the other hand, the internal organisation of BALANCE image schema seems to afford a narrower range of possibilities for argument integration between GOODS, AMOUNT to be paid and AMOUNT RECEIVER. APPEASE infers a downward extending vector that leads to the discharge of the tensions that have generated a state of imbalance. The satisfaction can easily be inferred as a metonymic association between APPEASEMENT and CONTENT, but the latter cannot incorporate under its schematic origin the materialness of GOODS. Although the association EXISTENCE-MATERIAL PRESENCE on the one hand and MATERIAL PRESENCE-DUE VALUE on the other are independently operative, when both are construed on the basis of a diminishing tension a conceptual incompatibility arises, due to the fact that MATERIAL PRESENCE cannot be conceptualised as such. It seems that it is not possible to fit an integration of two vectors conceptualised as uni-directional as well as co-extensive under a construal whose inherent dynamics split it into two counter-directional tensions.

The importance of this study lies in extending a long-lasting hypothesis towards the inclusion of constructional concerns as motivated perspectivalisations. It coherently subsumes constructions to the bipolar symbolic function and re-introduces etymological studies under a new light of a comprehensive cognitive theorising. The stance taken over the issue can also be seen as illuminating an aspect of linguistic relativity, meaningfully linking image-schematic universality and constructional variation. What surfaces as discreteness of constructions may actually be a projection of an image-schematic gestalt organising the semantic frames that underlie the respective constructions.

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