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Force Dynamics, Image Schemas, and Constructional Polysemy in the Prepositions ἐπί and κατά in Postclassical Greek*

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Abstract: Greek prepositions ἐπί and κατά are among the most semantically complex in the Koine lexicon, generating English glosses that offer little coherent explanation for their diversity. This article argues that force dynamics—the cognitive-linguistic account of forces, counterforces, and causal relations—provides a unified semantic basis that conventional gloss-based approaches cannot. Drawing on over 10,000 tokens from the Septuagint, New Testament, and extra-biblical Koine sources, the study identifies a force-dynamic image schema for each preposition and shows how schema transformations generate constructional polysemy across physical, cognitive, and social domains. For ἐπί, a downward TRAJECTOR force and the stabilizing counterforce of a LANDMARK motivate constructions from physical stacking and attachment to abstract emotion, causality, authority, and conflict. For κατά, a TRAJECTOR propelled along a conforming LANDMARK path accounts for downward motion, distribution, conformity, manner, and opposition. The analysis concludes with practical guidance for translators and teachers: attending to force-dynamic structure rather than glosses enables more principled, consistent comprehension across contexts.
Keywords: cognitive linguistics, force dynamics, construction grammar, preposition semantics, embodied cognition

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1 Introduction

Force is ubiquitous in daily life. We act and are acted upon by causal sequences that require the exertion of force. Typical force interactions shape our inferences about the world and how we communicate in language. You may not be cognizant of gravity, but you need only pick up an object and drop it to note its effects (Johnson 1990:42).[1] As a semantic category, *force dynamics* refers to the interaction of forces, counterforces, and causal relations. In this paper, we explore the force-dynamic aspects of Greek prepositions ἐπί and κατά. Consider the following examples for these prepositions:[2]

(1) καὶ ἔλαβεν Σαοὺλ [TR] τὴν ῥομφαίαν καὶ ἐπέπεσεν **ἐπ' αὐτήν** [LM].
Saul [TR] took his sword and fell **on it** [LM] (LXX 1 Chronicles 10:4).[3]

(2) φοβούμενοί τε μή που **κατὰ τραχεῖς τόπους** [LM] ἐκπέσωμεν [TR]
ἐκ πρύμνης ῥίψαντες ἀγκύρας τέσσαρας.
Fearing that we [TR] might run aground **against the rocks** [LM], they dropped four anchors from the stern (Acts 27:29).[4]

There is a spatial component to the statements in (1) and (2). Saul is in a position over his sword and falls in the direction of the sword from above. In Acts, Paul and his fellow travelers are on a ship in the Mediterranean Sea when they are caught in a storm. Their ship could run aground along the rocks, so they drop anchors from the stern to hold their location steady.

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[1] In our discussion of force dynamics, we include gravity as an example of one type of force. This is not an assertion about how gravity and force are defined in scientific fields of study, but an observation about everyday human experiences of gravity and other forces. Gravity represents a naïve experiential category shared by all humans because of the nature of our embodied experience on planet Earth.

[2] Prepositions are relational. They relate two entities relative to each other. We use the Cognitive Linguistic terms TRAJECTOR [TR] and LANDMARK [LM] to refer to these two entities. The TRAJECTOR is the primary figure in the scene. It is the element in focus and the thing being located. The LANDMARK is the ground, relative to which the TRAJECTOR is located. Typically, the TRAJECTOR is more mobile, and the LANDMARK is the more stable entity. In example (1), Saul is the TRAJECTOR in the scene as the element being located relative to his sword, the LANDMARK.

[3] All translations are the authors' own unless otherwise noted.

[4] These examples, from the Septuagint and New Testament respectively, function only to introduce the topic of force dynamics in a manner that is transparent to the reader, independent of issues involving the nature of translation Greek or the possibility of so-called "Semitic influence". For discussion of our corpus choices and the reasons behind those choices, see below in section 2, "Corpus, presuppositions, and theory".

There is also a key force-dynamic aspect to each expression. Saul in (1) relies on the force of gravity as he falls downward. His sword provides a counterforce or opposing force that when pressed against via gravity pierces him through. The opposing force of one object against another results in Saul's death. In example (2), the force of the winds and water current compel the ship in one direction, but Paul and his compatriots fear that this path will splinter the ship against the rocks, or at least end their journey quickly. The rocks supply a stabilizing counterforce to the storm that opposes the sweep of the waves as they crash against the land. It is when these two opposing forces meet that the ship could become compromised.

- The domain of space involves location, direction, configuration, and movement.
- The domain of force involves cause, control, effect, and interaction (Talmy 2000; Zwarts 2010).

Force dynamics seeks to understand how causal concepts involving force are represented in language and cognition. Its origins lie in Cognitive Linguistics, especially the work of Talmy (1981, 1985, 1988) and Sweetser (1982, 1984, 1990). The force domain captures a naïve metaphysics of how humans experience everyday forces through embodied interactions, including the interplay of applying, resisting, overcoming, and removing forces, as well as the source, direction, and magnitude of forces present in a scene (Wolff 2017; Copley 2019; de Mulder 2021). Investigations into verbal semantics (Siskind 2001) and grammatical constructions (e.g., causatives [Talmy 2000], modality [Sweetser 1990; Boye 2005], subjunctives [García Yanes 2022], complement clauses, object-to-subject raising, and split infinitives [Hilpert 2025a]) illustrate the ways in which force is fundamental to language and cognition because it is fundamental to our lives. A growing number of scholars recognize the importance of force dynamics in the analysis of prepositions (Dewell 1994; Bowerman 1996; Garrod *et al*. 1999; Tyler and Evans 2001; Zwarts 2010; R. Aubrey 2022). Prepositions are implicated in force dynamics by nature of their function of locating a TRAJECTOR entity relative to a LANDMARK entity (Beliën 2002; Gärdenfors 2015, 2020). The way these two entities interact, whether in terms of motion, location, or other arrangements, may naturally be motivated by force dynamics as a result of our embodied experiences.

This analysis examines how the human experience of forces and efforts to counteract those forces structure the meaning of Greek prepositions in the physical realm, and how force-dynamic patterns motivate usage in abstract domains. The prepositions ἐπί and κατά are commonly considered two of the more difficult prepositions to understand as they are used in a variety of contexts with English glosses that proliferate without apparent reason. We suggest that

force dynamics represents the unexplored but essential element by which the diversity of these two prepositions may be accounted for in a cognitively plausible manner.

2 Corpus, presuppositions, and theory

This research exists within a larger ongoing project on the syntax and semantics of prepositions in Postclassical Greek for supporting Bible translation within the theoretical space of Cognitive Linguistics. We prioritize the Greek Bible for our analysis. For the preposition ἐπί, we examined 8,084 tokens in total, including 7,197 from Swete's (1909) diplomatic edition of the Septuagint and 887 tokens from Holmes's (2010) *Greek New Testament: SBL Edition*. For the preposition κατά, we examined 2,583 tokens in the Greek Bible (2,113 in the LXX and 470 in the NT). Because of the lower frequency of κατά, we extend our analysis to extra-biblical texts in order to more effectively illustrate the relationships between concrete usage and abstract extensions. This was regularly necessary, as will be evident in section 4 below.

Adopting the Greek Bible as a corpus raises questions regarding naturalness and quality. The past 150 years have seen dramatic swings in attitudes toward these texts for understanding natural Greek usage. Late nineteenth and early twentieth century writers expressed ideas about the Greek Bible as written in "a language of the Holy Ghost" (Cremer 1895:iv) for the New Testament, or as "hardly Greek at all, but rather Hebrew in disguise" (Conybeare and Stock 1905:21) for the Septuagint. With the discovery of documentary papyri in Egypt, scholars like Deissmann (1901) and Moulton (1906) advocated a reanalysis of these texts as local vernacular Greek. But after their deaths, attitudes shifted again toward the Jewishness of Biblical Greek, notably with Turner (1963) marking a clear break with Moulton (1906) despite his ostensibly continuing and completing Moulton's multi-volume grammar. This view has remained popular within biblical studies, yet the papyrologists knew better (e.g., Mandilaras 1972, 1973). Eventually the pendulum began to swing back toward Deissmann and Moulton once more. A direct and explicit critique came from Horsley (1989a), first in a thoroughgoing criticism of the concept of "Jewish Greek",[5] and then in a complete deconstruction of Turner's (1963) grammar and criticism of Blass

[5] The term "Semitic influence", to the extent it is a valid category, lacks motivational power. Its use in the study of the Septuagint and New Testament functions as little more than a stand-in until biblical scholars begin exploring actual mechanisms by which multilingualism is realized (e.g., structural priming, cf. Gries and Kootstra 2017). Though linguistically dated, Mussies (1971) is a model for how biblical scholars could interact with the linguistic literature.

et al. (1961) in Horsley (1989b). More recently, Lee (2019) and Aitken (2014) provide compelling arguments that the most important starting point for understanding the language of the Septuagint is not the Hebrew source text, but all contemporary Greek texts. This does not mean denying the influence of the Hebrew source text but first giving priority to understanding the Septuagint as Greek.

This perspective on the Septuagint and Biblical Greek matters in two respects. First, the research cited above has consistently illustrated that numerous historically conceived "Hebraisms", when compared against the larger contemporary Greek corpus, consistently find natural Greek parallels. Second, within the larger diachronic flow of the language beyond the production of the Septuagint into the first century and following, the Greek of the Septuagint is simply a characteristic of the language going forward in the same way the King James Bible is a trait of the English language going forward after 1611. It is also a trait of the language that exists alongside larger trends of koineization and dialect contact that likewise affected the structure of Greek post-Alexander the Great's conquests (Horrocks 2010:79f.), something that is often unintentionally downplayed by biblical scholars when they focus so closely on so-called "Semitisms". In a similar vein, Classicists and Greek linguists who prioritize the diachronic study of the earliest periods of the language tend to conclude their work before the Septuagint, something that makes its apparent non-Greek nature seem stronger. Bortone (2010:176) describes this situation well:

> We should recognize that many historians of Greek have underrated the importance of the innovations found in Biblical Greek because their interest was in the history of the language only up to the Hellenistic period, and rarely beyond. If the Greek of the Bible is taken as a point of arrival, its significance is relatively limited; but if one observes the history of Greek in all its course, Biblical Greek turns out to also be a point of departure, the beginning of new Greek usage.
>
> Even innovations which are certainly semitisms (such as loans "within the Bible" from the Old Testament to the New), and which are therefore not representative of Greek speech of the time, may have become part of common Greek subsequently.

We must also comment briefly on the relationship between prepositions and cases in Classical and Postclassical Greek. First, traditional dictionaries and grammars already tend to obscure the degree of semantic overlap across cases and oversimplify the reality of the actual language data. For example, Liddell *et al.* (1996:621–623) organize nearly their entire entry for ἐπί around case usage. However, Luraghi (2003:298) emphasizes and illustrates with clear examples the more complex reality in Classical Greek: "The particle *epí* displays a high degree

of semantic overlap with different cases, and, with respect to the other prepositions, a lesser tendency toward simplification in post-Homeric Greek." Further, to the extent case assignment with prepositions did play a role in earlier eras of the language, these patterns are affected by diachronic change. Horrocks (2010) describes a reduction of dative usage and a corresponding increase in alternatives using prepositional phrases, "particularly in certain adverbial functions (such as temporal, comitative, causal and instrumental)" (2010:97), along with an increased preference for the accusative for prepositions that otherwise would have preferred the dative (108).

Within this context, Postclassical Greek represents a period of diachronic shift in case usage in prepositional phrases. Seržant and Rafiyenko (2021:190–197) document a tripartite marking of SOURCE with the genitive, PLACE with the dative, and GOAL with the accusative in Homeric Greek with the preposition παρά (192–193). They describe case as marking directionality and the preposition marking the spatial configuration. For the changes from earlier eras to Postclassical Greek, they observe:

> The morphological make-up of the directionality distinctions found in early Ancient Greek is a pattern that is cross-linguistically dispreferred in at least the three respects discussed above. Accordingly, we expect that this pattern will not be particularly stable in the long run. Indeed, Greek abandons the pattern through the following changes: first, the flexible position of the adpositions is abandoned and the prepositional use is generalized; secondly, case gradually ceases to encode directionality distinctions; and, thirdly, there is a general trend towards lexicalizing one case per preposition (2021:194).

Rather than a specific case assignment selecting the semantic meaning of a prepositional phrase, we find instead that certain semantic types merely show preferences for case usage. Semantic overlap persists such that only provisional observations can be posited without discrete boundaries between meaning and case usage patterns. The preposition ἐπί exhibits semantic overlap in its case usage so that extricating a single case assignment with a specific meaning is remarkably convoluted, much like what Luraghi (2003:298) describes above for Homeric and Post-Homeric Greek. In our corpus, REASON constructions frequently prefer a dative dependent noun phrase, as in example (3).

(3) καὶ ἀποκριθεὶς Σίμων εἶπεν· Ἐπιστάτα, δι᾽ ὅλης νυκτὸς κοπιάσαντες οὐδὲν ἐλάβομεν, **ἐπὶ δὲ τῷ ῥήματί σου** [LM] χαλάσω τὰ δίκτυα [TR].
Replying, Simon said, "Master, through the whole night, albeit working hard, we caught nothing, but **on your word** [LM], I will let down the nets [TR]" (Luke 5:5).
ἀθετήσας τις νόμον Μωϋσέως χωρὶς οἰκτιρμῶν **ἐπὶ δυσὶν ἢ τρισὶν μάρτυσιν** [LM] ἀποθνῄσκει [TR].
Anyone who rejects the Law of Moses dies [TR] without mercy **on [the testimony of] two or three witnesses** [LM] (Hebrews 10:28).

Nevertheless, accusative and genitive are permissible at lower frequencies in the corpus, as in example (4).

(4) **Accusative**:
στραφεὶς δὲ πρὸς αὐτὰς ὁ Ἰησοῦς εἶπεν· Θυγατέρες Ἰερουσαλήμ, μὴ κλαίετε [TR] **ἐπ᾽ ἐμέ** [LM]· πλὴν **ἐφ᾽ ἑαυτὰς** [LM] κλαίετε [TR] καὶ **ἐπὶ τὰ τέκνα ὑμῶν** [LM]
Turning to them, Jesus said, "Daughters of Jerusalem, do not weep [TR] **for me** [LM], instead weep [TR] **for yourselves** [LM] and **for your children** [LM]" (Luke 23:28).
Genitive:
κατὰ πρεσβυτέρου κατηγορίαν [TR] μὴ παραδέχου, ἐκτὸς εἰ μὴ **ἐπὶ δύο ἢ τριῶν μαρτύρων** [LM].
Do not take up an accusation [TR] against an elder except **on** [the evidence of] **two or three witnesses** [LM] (1 Timothy 5:19, see also Matthew 18:16).

Topic ἐπί expressions may be encoded with any of the three cases: accusative, genitive, and dative, as illustrated in example (5).

(5) **Accusative**:
ὁ δὲ ἔφη αὐτοῖς· Ἠλίας μὲν ἐλθὼν πρῶτον ἀποκαθιστάνει πάντα, καὶ πῶς γέγραπται [TR] **ἐπὶ τὸν υἱὸν τοῦ ἀνθρώπου** [LM] ἵνα πολλὰ πάθῃ καὶ ἐξουδενηθῇ;
Then Jesus said to them, "Certainly Elijah does come first and restores all things. So why is it also written [TR] **about the Son of Man** [LM] that he must suffer many things and be rejected?" (Mark 9:12).
Genitive:
περὶ δὲ τῶν νεκρῶν ὅτι ἐγείρονται οὐκ ἀνέγνωτε [TR] ἐν τῇ βίβλῳ Μωϋσέως **ἐπὶ τοῦ βάτου** [LM] πῶς εἶπεν αὐτῷ ὁ θεὸς λέγων· Ἐγὼ ὁ θεὸς Ἀβραὰμ καὶ ὁ θεὸς Ἰσαὰκ καὶ ὁ θεὸς Ἰακώβ;
About the resurrection of the dead, have you not read [TR] in the Book of Moses **at the burning bush** [LM] how God said to him, "I am the God of Abraham, the God of Isaac, and the God of Jacob"? (Mark 12:26).

Dative:
οὐ γὰρ συνῆκαν [TR] **ἐπὶ τοῖς ἄρτοις** [LM], ἀλλ᾽ ἦν αὐτῶν ἡ καρδία πεπωρωμένη
For they did not understand [TR] **about the loaves** [LM]. Their hearts were hardened (Mark 6:52).

With κατά, the accusative case outnumbers the genitive in the New Testament by a ratio of roughly 5:1, yet no semantic type consistently selects one case entirely to the exclusion of the other, especially in a larger corpus. For OPPOSITION expressions, the genitive (Acts 24:1) is more common than the accusative (Acts 25:14), shown in example (6).

(6) **Genitive**:
Μετὰ δὲ πέντε ἡμέρας κατέβη ὁ ἀρχιερεὺς Ἀνανίας μετὰ πρεσβυτέρων τινῶν καὶ ῥήτορος Τερτύλλου τινός, οἵτινες ἐνεφάνισαν [TR] τῷ ἡγεμόνι **κατὰ τοῦ Παύλου** [LM].
After five days, the high priest came down with some of the elders and a lawyer named Tertullus. All of them brought charges [TR] to the governor **against Paul** [LM] (Acts 24:1).
Accusative:
ὡς δὲ πλείους ἡμέρας διέτριβον ἐκεῖ, ὁ Φῆστος τῷ βασιλεῖ ἀνέθετο τὰ [TR] **κατὰ τὸν Παῦλον** [LM]
As they were staying many days, Festus described the case [TR] **against Paul** to the king (Acts 25:14).

For CONFORMITY constructions, the accusative is more common than the genitive, yet both are possible.

(7) **Accusative**:
καὶ υἱοὶ Μεραρεί· Μοολεὶ καὶ Ὁμουσεί. οὗτοι οἶκοι πατριῶν Λευεὶ [TR] **κατὰ συγγενίαν αὐτῶν** [LM].
The sons of Merari were Mahli and Mushi. These are the ancestral houses of the Levites [TR] **according to their lineage** [LM] (Exodus 6:19).
Genitive:
καὶ ταῦτα τὰ ὀνόματα τῶν υἱῶν Λευεὶ [TR] **κατὰ συγγενίας αὐτῶν** [LM]. Γεδσὼν καὶ Καὰθ καὶ Μεραρεί.
And these are the names of the sons of Levi [TR] **according to their lineage** [LM]: Gedshon and Koath and Merari (Exodus 6:16).

No distinct semantic meanings emerge with a clear case assignment for either preposition. These are complex issues, and space does not permit a full discussion here. Still, a central reason that we adopt Construction Grammar within Cognitive Linguistics and advocate for *constructional polysemy* arises from

the inadequacy of interpreting preposition usage solely on the combination of preposition + object + object case.[6] What is more indicative than case marking for understanding preposition meaning is the semantic nature of the elements in the clause together. The TRAJECTOR is the element in focus that is modified by the prepositional phrase. The LANDMARK is the point of reference for locating the TRAJECTOR; it serves as the object of the preposition in syntactic structure. In (8), αὐτῶν τὰ ἱμάτια 'their cloaks' is the TRAJECTOR, as the primary focal element modified by the prepositional phrase ἐπὶ τὸν πῶλον 'on the colt'. The LANDMARK, τὸν πῶλον 'the colt', as the object of the preposition, is the secondary focal point used to locate the TRAJECTOR. We underline the TRAJECTOR [TR] and supply the LANDMARK [LM] in bold.

(8) καὶ ἐπιρίψαντες <u>αὐτῶν τὰ ἱμάτια [TR]</u> **ἐπὶ τὸν πῶλον** [LM] ἐπεβίβασαν τὸν Ἰησοῦν.
And throwing <u>their cloaks [TR]</u> **on the colt** [LM], they put Jesus [on it] (Luke 19:35b).

Together, these elements combine to form constructions. A construction is a conventionalized pairing of form and meaning. Constructions can be of any size, from morphology and lexical items, to phrases, clauses, and larger discourse units. For our purposes, we refer to constructions with prepositions as a form-meaning pairing that combines a TRAJECTOR, a LANDMARK, and a preposition: TRAJECTOR [TR] ἐπὶ LANDMARK [LM]. Depending on the syntax, there is also a verb included in the construction, as is the case in (8) above with ἐπιρρίπτω 'throw'. The meaning of such constructions is not merely the sum of the parts; rather constructions activate semantic frames.

A frame is a structure of knowledge that underlies the meanings of words (Fillmore 2006:267). The meanings of lexical elements in a construction do not exist as a single token in isolation, but are necessarily understood against a backdrop of knowledge about the world. In Greek, the prepositions ἐπί and κατά join with other elements in the clause to form constructions with a variety of semantic meanings, discussed in our analysis below. If TRAJECTOR and LANDMARK are physical concrete objects linked with a verb of motion (e.g., ἐπιρρίπτω 'throw'), then the preposition contributes a force-dynamic relationship between TRAJECTOR and LANDMARK in a frame of physical interaction: their cloaks change location from a starting point to an endpoint and come in contact with the colt. The verb ἐπιρρίπτω imparts path and manner of motion in the scene. As we discuss, the preposition ἐπί collocates with LANDMARKS that can be conceived as stable surfaces. The preposition κατά collocates with LANDMARKS that may be

[6] For an introduction to Construction Grammar, see Goldberg (2006). For an overview of the current state of Construction Grammar, see Fried and Nikiforidou (2025).

construed as directing the path of an action or idea. The constructions we propose in the analysis below are not merely nuances or categories of the preposition; rather they represent high frequency pairings of a constellation of forms with the preposition that together express a particular meaning (see Hilpert 2025b).

A comprehensive analysis of ἐπί and κατά is beyond the scope of this article. We cannot cover every construction type associated with each preposition nor all of their TRAJECTOR-LANDMARK collocations. A representative sample is chosen to illustrate force dynamic meaning in preposition analysis.[7]

3 Force Dynamics and ἐπί

We saw in (1) the way in which *force*, and not merely *space*, helps establish the semantics of the preposition. With this recognition, we consider some of the more conventional and prototypical occurrences of ἐπί and how force dynamics motivate semantics in those situations. We then explore how those same force dynamic interactions provide semantic motivation for a wide range of concrete and abstract usage of this preposition.

To begin, we examine the relationship between the force of the TRAJECTOR coming downward and the counterforce of the LANDMARK that functions to counteract that downward force so that a resulting equilibrium of forces exists between TRAJECTOR and LANDMARK. Our experiential capacity allows us to recognize that we can counteract the downward pull of gravity with stable surfaces and foundations. This knowledge allows us to produce (and talk about) an equilibrium of forces. Perhaps this is merely an elaborate way of saying: "Humans place things on top of other things", but in contexts far less dynamic than Saul's death, it is the force dynamics that are key to comprehension rather than spatial orientation. Jesus's story of the wise and foolish men building houses may be illustrative. We label this the STACK ἐπί construction.

(9) Πᾶς οὖν ὅστις ἀκούει μου τοὺς λόγους τούτους καὶ ποιεῖ αὐτούς ὁμοιωθήσεται ἀνδρὶ φρονίμῳ ὅστις ᾠκοδόμησεν <u>αὐτοῦ τὴν οἰκίαν [TR]</u> **ἐπὶ τὴν πέτραν** [LM]
Therefore everyone who hears these words of mine and does them will be like a wise man who built <u>his house [TR]</u> **on the rock** [LM] (Matthew 7:24).

[7] A more comprehensive discussion of usage for ἐπί and κατά in the New Testament may be found in Aubrey and Aubrey (*forthcoming*).

(10) καὶ πᾶς ὁ ἀκούων μου τοὺς λόγους τούτους καὶ μὴ ποιῶν αὐτοὺς ὁμοιωθήσεται ἀνδρὶ μωρῷ ὅστις ᾠκοδόμησεν αὐτοῦ τὴν οἰκίαν [TR] **ἐπὶ τὴν ἄμμον** [LM].
And everyone who hears these words of mine and does not do them will be like a foolish man who built his house [TR] **on the sand** [LM] (Matthew 7:26).

In (9)–(10), spatial orientation plays little role in understanding Jesus's point. Instead, it is the effectiveness of the LANDMARKS *rock* and *sand* to counteract the destructive force of the storm that grounds the meaning of Jesus's teaching. High quality foundations counteract external forces efficaciously. They are good for stacking things. Low quality foundations succumb to those same forces and fail. They are bad for stacking things. It is the capacity of the rock and the sand *as counterforces* against the storm that motivates the parable. As Lindstromberg (2010:51) observes for English *on*, "If the surface were not there, the Subject would fall – given the presence of gravity." The preposition establishes the relationship between the house and each counterforce LANDMARK.

When the gravity-resisting counterforce of the LANDMARK is profiled without a clear or explicit TRAJECTOR force, it can be tempting to take the LANDMARK force for granted and treat the LANDMARK as merely a location vertically oriented on a surface in space. This is appealing for example (11):

(11) καὶ συνήχθησαν πρὸς αὐτὸν ὄχλοι πολλοί, ὥστε αὐτὸν εἰς πλοῖον ἐμβάντα καθῆσθαι, καὶ πᾶς ὁ ὄχλος [TR] **ἐπὶ τὸν αἰγιαλὸν** [LM] εἱστήκει
Such a large crowd gathered to him that he got into a boat and sat down and the whole crowd [TR] was standing **on the shore** [LM] (Matthew 13:2).

Recognizing that the surface LANDMARK of the shore is stable and counteracts gravity might seem trivial—merely a requisite location to hear Jesus from the boat. Yet that stability is necessary. We rely on it whenever we place one thing on another. Stable surfaces are taken as given, as unmarked defaults, at least, until they're taken away.

(12) θεωροῦσιν τὸν Ἰησοῦν [TR] περιπατοῦντα **ἐπὶ τῆς θαλάσσης** [LM] ... καὶ ἐφοβήθησαν.
They saw Jesus [TR] walking **on the sea** [LM] ... and they were terrified (John 6:19).

The disciples' fear, in (12), only makes sense because the force dynamics intrinsic to human experience assumed by the preposition ἐπὶ are usurped. The configuration of Jesus (TRAJECTOR) on the sea (LANDMARK) undermines everything they know about how the world works and it terrifies them.

Our attention to *forces* rather than *only locations* helps us understand a variety of concrete and abstract constructions with ἐπί. Because this preposition involves the interplay of opposing forces, Greek speakers are able to construe a range of dynamic interactions depending on their communicative needs. The salience of one force over another can be manipulated. While the stabilizing force of the LANDMARK functions as a central prototype for the usage of ἐπί, speakers can use ἐπί in force dynamic contexts where equilibrium is neither a goal nor an ideal. Sometimes the stabilizing counterforce of the LANDMARK plays little role at all, as in (13), a WEATHER ἐπί construction. Other times it is simply made irrelevant by the sheer power of the TRAJECTOR force, as in (14), which we label the CRUSH ἐπί construction.

(13) προσδοκάσθω ὡς ὑετὸς τὸ ἀπόφθεγμά μου, καὶ καταβήτω ὡς δρόσος τὰ ῥήματά μου· ὡσεὶ ὄμβρος [TR] **ἐπ' ἄγρωστιν** [LM], καὶ ὡσεὶ νιφετὸς [TR] **ἐπὶ χόρτον** [LM].
Let my hymn be anticipated like rain and may my words come down like dew, like a rainstorm [TR] **upon the grass** [LM] and a snowstorm [TR] **upon the grasslands** [LM] (LXX Deuteronomy 32:2).

(14) ἐκεῖνοι οἱ δεκαοκτὼ **ἐφ' οὓς** [LM] ἔπεσεν ὁ πύργος [TR] ἐν τῷ Σιλωὰμ καὶ ἀπέκτεινεν αὐτούς
those eighteen people **on whom** [LM] the tower [TR] in Siloam fell and killed them (Luke 13:4)

In both examples, the downward force of the TRAJECTOR is profiled and the counterforce of the LANDMARK is insignificant. Moses, in (13), hopes his hymn will be received by its audience as having the same positive effects of rain and snow on the grass, where in the desert, precipitation is scarce and always welcomed. The LANDMARKS, *grass* and *grasslands* are surfaces that receive the precipitation and benefit from it. Because forces are fundamental constructs to causality, they produce a causal chain between TRAJECTOR and LANDMARK with the resulting effect of the land being nourished. Likewise, example (14) presents a violent expression of causal structure motivated entirely by the overwhelming force of the TRAJECTOR on the LANDMARK, crushing it. The collapse of the Siloam tower brings the mass of the stones down on the people, killing them. The people cannot rally an equalizing counterforce. The downward force provides the impetus for the tower to cause the death of eighteen people.

Even the potential of exerting force is itself sufficient for activating force within a scene. In (15), Jesus uses the CRUSH ἐπί construction metaphorically for the brewing conflict that leads to his crucifixion. Judas is at the table sharing the Passover meal with Jesus and the other disciples.

(15) ὁ τρώγων μου τὸν ἄρτον ἐπῆρεν **ἐπ' ἐμὲ** [LM] τὴν πτέρναν αὐτοῦ [TR].
The one who eats my bread has lifted up his heel [TR] **upon me** [LM] (John 13:18).

The imagery of the scene portrays Judas as lifting his foot (TRAJECTOR) above Jesus (LANDMARK), ready to stomp downward. The force of the stomp is anticipatory. The downward force has not yet taken place and at speech time, it is only potential.

Likewise, when our attention is on the interaction of forces rather than spatial orientation, alternative spatial rotations become simpler to describe. Descriptions of ἐπί based on spatial configurations alone make sentences like (16)–(17) difficult to explain. They might be treated as alternative senses of the preposition or semantic extensions. From the perspective of force dynamics, this is unnecessary. In (16), Zaccheus counteracts the force of gravity by using the support of the tree. His hands and feet grip against the surface of the tree as he pulls himself upward to climb higher (ἀνέβη 'climb up'). We can label this the ATTACH ἐπί construction, involving a more complex interaction between TRAJECTOR and LANDMARK than the STACK ἐπί construction. Thus, the spatial orientation of the scene may rotate from horizontal to vertical because of the nature of the verb (cf. 'stand' vs. 'climb'). Yet the force dynamic relationship between TRAJECTOR and LANDMARK as expressed by the preposition remains consistent.

(16) καὶ προδραμὼν εἰς τὸ ἔμπροσθεν ἀνέβη **ἐπὶ συκομορέαν** [LM] ἵνα ἴδῃ αὐτόν ὅτι ἐκείνης ἤμελλεν διέρχεσθαι
And he [TR] ran on ahead and climbed up **on a sycamore tree** [LM] so that he could see him, because he was going to go through that way (Luke 19:4).

(17) πίστει Ἰακὼβ [TR] ἀποθνήσκων ἕκαστον τῶν υἱῶν Ἰωσὴφ εὐλόγησεν καὶ προσεκύνησεν **ἐπὶ τὸ ἄκρον τῆς ῥάβδου αὐτοῦ** [LM]
By faith Jacob [TR], as he was dying, blessed each of the sons of Joseph and worshiped, leaning **on the top of his staff** [LM] (Hebrews 11:21).

In (17), Jacob relies on the force of gravity in one direction along with the stabilizing counterforce of his staff in the other to hold him up in a standing position, even as he is dying. In both examples (ATTACH and LEAN ἐπί constructions), downward force (gravity) is thwarted or neutralized by the counterforce expressed by the LANDMARK.

In (18) and (19), it is still the force of gravitation that acts on the TRAJECTORS, boats and the notice. But in (18), the force that brings the boats ashore is the force-dynamic impetus of intentional agents traveling a horizontal path, which combines the SOURCE-PATH-GOAL construction (SPG) (activated by the motion

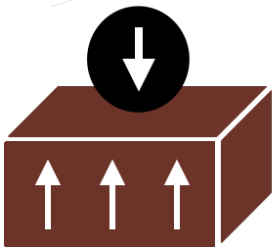
verb) with the STACK ἐπί construction as the goal. The land serves as a stabilizing counterforce from below that secures the position of the boats on shore.

(18) καὶ καταγαγόντες τὰ πλοῖα [TR] **ἐπὶ τὴν γῆν** [LM] ἀφέντες πάντα ἠκολούθησαν αὐτῷ.
When they had brought their boats [TR] **onto shore** [LM], they left everything and followed him (Luke 5:11).

(19) ἔγραψεν δὲ καὶ τίτλον [TR] ὁ Πιλᾶτος καὶ ἔθηκεν **ἐπὶ τοῦ σταυροῦ** [LM] ἦν δὲ γεγραμμένον Ἰησοῦς ὁ Ναζωραῖος ὁ βασιλεὺς τῶν Ἰουδαίων
And Pilate also wrote a notice [TR] and placed it **on the cross** [LM] and it was written: "Jesus the Nazarene, the king of the Jews" (John 19:19).

In (19), the form of attachment that Pilate uses to adhere the notice on the cross makes it exert pressure in a horizontal (rather than vertical) direction toward the cross—the ATTACH ἐπί construction. As a stabilizing surface, the cross (LANDMARK) holds the notice in position. Where the forces of adherence and stabilization meet is where the note is held in place.

Thus, even if we posit the image schema in Figure 1 for ἐπί with a basic vertical configuration of TRAJECTOR and LANDMARK, transformations of this vertical position toward a horizontal rotation in the spatial domain only reinforce the necessity of considering the force-dynamic components of preposition meaning with ἐπί. The spatial configuration of the elements in the scene may rotate, but it is the force and counterforce of TRAJECTOR and LANDMARK that remain constant.



Constituent Parts
- **Force**: Directed toward the landmark
- **Landmark**: Stabilizing surface
- **Trajector**: Figure directed at landmark surface

Figure 1. Image Schematic Structure: ἐπί.

The force vector associated with the TRAJECTOR makes the TRAJECTOR come in contact with the LANDMARK and the counterforce from the LANDMARK balances the force vector from the TRAJECTOR. The force vector indicates that the force from the TRAJECTOR has a magnitude (strength) and direction (path of force) toward the LANDMARK (Johnson 1990:4; Gärdenfors 2014:221). The force vector aligned with the TRAJECTOR is typically generated by gravitational force, but can also be generated by the impetus of a volitional agent, as in (18), or a non-volitional instrument of adherence, as in (19).

Figure 1 represents the central image schema for a prototypical scene with ἐπί, which is then adapted by transformations. Image schema transformations are cognitive operations that allow us to alter and elaborate basic schemas, providing for our understanding of more abstract concepts (Johnson 1990:3; Lakoff 1987:440; Dewell 1994, 1997). Image schemas themselves are mental patterns that arise from sensorimotor activity as we manipulate objects and interact with forces in the world. Image schemas and transformations are used in everyday experiences to organize language, thought, and conceptual structure (Johnson 1990:3; Gibbs and Colston 2006:239).

For example, transformations of the basic schema include segment profiling (Dewell 1994:6), wherein we focus on one segment over another, such as when we identify the downward force of the TRAJECTOR on the LANDMARK as the most salient force in the scene. What is highlighted in this usage pattern with ἐπί is the effects the force has on the LANDMARK.

With abstract expressions, the profiling of downward force commonly correlates with animate LANDMARKS. Downward forces also play a role in the expression of emotions that are out of the volitional control of the animate LANDMARK who experiences them. These Downward EXPERIENCER-STIMULUS ἐπί constructions in (20)–(22) are akin to the WEATHER ἐπί construction in (13), except with the addition of animate participants and cognition predicates. Agent-benefactive emotions (like compassion and comfort), as well as perception predicates adopt ἐπί expressions that profile downward force as a means of communicating the effect the predicate has on the LANDMARK, as in (20) and (21), with compassion and a favorable eye toward a person. The benefit of an agent's attention is construed as a downward force that produces an effect on the animate LANDMARK.

(20) Ὁ κύριος ὁ θεὸς ἐφορᾷ, καὶ ταῖς ἀληθείαις **ἐφ' ἡμῖν** [LM]
παρακαλεῖται [TR]
The Lord God is watching and truly is compassionate [TR] **to us** [LM]
(LXX 2 Maccabees 7:6).

(21) ἐπιβλέψητε [TR] δὲ **ἐπὶ τὸν φοροῦντα τὴν ἐσθῆτα τὴν λαμπρὰν** [LM]
καὶ εἴπητε Σὺ κάθου ὧδε καλῶς
and you look favorably [TR] **on the one wearing the fine clothing** [LM]
and you say, "Be seated here in a good place" (James 2:3).

In (22), Job's friend, Elihu, frames the experience of nightmares and the emotions they provoke in terms of vertical force coming down upon the people who experience them.

(22) ἐνύπνιον, ἢ ἐν μελέτῃ νυκτερινῇ, ὡς ὅταν ἐπιπίπτῃ δεινὸς φόβος [TR]
ἐπ' ἀνθρώπους [LM], **ἐπὶ νυσταγμάτων** [LM] **ἐπὶ κοίτης** [LM].

A dream, or in a vision at night, as when a terrible fear [TR] falls **upon people** [LM], **upon their sleep** [LM], **upon their bed** [LM] (LXX Job 33:15).

DOWNWARD EXPERIENCER-STIMULUS ἐπί constructions extend the CRUSH ἐπί construction to the domain of emotions and contributes an abstract sense of weight to the experience of such emotions.

With other cognition events, the STACK ἐπί construction is leveraged. In UPWARD EXPERIENCER-STIMULUS ἐπί constructions, the upward, stabilizing force associated with the LANDMARK is the most salient in the scene. The profiled element is the upward force and its effects on the TRAJECTOR. Sometimes, the LANDMARK is an animate participant, used with expressions of confidence, trust, and belief, as in (23). The conceptual structure that motivates this usage is made fully explicit. Just as with the house built on the rock vs. sand in (9)–(10), good foundations are reliable and trustworthy and bad foundations are not.

(23) νῦν ἰδοὺ πέποιθας σαυτῷ [TR] **ἐπὶ τὴν ῥάβδον τὴν καλαμίνην τὴν τεθλασμένην ταύτην** [LM], **ἐπ' Αἴγυπτον** [LM]· ὃς ἂν στηριχθῇ ἀνὴρ [TR] **ἐπ' αὐτήν** [LM], καὶ εἰσελεύσεται εἰς τὴν χεῖρα αὐτοῦ, καὶ τρήσει αὐτήν· οὕτως Φαραὼ βασιλεὺς Αἰγύπτου πᾶσιν τοῖς πεποιθόσιν [TR] **ἐπ' αὐτόν** [LM].
Now look, you trust yourself [TR] **upon this bruised reed rod** [LM]—**on Egypt** [LM]. Whatever man [TR] leans **upon it** [LM], it will go into his hand, and it will pierce it. This is how Pharaoh, king of Egypt, is to all who trust [TR] **on him** [LM] (LXX 4 Kingdoms 18:21).

The Assyrian King in (23) warns King Hezekiah of Judah not to trust Egypt as an ally. It might appear to offer support to stand, but it will instead weaken him. Egypt is a bruised reed rod. Hezekiah could rely on it for support, but it will pierce his hand when he tries. Egypt is not a trustworthy support.

The stabilizing force of the STACK ἐπί construction can also motivate expressions of causality similar to UPWARD EXPERIENCER-STIMULUS constructions. Built structures are caused structures, with causal chains that move upward from the foundation, each block functioning as a cause for the one above. The TRAJECTOR'S status on a LANDMARK is causally dependent on that LANDMARK; as Johnson (1990:42) says, "causal interaction requires the interaction of force". These are REASON ἐπί constructions, where events are construed as foundations for people's reactions, as in (24).

Jerusalem's enemies are personified as someone rejoicing in response to its destruction. The LANDMARKS that refer to Jerusalem's fall and calamity each motivate an emotional response TRAJECTOR in the enemy: *rejoicing* and *cheer*. Baruch warns that Jerusalem's enemy will see its own desolation (LANDMARK) and that will result in grief (TRAJECTOR) in (24).

(24) ὥσπερ γὰρ ἐχάρη [TR] **ἐπὶ τῇ σῇ πτώσει** [LM] καὶ εὐφράνθη [TR] **ἐπὶ τῷ πτώματί σου** [LM], οὕτως λυπηθήσεται [TR] **ἐπὶ τῇ ἑαυτῆς ἐρημίᾳ** [LM].
Just as she rejoiced [TR] **on your fall** [LM] and was cheerful [TR] **on your calamity** [LM], so will she grieve [TR] **on her own desolation** [LM] (LXX Baruch 4:33).

The conceptual structure relies on the STACK ἐπί construction. A stabilizing upward force from the LANDMARK state-of-affairs serves as a foundation upon which emotional responses are built. The upward force of the LANDMARK causes an emotional state.

Emotional responses to communication may be expressed with the same REASON ἐπί construction (a common conceptual mapping cross-linguistically). In Mark 10, example (25), Jesus tells a rich man to sell all he has and give the money to the poor. Jesus's statement (LANDMARK) provides the foundation for his reaction: *gloom* (TRAJECTOR).

(25) ὁ δὲ στυγνάσας [TR] **ἐπὶ τῷ λόγῳ** [LM] ἀπῆλθεν λυπούμενος ἦν γὰρ ἔχων κτήματα πολλά Καὶ περιβλεψάμενος ὁ Ἰησοῦς λέγει τοῖς μαθηταῖς αὐτοῦ· Πῶς δυσκόλως οἱ τὰ χρήματα ἔχοντες εἰς τὴν βασιλείαν τοῦ θεοῦ εἰσελεύσονται. οἱ δὲ μαθηταὶ ἐθαμβοῦντο [TR] **ἐπὶ τοῖς λόγοις αὐτοῦ** [LM].
But he became gloomy [TR] **upon the statement** [LM] and went away sorrowful, because he had many possessions. Then Jesus looked around and said to his disciples, "How hard it will be for those who have wealth to enter the kingdom of God!" And the disciples grew amazed [TR] **upon these words** [LM] (Mark 10:22–24).

Likewise, after Jesus watches him leave in sorrow and observes how hard it is for the rich to enter the kingdom of God, this second set of words (LANDMARK) form the foundation for the disciple's completely different reaction: *amazement* (TRAJECTOR).

Similar are RULE ἐπί constructions, which involve the conceptual categories of authority, rule, and judgment. The forces of control and authority come from positions of social hierarchy. The people who are ruled and judged by authority figures experience these social structures as downward forces that burden them in (26), whether through laws, taxes, or even state violence, where Stephen recounts to the Sanhedrin how Moses's fellow Israelites respond to his murdering of an Egyptian taskmaster. They question whether Moses has the authority to act as ruler or judge when he tries to intervene in their dispute. He is not a ruler and judge (TRAJECTOR) who can put his authority on them (LANDMARK).

(26) ὁ δὲ ἀδικῶν τὸν πλησίον ἀπώσατο αὐτὸν εἰπών Τίς σε κατέστησεν ἄρχοντα [TR] καὶ δικαστὴν [TR] **ἐφ' ἡμῶν** [LM]
But the one who was doing wrong to his neighbor pushed him aside, saying, 'Who appointed you ruler [TR] and judge [TR] **over us** [LM]?' (Acts 7:27).

Finally, both forces may be construed as equally salient. This is most common in the CONFLICT ἐπί construction. Here we have the opposition of both forces pitted against one another, profiling the force of the TRAJECTOR and the counterforce of the LANDMARK in the scene. In conflict frames, two opposing forces are assumed; the speaker/writer must choose to profile one opponent as TRAJECTOR and the other as LANDMARK. Because the downward force of gravity implicates motion and the stabilizing counterforce of a foundation implicates immobility, the TRAJECTOR is necessarily construed as the aggressor or attacker and LANDMARK as defender. In (27), a king weighs the prospect of war against an enemy of great numbers (TRAJECTOR) who comes against him (LANDMARK).

(27) ἢ τίς βασιλεὺς πορευόμενος ἑτέρῳ βασιλεῖ συμβαλεῖν εἰς πόλεμον οὐχὶ καθίσας πρῶτον βουλεύσεται εἰ δυνατός ἐστιν ἐν δέκα χιλιάσιν ὑπαντῆσαι τῷ μετὰ εἴκοσι χιλιάδων ἐρχομένῳ [TR] **ἐπ' αὐτόν** [LM];
Or what king, going out to engage another king in battle, will not sit down first and consider whether he is able with ten thousand to oppose the one who comes [TR] **against him** [LM] with twenty thousand? (Luke 14:31).

(28) καὶ ἀνέστη Κάιν [TR] **ἐπὶ Ἄβελ τὸν ἀδελφὸν αὐτοῦ** [LM] καὶ ἀπέκτεινεν αὐτόν.
And Cain [TR] rose **on Abel, his brother** [LM], and he killed him (LXX Genesis 4:8).

In LXX Genesis, example (28), Cain acts as the TRAJECTOR aggressor against Abel (LANDMARK).

The asymmetry of TRAJECTOR and LANDMARK in a CONFLICT ἐπί construction can be diluted when the TRAJECTOR and LANDMARK are nonreferential and share a category or when the LANDMARK is a reflexive pronoun. In such cases, the TRAJECTOR and LANDMARK function as representatives of a category or are treated as conceptually undifferentiated. Thus, in (29) both TRAJECTORS and LANDMARKS are of the same type and function as exemplars of their categories in opposition: one kingdom/nation rising up and then down upon another kingdom/nation.

(29) τότε ἔλεγεν αὐτοῖς Ἐγερθήσεται ἔθνος [TR] **ἐπ' ἔθνος** [LM] καὶ βασιλεία [TR] **ἐπὶ βασιλείαν** [LM]
Then he said to them, nation [TR] will rise **upon nation** [LM] and kingdom [TR] **upon kingdom** [LM] (Luke 21:10).

(30) καὶ εἰ ὁ Σατανᾶς [TR] ἀνέστη **ἐφ' ἑαυτὸν** [LM] καὶ ἐμερίσθη οὐ δύναται στῆναι ἀλλὰ τέλος ἔχει
And if Satan [TR] has risen up **on himself** [LM] and is divided, he is not able to stand, but is at an end! (Mark 3:26).

So also in (30) the LANDMARK reflexive pronoun ἑαυτὸν 'himself' refers back to the TRAJECTOR. Satan cannot rise up upon himself without also undermining himself.

Understanding the semantics of the preposition ἐπί 'on' requires understanding the interaction of forces aligned with the TRAJECTOR and LANDMARK. The TRAJECTOR force is associated with the downward force of gravity, falling or pushing onto the LANDMARK. The LANDMARK force functions as a counterforce to gravity that provides a stabilizing and equalizing support for the TRAJECTOR to rest upon. The interaction of these two forces may be profiled and highlighted from varying perspectives by the speaker/writer in both concrete and abstract contexts. How these forces are profiled and interact with different types of events and participants motivates the constructions presented in Table 1 below.

Table 1. Constructions with the preposition ἐπί

STACK ἐπί construction	→	Physical domain: Profiles stabilizing upward force from the LANDMARK entity to the TRAJECTOR entity. Can join SPG construction with an ἐπί goal.
CRUSH ἐπί construction	→	Physical domain: Profiles downward force of gravity of the TRAJECTOR entity against the LANDMARK entity below.
ATTACH ἐπί construction	→	Physical domain: Profiles downward force of gravity against TRAJECTOR entity; TRAJECTOR entity attaches to/hangs on LANDMARK entity; spatial orientation varies
LEAN ἐπί construction	→	Physical domain: Profiles downward force of gravity against vertically oriented TRAJECTOR; TRAJECTOR supports its orientation by adjusting its weight against LANDMARK that provides a stable counterforce.
WEATHER ἐπί construction	→	Physical domain: Profiles downward force from meteorological/astronomical STIMULUS TRAJECTOR that causes an effect on EXPERIENCER LANDMARK entity; naïve physics.

EXPERIENCER-STIMULUS ἐπί construction	→	Cognitive domain (downward force): Emotion or perception TRAJECTOR functions as STIMULUS for animate EXPERIENCER LANDMARK.
	→	Cognitive domain (upward force): Animate TRAJECTOR is an EXPERIENCER for STIMULUS LANDMARK.
REASON ἐπί construction	→	Cognitive domain: Profiles LANDMARK stabilizing upward force; metaphorical extension of STACK construction: Built structures are caused structures, wherein their causal chain moves from the foundation upward; a TRAJECTOR's status on a LANDMARK is causally dependent on that LANDMARK. Events or states replace objects as TRAJECTOR and LANDMARK.[a]
RULE ἐπί construction	→	Social domain: TRAJECTOR participant is construed as socially higher than LANDMARK participant; AGENT TRAJECTOR exerts social control downward on PATIENT LANDMARK.
CONFLICT ἐπί construction	→	Physical and social domains: Profiles TRAJECTOR downward force and LANDMARK upward force equally; both participants are volitional agents; TRAJECTOR is construed as aggressor and LANDMARK as defender.

[a] Compare Lindstromberg's (2010:64–65) discussion of English 'on' and "the basis metaphor".

When positing construction types with ἐπί, we are not proposing categories or nuances of the preposition itself. Rather, the meaning of the preposition is its schematic structure (Figure 1). This image schematic basis allows the preposition to be used in a variety of common constructions that are congruent with its meaning. We now consider how the meaning of κατά 'down' is also shaped by force dynamics.

4 Force Dynamics and κατά

While our introduction to the preposition in example (2), κατὰ τραχεῖς τόπους ἐκπέσωμεν, 'run aground against the rocks,' is clear in its expression of force, it is more difficult to ascertain how spatial and geometric glosses like 'down' implicate force dynamics. Indeed, 'down' is often presented as the basic or

original sense (Luraghi 2003:197; Montanari *et al.* 2015). This is not wrong. However, we suggest that attention to geometry or direction obscures how 'down' is realized in actual usage and that downward motion also implicates downward force. Downward motion in human embodied experience is usually predicated on the force of gravity (as with ἐπί), as in example (31), where Jewish women who circumcise their children are hurled down the wall.

(31) δύο γὰρ γυναῖκες [TR] ἀνήχθησαν περιτετμηκυῖαι τὰ τέκνα· **... κατὰ τοῦ τείχους** [LM] ἐκρήμνισαν.
For two women [TR] were brought forth because they circumcised their children. ... They hurled them **down the wall** [LM] (LXX 2 Maccabees 6:10).

Here, the external force of gravity on the TRAJECTOR is profiled. The wall exerts no overt force of its own, but gravity shares its vertical orientation. The wall defines the path taken by the TRAJECTOR. We can call this the FALL κατά construction.

Another common context where κατά 'down' occurs in the physical domain involves river/stream LANDMARKS, as in (32).

(32) a. φέρει **κατ' ἀνάγκην** [LM] ὁ ῥοῦς
The river carries [them (TR)] **down current** [LM]
(Polybius, *Histories* 4.44.2).[8]
b. ἐκ δὲ Μέμφιος κατέπλει [TR] **κατὰ τὸν ποταμὸν** [LM] ὡς ἐπὶ θάλασσαν
From Memphis he sailed [TR] **down the river** [LM] toward the sea (Arrian, *Anabasis* 3.1.4).
c. ἐντιθέασι τὸ παιδίον καὶ **κατὰ τοῦ ποταμοῦ** [LM] βαλόντες εἴασαν ἐπὶ τῷ θεῷ τὴν σωτηρίαν αὐτοῦ.
They put the child in [the basket (TR)] and casting it **down the river** [LM] they left his welfare in God's hands (Josephus, *Antiquities* 2.221).

Rivers as LANDMARKS provide a case study. They realize multiple characteristics of force dynamics that motivate the usage patterns of κατά

[8] The LANDMARK ἀνάγκην, translated as 'current' is also a generic term for 'force', but in river contexts, specifically refers to the current (=force) of the river. This is a metonymy. See also the intransitive translational motion verb: ἀνανήχομαι 'swim against the current'. Polybius uses it again a couple paragraphs later: "Those who want to cross from Chalcedon to Byzantium cannot sail straight across the channel, but coast up to the Cow and Chrysopolis ... and then drift down the river (κατὰ ῥοῦν), which carries them by the current (κατ᾽ ἀνάγκην) to Byzantium" (Polybius, *Histories* 4.44.4). The abstract expression κατ' ἀνάγκην, 'forcibly' or 'by necessity', finds embodied motivation in such physical scenes.

generally. Like the women falling down the wall in (31), the flow of a river is driven by the downward force of gravity. Where gravity is normally an invisible force—experienced through its effects—the current of a river in (32) makes the flow of force visible to the eye and the weight of the moving water more tangible, whether in a boat (b) or a basket (c). Second, rivers, as path LANDMARKS, exert force on the TRAJECTOR to conform to the pattern of the river. The river obliges the TRAJECTORS to follow a path of a specific shape and contour. Here the force of the LANDMARK represents the primary profiled force. We label this one the DOWN ALONG κατά construction.

Within the physical domain, gravity might not be profiled at all, assuming the LANDMARK path expressed by κατά still enforces conformity on the TRAJECTOR. Here, κατά diverges from naïve expectations of the conceptual space for English 'down'—though much like English speakers might say "down the road" regardless of spatial orientation, κατὰ may still refer to motion conforming to a path, which still satisfies the DOWN ALONG κατά construction, as below.

(33) ἐν ἱκαναῖς δὲ ἡμέραις βραδυπλοοῦντες [TR] καὶ μόλις γενόμενοι **κατὰ τὴν Κνίδον** [LM] μὴ προσεῶντος ἡμᾶς τοῦ ἀνέμου ὑπεπλεύσαμεν [TR] τὴν Κρήτην **κατὰ Σαλμώνην** [LM].
We sailed [TR] for many days and had difficulty arriving **off Cnidus**. When the wind did not allow us to hold our course, we sailed under [TR] the lee of Crete, **off Salmone** (Acts 27:7).

(34) Μανίλιος [TR] μὲν ἀπὸ τῆς ἠπείρου **κατὰ τὸν αὐχένα** [LM]
Manilius [TR] advanced from the mainland **along the isthmus** [LM] (Appian, *The Punic Wars* 97).

(35) ταύτην τὴν ἄκρην ὡς κατεῖδον Ὀνησίκριτος μὲν ἐπέχοντας ἐπ' αὐτὴν πλώειν ἐκέλευεν μὴ **κατὰ τὸν κόλπον** [LM] ἐλαστρεῦντας ταλαιπωρέεσθαι [TR].
When they sighted this cape, Onesicritus urged them to make for it in their voyage, to avoid the hardship of rowing [TR] **along the bay** [LM] (Arrian, *Historia Indica* 32.9).

In (33), the force of the wind and water offers difficult sailing for Paul and his shipmates, but they arrive along Cnidus, a point on the southwestern coast of Asia Minor. When the wind drives them off course, they seek shelter from the forces of the sea by sailing along the southern end of the island of Crete. The preposition κατά traces the route of the ship with the currents as it conforms to a path along Cnidus and then turns southward along the promontory of Salmone. The Roman consul Manilius, in (34), advances his army on Carthage by conforming to the land route that would take them along a narrow strip of land that connects the mainland to the peninsula. Similarly, in (35), Onesicritus, pilot

for Alexander the Great's fleet, instructs the crew where to row toward the cape to avoid the shoreline, saving the efforts of the rowers who would have to work against the shallow water and tides of the bay. These are conforming forces that the rowers would have to actively row against. In each instance, the LANDMARK path defines or determines the movement of the TRAJECTOR.

If we posit a schema that considers both the forces that propel motion and those that direct a TRAJECTOR in conformity to a path, this is illustrated in Figure 2:



Constituent Parts
- **Force**: Directed along a path
- **Landmark**: Directing path/trajectory
- **Trajector**: Figure directed along the path

Figure 2. Image Schematic Structure: κατά.

The force vector associated with the TRAJECTOR propels the TRAJECTOR by a continuous force that enables its movement, either parallel to or coincident with, the extent of a LANDMARK path. The LANDMARK path does not inhibit the movement of the TRAJECTOR but only limits or directs the trajectory that the TRAJECTOR follows. The force vector that propels the movement of the TRAJECTOR along the LANDMARK path may be the force of gravity in (31) or the force-dynamic impetus of agents in (34). The spatial configuration of the scene can rotate. The LANDMARK path that the TRAJECTOR follows may be a vertical or horizontal trajectory. The spatial scene may rotate, but the force dynamics associated with κατά remain consistent.

Image schema transformations of this basic schema allow for elaborations that follow the inferences natural to our embodied experience with forces.

PATH-TO-ENDPOINT focus is one type of schema transformation associated with κατά usage patterns. Note that the use of κατά in (31) above profiles the extended vertical path that the Jewish women follow. The force of gravity propels them down along the extension of the wall. This instance highlights the trajectory of the motion. In contrast, the first example we used to illustrate κατά in this paper in example (2) profiles the endpoint of an extended LANDMARK path. The ship is propelled by the force of the storm and the logical endpoint of that path, without external intervention, takes the ship in contact with the rocks. The normally conforming force of the LANDMARK becomes a counterforce at the path endpoint.

This schema transformation from path to endpoint illustrates the force-dynamic inferences we make from our embodied interactions and the ways we communicate them in language. In examples that follow, we explore further schema transformations that extend the use of κατά from the domain of physical forces to more abstract expression types.

DISTRIBUTIVE κατά constructions profile TRAJECTOR and LANDMARK forces equally. The TRAJECTOR has a force-dynamic impetus that moves it along a path via the trajectory specified by the LANDMARK. The LANDMARK force constrains and places limits on the TRAJECTOR's path. In (36), the LANDMARK is indefinite and non-referential. These, along with its plural marking, make the LANDMARK multiplex.[9] DISTRIBUTIVES with κατά serve as an alternative means of expressing the ITERATIVE PATH construction discussed in Aubrey and Aubrey (2023).[10] The LANDMARK force defines or delimits the path that Paul's teaching travels: from one house to the next.

(36) ὡς οὐδὲν ὑπεστειλάμην τῶν συμφερόντων τοῦ μὴ ἀναγγεῖλαι ὑμῖν καὶ διδάξαι [TR] ὑμᾶς δημοσίᾳ καὶ **κατ' οἴκους** [LM]**.**
You know that I have not hesitated to preach anything that would be helpful to you but have taught [TR] you publicly and **from house to house** [LM] (Acts 20:20).

A uniplex LANDMARK creates a slightly different scene. In (37), the LANDMARK is a referential region of space. The LANDMARK creates a bounded region that defines the expansiveness of the path of where the outcry (TRAJECTOR) is expressed.

(37) καὶ ἔσται κραυγὴ μεγάλη [TR] **κατὰ πᾶσαν γῆν Αἰγύπτου** [LM],
ἥτις τοιαύτη οὐ γέγονεν καὶ τοιαύτη οὐκέτι προστεθήσεται.
And there will be a great outcry [TR] **throughout the whole land of Egypt** [LM], such as has never happened, and such as will never happen again (LXX Exodus 11:6).

CONFORMITY κατά constructions profile LANDMARK force as a shape, behavior, or category structure imposed on the TRAJECTOR. The TRAJECTOR's force is minimized and merely succumbs to the force of the LANDMARK. In physical space, we have seen that motion along a trajectory is constrained by the contours or boundaries of a path. As objects or people fall to the ground, their trajectory adheres to the physical force of gravity that directs their path. Physical coercion produces conformity to a shape. In (38), one end of a beam is reinforced with a mass of iron.

[9] Multiplex refers to more than one entity. Uniplex refers to just one entity.

[10] Iterative paths with κατά express with one preposition what other iterative path constructions do with two or more: ζωὴ πονηρὰ [ἐξ οἰκίας] [εἰς οἰκίαν], "A wicked life goes [from house] [to house]" (Sirach 29:24).

(38) ὁ δ’ ἐστὶν ὑπερμεγέθης δοκὸς ἱστῷ νηὸς παραπλήσιος ἐστόμωται δὲ παχεῖ σιδήρῳ [TR] **κατ’ ἄκρον** [LM] εἰς κριοῦ προτομήν ἀφ’ οὗ καὶ καλεῖται τετυπωμένῳ
This [siege ram] is an immense beam, like the mast of a ship, reinforced with a mass of iron [TR] **against one end** [LM] in the form of a ram’s head, which is where the machine gets its name (Josephus, *Wars* 3.214).

Josephus describes the iron mass (TRAJECTOR) as pressed against and conforming to the shape of a large beam (LANDMARK). The blacksmith coerces the iron into a shape so the iron ram and the beam function together as a machine of war.

Experiences of physical coercion also map onto abstract social relations. A TRAJECTOR behaves in accordance with a trajectory. The LANDMARK idea compels or directs the TRAJECTOR in some way. Social forces are understood metaphorically through our experience with physical forces, as in (39). The Lord’s commands to Moses and Aaron prompt social conformity for the Israelites.

(39) καὶ ἐποίησαν οἱ υἱοὶ Ἰσραὴλ [TR] **κατὰ πάντα ἃ ἐνετείλατο Κύριος τῷ Μωυσῇ καὶ Ἀαρών** [LM], οὕτως ἐποίησαν.
And the sons of Israel [TR] acted **according to everything which the Lord had commanded Moses and Aaron** [LM]; so they did (LXX Numbers 1:54).

The activity of the sons of Israel must be congruent with and conform to the path the Lord lays out for them—those things he commanded them to do. Their activity (fictive motion) is guided by an outside, conforming force—by direction of the Lord’s commands. Conforming forces may also come from internal desires, in (40), describing conformity to selfish forces.

(40) οὗτοί εἰσιν γογγυσταί μεμψίμοιροι [TR] **κατὰ τὰς ἐπιθυμίας αὐτῶν πορευόμενοι** [LM] καὶ τὸ στόμα αὐτῶν λαλεῖ ὑπέρογκα θαυμάζοντες πρόσωπα ὠφελείας χάριν.
These people are grumblers and faultfinders [TR] they live **according to their own desires** [LM]; their mouths speak pompous words, flatter others for their own advantage (Jude 16).

Grumbling people indulge in behaviors that conform to their own desires, separate from social forces. Jude characterizes their attempts to gain advantage over others as evil. Internal impulses represent potentially more powerful forces than the social forces of the Christian community, prompting a rebuke from Jude.

Category structures are “configurations of culture-based, conventionalized knowledge” (Taylor 2003:93). They impose scripts upon the world of linguistic communities. They seem to be natural configurations, to which individual instances then conform, as in (41) and (42).

(41) καὶ ἐποίησεν ὁ θεὸς τὰ θηρία τῆς γῆς [TR] **κατὰ γένος** [LM] καὶ τὰ κτ[ήνη [TR] **κατὰ γέ]νος** [LM] καὶ πάντα τὰ ἑρπετὰ τῆς γῆς [TR] **κατὰ γένος αὐτῶν** [LM].
And God made the wild animals of the earth [TR] **according to type** [LM] and the livestock [TR] **according to kind** [LM] and all the creeping things of the earth [TR] **according to their type** [LM] (LXX Genesis 1:25).

The writer categorizes animals relative to their perceived shared characteristics within their cultural context. If they conform to the expectations of the requisite category, they are associated with that category—"according to type". Wild animals and creeping things (TRAJECTORS) are respectively grouped together along a fictive path (no real motion in the scene). Perceived conformity to type is what leads the writer to point to familiar cultural categories that they expect their audience to recognize.

In an even more culture-bound context, John speaks of the category of jars established in Jewish society and culture in the scene where Jesus turns water to wine at the Wedding of Cana.

(42) ἦσαν δὲ ἐκεῖ λίθιναι ὑδρίαι ἓξ [TR] **κατὰ τὸν καθαρισμὸν τῶν Ἰουδαίων** [LM] κείμεναι χωροῦσαι ἀνὰ μετρητὰς δύο ἢ τρεῖς.
Nearby stood six stone water jars [TR], used **for ceremonial washing by the Jews** [LM], each holding from twenty to thirty gallons (John 2:6).

The purpose toward which the jars are put supplies a category structure for understanding their use in this context. The LANDMARK helps specify for the audience that the six stone jars conform to a particular jar category: those used for, or set aside for the purpose of, ceremonial washing.

MANNER/MEANS κατά constructions follow from CONFORMITY constructions. LANDMARK force is still profiled; the TRAJECTOR still conforms to the LANDMARK. But instead of imposing a category structure or behavior on the TRAJECTOR, the TRAJECTOR participates in an event, and the LANDMARK imposes a particular procedural manner. The LANDMARK characterizes what enables an action, either its quality (**καθ' ὑπερβολὴν** ἐδίωκον τὴν ἐκκλησίαν 'I was **violently** persecuting the church' Galatians 1:13) or its method, in (43). Strabo describes ancient travel as involving two possible means: by sea or by land (LANDMARKS). Each choice imposes a set of constraints upon the journey.

(43) εἰ δὲ περὶ τῶν μνημονευομένων, οὐκ ἂν ὀκνήσαι τις εἰπεῖν ὡς οἱ παλαιοὶ μακροτέρας ὁδοὺς [TR] φανοῦνται καὶ **κατὰ γῆν καὶ κατὰ θάλατταν** [LM] τελέσαντες τῶν ὕστερον, εἰ χρὴ προσέχειν τοῖς λεγομένοις.

everyone will admit that the ancients appear to have made longer journeys [TR] both **by sea and by land** [LM] than their successors (Strabo, *Geography* 1.3.2).

That these two prepositional phrases also communicate the extension of motion through space illustrates how concrete constructions involving physical motion down/along a path are extended to abstract constructions such as MANNER/MEANS.

In (44), Matthew describes the manner of communication to the wise men. The warning (TRAJECTOR) comes to the wise men by way of a dream (LANDMARK). Divine communication comes through certain means (prophets, dreams, visions, angels). Here, the dream serves as the mechanism by which the divine communication is achieved. It is not merely a circumstantial time span unrelated to the reception of the warning.

(44) καὶ χρηματισθέντες [TR] **κατ’ ὄναρ** [LM] μὴ ἀνακάμψαι πρὸς Ἡρῴδην δι’ ἄλλης ὁδοῦ ἀνεχώρησαν εἰς τὴν χώραν αὐτῶν.
And having been warned [TR] **in a dream** [LM] not to go back to Herod, they returned to their country by another route (Matthew 2:12).

(45) **κατὰ πίστιν** [LM] ἀπέθανον [TR] οὗτοι πάντες μὴ λαβόντες τὰς ἐπαγγελίας.
All these people died [TR] **by faith** [LM] without receiving what was promised (Hebrews 11:13).

And in (45), the author of Hebrews describes the manner that the men of the Old Testament died (and thus lived). The practice of their faith (LANDMARK) defined the way in which they lived and died (TRAJECTOR).

OPPOSITION κατά constructions are motivated by our experience of physical forces in space. The force associated with the TRAJECTOR conflicts with the LANDMARK such that two forces clash against each other. Both forces are typically profiled but this depends on the framing of the event. OPPOSITION constructions occur in a variety of event types and frames (e.g., conflict, judgment, speech, and cognition), any events that can be conceived according to oppositional forces at play. An intentional agent TRAJECTOR instigates an action hostile to an opposing animate LANDMARK.

Jesus describes the impact and radical nature of his teachings as one that pits familial relationships against each other. There is little propositional

difference between this conflict scene in (46) and the one described with the preposition ἐπί in (29), but there is a construal difference.[11]

(46) ἦλθον γὰρ διχάσαι ἄνθρωπον [TR] **κατὰ τοῦ πατρὸς αὐτοῦ** [LM] καὶ θυγατέρα [TR] **κατὰ τῆς μητρὸς αὐτῆς** [LM] καὶ νύμφην [TR] **κατὰ τῆς πενθερᾶς αὐτῆς** [LM], καὶ ἐχθροὶ τοῦ ἀνθρώπου οἱ οἰκιακοὶ αὐτοῦ.
For I have come to divide a man [TR] **against his father** [LM], a daughter [TR] **against her mother** [LM], a daughter-in-law [TR] **against her mother-in-law** [LM]—and a person's enemies will be members of their own household (Matthew 10:35–36).

Instead of one force rising up to come down on another, as with ἐπί in (29), this clash in (46) is framed as equal forces colliding against each other. The difference in framing is motivated by the distinct image schemas of ἐπί (force of the TR is perpendicular to LM) and κατά (force of the TR is parallel to LM). When they are used in similar contexts with similar meanings, their respective image schemas produce different construals. The TRAJECTOR is construed as the attacker and the LANDMARK as the defender, but with the verb διχάσαι 'divide, separate', there is an implication that a previous relationship of unity between TRAJECTOR and LANDMARK is broken.

In courtroom/judgment frames, the LANDMARK of κατά refers to the defendant being charged or accused. In (47), Jesus has been arrested and is standing before the high priest, Caiaphas, who with the Sanhedrin is looking for false evidence (TRAJECTOR). This false evidence functions in the scene as a hostile instrument of opposition against the LANDMARK.

(47) οἱ δὲ ἀρχιερεῖς καὶ τὸ συνέδριον ὅλον ἐζήτουν ψευδομαρτυρίαν [TR] **κατὰ τοῦ Ἰησοῦ** [LM] ὅπως αὐτὸν θανατώσωσιν.
The chief priests and the whole Sanhedrin were looking for false evidence [TR] **against Jesus** [LM] so that they could put him to death (Matthew 26:59).

Within the courtroom frame, the TRAJECTORS with κατά are necessarily negative evidence for the defendant because the OPPOSITION κατά construction implicates opposing forces. This pattern continues with verbs of speech as in (48). The two opposing sides are the Psalmist and his enemies. The Psalmist is placed

[11] See also the parallel passage in Luke 12:53 which uses ἐπί 'on': διαμερισθήσονται πατὴρ [ἐπὶ υἱῷ] καὶ υἱὸς [ἐπὶ πατρί], μήτηρ [ἐπὶ θυγατέρα] καὶ θυγάτηρ [ἐπὶ τὴν μητέρα], πενθερὰ [ἐπὶ τὴν νύμφην αὐτῆς] καὶ νύμφη [ἐπὶ τὴν πενθεράν] "They will be divided father [on son] and son [on father], mother [on daughter] and daughter [on mother], mother-in-law [on daughter-in-law] and daughter-in-law [on mother-in-law]."

in the role of defender LANDMARK. The enemies (TRAJECTOR) take an agentive role of opposition against him.

(48) ἐψιθύριζον [TR] πάντες οἱ ἐχθροί μου **κατ᾽ ἐμοῦ** [LM]· ἐλογίζοντο [TR] **κακά μοι** [LM]
All my enemies whisper [TR] **against me** [LM]. They plot [TR] **against me** [LM] (LXX Psalms 40:8).

Speech acts such as (48) constitute a means of exerting social force against the LANDMARK. Note the difference between whispering to Oliver and whispering against Oliver. The use of against implicates hostile action taken toward a perceived enemy. Someone who whispers against Oliver may reveal things that shape the audience's perceptions or actions inimical to Oliver. The Psalmist laments ἐλάλησαν κατ᾽ ἐμοῦ 'they spoke against me' (LXX Psalms 108:2) because of the negative consequences borne out by a show of force inhospitable to himself.

When we consider the semantics of the preposition κατά, attention to the interaction of forces within its schematic structure permits valuable insight into its usage patterns well beyond a mere list of English glosses in a dictionary or textbook. The force vector linked with the TRAJECTOR propels the TRAJECTOR by a continuous force enabling its motion, coincident with or parallel to, the extent of the LANDMARK path. The TRAJECTOR force may be the force of gravity or another force on the scene, such as agentive self-propelled motion. The LANDMARK force constrains the path that the TRAJECTOR follows, but it does not obstruct it. This force-schematic structure is activated with a variety of event types, semantic frames, participants, and profiling perspectives, all of which motivate the use of κατά in contexts, concrete and abstract, as in Table 2:

Table 2. Constructions with the preposition κατά

FALL κατά construction	→	Physical domain: Force of gravity is profiled, exerted on TRAJECTOR; LANDMARK provides PATH of movement with a downward trajectory in accordance with gravity; also with sinking events.
DOWN ALONG κατά construction	→	Physical domain: TRAJECTOR motion directed by gravitational force; LANDMARK exerts force on TRAJECTOR in the form of the boundaries of the LANDMARK path. LANDMARK path exerts conforming force regardless of the status of motion.

Distributive κατά construction	→	Physical domain: Profiles TRAJECTOR and LANDMARK forces equally; the TRAJECTOR has force-dynamic impetus that moves it along a path via the trajectory specified by the LANDMARK. The LANDMARK force constrains and places limits on the TRAJECTOR's path.
Conformity κατά construction	→	Physical and social domains: Profiles LANDMARK force as a shape, behavior, or category structure imposed on the TRAJECTOR.
Manner/Means κατά construction	→	Physical and non-physical domains: Derived from Conformity κατά constructions; LANDMARK imposes a particular procedural manner or means for TRAJECTOR event.
Opposition κατά construction	→	Physical and social domains: Profiles TRAJECTOR and LANDMARK forces equally; an intentional agent TRAJECTOR instigates an action hostile to an opposing animate LANDMARK.

As with ἐπί, we are not proposing these constructions as senses, categories, or nuances of the preposition. The meaning of the preposition is its schematic structure from Figure 2, which provides a basis for language users to use in a variety of common constructions that are congruent with its meaning.

5 Conclusion

In this paper, we examined how shared human experience of the interaction of forces, and efforts to counteract them, structure the meaning of Greek prepositions ἐπί and κατά in the physical realm and how force-dynamic patterns motivate usage in psychosocial domains. We posited a force-dynamic image schema for each preposition and explored schema transformations, such as segment profiling, that implicate patterns of constructional polysemy expressed with ἐπί and κατά. Senses and glosses enumerated in dictionaries and grammars may seem arbitrary, but usage patterns with ἐπί and κατά emanate from embodied experience and the cognitive operations that help us organize our conception of the world around us.

Grammars of Ancient Greek typically operate under the rubric: Grammar is form and words are meaning. Despite their high frequency as a class and a key element of Greek grammar, the meaning components of prepositions are given short shrift in dictionaries and grammars, with lists of glosses and case rules. Few grammars, if any, help readers connect their own embodied experiences to

preposition meaning and describe how interactions with space and force motivate preposition usage in abstract domains of knowledge.

With this in mind, we propose some guidance for scholars and translators working with Greek texts, as well as teachers and students in the classroom. Ask questions about what forces are present in each scene mediated by ἐπί or κατά. These questions might include the following:

- Is there one force that is profiled or highlighted over another?
- What is the direction and magnitude of the force?
- What is the source of the force? Does it originate with the TRAJECTOR or LANDMARK or is it external to both?
- If two forces are profiled, how do they interact or conflict?
- What kind of verb is used with the preposition (motion, cognition, etc.)?
- What embodied scene is created by the preposition in use? One entity (TRAJECTOR) is related in some way to a second entity (LANDMARK). How are they related?

If students, scholars, and translators can become versed in asking such image-schematic questions about preposition meaning, they may be better equipped to understand ancient Greek texts without the increased confusion of reliance on English glosses. The meaning of ἐπί and κατά may be made more transparent when their usage is connected to shared human experience over glosses and rules in the classroom.

Translating clauses containing ἐπί and κατά can be tricky because of the grammatical differences between source and target languages. Very few expressions have one-to-one correspondence from one language to the next. This difference in form is why we must attend to the meaning of prepositional constructions. When we consider the image-schematic scenes that are communicated by ἐπί and κατά, then we can move beyond attempts to translate one word at a time and instead free our translations to engage with larger meaning units at the construction level. The meanings of ἐπί or κατά are not a single word or gloss, but a structured scene organized by our understanding of space and force, and their interaction. Likewise, in the simplest terms, the translation process requires comprehension of the form-meaning pairings in the source language. The ἐπί and κατά constructions we have described represent some of those pairings. After comprehension comes the deliberative process of consideration for the various ways that meaning might be expressed in a receptor language, and finally selecting an appropriate form-meaning pairing in that receptor language. We hope this analysis helps provide a first step for translators toward better source language comprehension as we intend on exploring more explicit application of this analysis for translators in future work.

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