THE GREEK PERFECT AND THE CATEGORIZATION OF TENSE AND ASPECT: TOWARD A DESCRIPTIVE APPARATUS FOR OPERATORS IN ROLE AND REFERENCE GRAMMAR

by

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Abstract

This thesis attempts to expand the theoretical and methodological basis for operators within Role and Reference Grammar for purposes of language description, using the Greek perfect as a test case. This requires first examining the current theoretical and methodological approach to tense and aspect in RRG and its strengths and weaknesses. Here I demonstrate that while some areas of RRG have a well-developed and robust set of theoretical and descriptive tools for language description, operators such as tense and aspect are distinctly lacking in this regard. To that end, I propose a model for tense and aspect operators that attempts to fill in the gaps that exist in RRG while also maintaining the integrity and spirit of the linguistic theory. This involves three steps. I begin with a survey of the broader typological literature on tense and aspect in order to establish a set of morphosyntactic tests for the evaluation and categorization of operators. This is followed by an application of the proposed morphosyntactic tests to a particular grammatical problem: the Greek Perfect in order to evaluate the effectiveness of the tests. I then concluded with a synthetic model for tense and aspect operators that both satisfies the theoretical and typological claims of the broader literature and also validates the existing structure of the Role and Reference Grammar framework, thereby furthering the goals of RRG as a useful theoretical model for language description.

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Τῷ Ῥαχήλ, ἄριστος γραμματικός μοι.

Ἐν τῇ μνείᾳ τοῦ Ῥόντνει Δέκκερ.

Abbreviations

-	Morpheme boundary
=	Clitic attachment
< >	morpheme infix
[C]	Consonant Phone
1	1st person
2	2nd person
3	3rd person
ACC	Accusative
ADV	Adverb
Alleg. Interp	*Allegorical Interpretation*
Ant.	*Antiquities of the Jews*
ASP	Aspect
BDAG	Danker, Frederick W., William, F. Arndt, Wilbur Gingrich, and Walter Bauer. 2000. *A Greek-English Lexicon of the New Testament and Other Early Christian Literature*. Chicago: University of Chicago Press.
BDF	Blass, Friedrich, Albert Debrunner, and Robert W. Funk. 1961. *A Greek Grammar of the New Testament and Other Early Christian Literature*. Chicago: University of Chicago Press.
DAT	Dative
EPIST.MOD	Epistemic Modality
FUT	Future
GEN	Genitive
gram	Grammatical Morpheme
IF	Illocutionary Force
IMP	Imperative
IMPFV	Imperfective Aspect
INGR	Ingressive (Achievements in the semantic representations)
INF	Infinitive
INT	Interrogative
INTR	Intransitive
LDP	Left Detached Position
LSJ	Liddell, Henry George, Robert Scott, Henry Stuart Jones, and Roderick McKenzie. 1996. *A Greek-English Lexicon*. Oxford: Clarendon Press.
LXX	Septuagint (Greek Old Testament)
LXXALT	Alternative textual tradition that exists for several Septuagint books
MID	Middle Voice
NEG	Negation/Negative
NEUT	neuter gender
NOM	Nominative
NPST	Nonpast Tense

NT	New Testament
NUC	Nucleus
OT	Old Testament
p.c.	Personal Communication
PART	Participle
PERF	Perfect Aspect
PERFV	Perfective Aspect
PL	Plural
PP	Prepositional Phrase
PrCS	Pre-core Slot
PRED	Predicate
PRO	Pronoun
PROG	Progressive Aspect
PSA	Privileged Syntactic Argument
PST	Past Tense
QUANT	Quantifier
REL	Relative Pronoun or Relativizer
RP	Reference Phrase
RRG	Role and Reference Grammar
TNS	Tense
SG	Singular
SBJV	Subjunctive
VOC	Vocative

Chapter 1. Introduction

The linguistic theory Role and Reference Grammar (RRG) places typological realism at its core by seeking, from the very beginning, to account for a broad coverage of language data from around the world. Even in the framework's earliest days, one of the central research questions of the framework was: "What would linguistic theory look like if it were based on the analysis of languages with diverse structures such as Lakhota, Tagalog and Dyirbal, rather than on the analysis of English?" (Van Valin 2005, 1). On that basis, RRG has aimed to create a framework that takes language typology and cross-linguistic research seriously in its descriptive resources and theoretical principles.

The goal of this thesis is to examine and evaluate RRG's descriptive and theoretical tools and principles from cognitive and typological perspectives as they relate to the semantic categories of tense and aspect. Specifically, the primary question at hand is this: Are tense-aspect categories assumed by RRG sufficient for linguistic description, particularly when the categories in question are ambiguous, complex, or both? Tense or aspect categories such as past and present or imperfective and perfective are in some sense basic level categories, assuming the language has them (Dahl 2000, 20ff.). Other categories, such as the future and perfect tenses and stative aspect are more peripheral categories: they often involve complex semantics and, depending on the language, do not neatly fit within the categories of tense, aspect, and modality. While a large number of grammatical categories area listed here, for the sake of space, I am restricting my focus to only one of these categories: the perfect in Hellenistic Greek.

Strikingly, this is precisely the criticism Christopher Butler makes when surveying Role and Reference Grammar, Functional Grammar, and Systemic Functional Grammar—though he does not explicitly mention peripheral, complex or ambiguous categories. He writes,

> So far, there has been little work, in RRG, on the detailed semantics of distinctions within the areas of temporality, aspectuality, modality, and polarity. Rather, a number of fairly broad and quite traditional categories have been proposed, and the main focus has been on showing how these categories behave in relation to the operator projection of the clause and to matters of clause linkage (Butler 2003, 484).

With these words in mind, my goal is to make a small contribution to this conversation and put forward one possible approach within Role and Reference Grammar for dealing with temporality and aspectuality that is in line with the functional, typological and cognitive aims of the framework. I intend to attempt to satisfy Butler's criticism here while also maintaining broader aims of Role and Reference Grammar to provide the descriptive tools for linguistic analysis. Operators, such as tense and aspect, are one area where RRG has not yet developed any descriptive tools or theoretical principles beyond typological predictions for their ordering. In its current incarnation, the internal structures of these categories are left generally unspecified. Moreover, the semantic relationships between the various operators are simply not laid out. This in turn, presents a challenge for using RRG for the representation and analysis of grammatical forms that do not readily fit within the pre-established categories. As it stands, Role and Reference Grammar makes a number of important typological claims about the ordering of operators, but more must be done in order for RRG to have a comprehensive set of descriptive and theoretical principles of the morphosyntax of these grammatical categories.

The focus of this study is on the Greek perfect, its nature as a category (whether tense or aspect), its semantic structure, and its relationship to other grammatical operators. The choice of this particular grammatical category is motivated by the thorny issues of categorization that have regularly challenged Greek grammarians and linguists. If a framework for analyzing tense and

aspect operators is to be beneficial for RRG, then it should be able to deal with such difficult descriptive problems. The corpus for my analysis of the Greek perfect consists of Hellenistic and Roman periods (300 BC – 200 AD), also known as the Koine period, since after the empire of Alexander the Great, the Greek language was spread through the known world and through the process of koineization.[1] In particular, I have surveyed a set of roughly five hundred indicative verbs that appear in the Greek Old Testament (the Septuagint/LXX), the Old Testament Greek Pseudepigrapha, the writings of Philo, the New Testament, Josephus, the New Testament Apocrypha, and the Apostolic Fathers.[2] These texts are generally representative of the period of the Greek language known as the Koine. The transcription is not merely the standard transliteration of the Greek alphabet into Roman script. It is instead phonemic and assumes the phonological reconstruction put forward by Gignac (1976) and Mussies (1971), with reference to Horrocks (2010).

The organization of the body of the thesis is laid out as follows. I begin with a general survey of Role and Reference Grammar in chapter two with special reference to the operator projection and RRG's semantic representation. This chapter then concludes with a number of observations about the strengths and weaknesses of RRG's proposals. Chapter three provides a literature review divided into two broad sections. The first surveys methodological challenges in the analysis of grammatical categories and proposes a method for their evaluation. The second section focuses on the typological literature of tense and aspect with special reference to the category of the perfect. From there, chapter 4 seeks to apply this synthesis as a test case to a

[1] This form of the Greek language was the impetus for the technical use of the term *Koine* to refer to supra-regional forms of a language.

[2] The editions used include Rahlfs and Hanhart (2006) for the Septuagint, Penner and Heiser (2008) for the OT Pseudepigrapha, Borgen, Fuglseth and Skarsten (2005) for Philo, Niese (1888-1895) for Josephus, Holmes (2010) for the New Testament, Holmes (2007) for the Apostolic Fathers, and Brannan (2013) for the NT Apocrypha.

specific grammatical category in Koine Greek, the perfect. While I do not provide solutions to all issues I have discussed, I hope this small application to a single grammatical category in a single language might form a beneficial starting point for developing a more nuanced model of verbal and clausal semantics in RRG. The discussion in chapter 5 seeks to tie together the methodological and typological discussion of chapter 3 with the analysis of the Koine Greek perfect in chapter 4 in a way that maintains the integrity of Role and Reference Grammar. I conclude with a brief epilogue summarizing my conclusions along with some residual issues and future avenues for research.

Finally, it must be emphasized that this thesis is first and foremost focused and Role and Reference Grammar. I take for granted that my audience has, at the very least, a basic level understanding of RRG and its structure. As such, knowledge of theory-specific concepts and terminology (e.g. privileged syntactic argument, pre-core slot, and macrorole) is assumed. To those who are unfamiliar with Role and Reference Grammar, I refer you especially to Pavey (2010). Alternatively, the brief overview of the theory provided in Van Valin (2010) might function as a useful quick reference for the uninitiated.

Chapter 2. Role and Reference Grammar

2.1 Overview of Role and Reference Grammar

Role and Reference Grammar is a typologically grounded, structural-functional linguistic theory. The framework's formulation was driven by the desire to form a theory of language that took language diversity as its starting point rather than simply using the structure of English as a theoretical starting point, as has been the case with much of the foundational work in generative approaches to syntax. A complete survey of Role and Reference Grammar is beyond the scope of this project. The survey here examines the relevant portions of the framework.[3] RRG is organized into two components: the Syntactic and the Semantic Representations. The latter presents a theory of predicate classes, a typology of states-of-affairs (states, events, and processes), and participants in the roles they play in predications. The former involves a number of "projections" that represent aspects of syntax that exist and interact in parallel, but involve distinct organizing principles. Most important, for our purposes, are the constituent projection and the operator projection.[4] The purpose of the constituent projection is fairly transparent and represents the most comparable portion of the Syntactic Representation to other theories of syntax. It represents the syntactic constituents of a clause. The operator projection provides the descriptive framework for morphosyntactic categories such as tense, aspect, negation, modality and illocutionary force, all of which may be realized in language by independent particles or morphology.[5] Together, these projections form the Syntactic Representation.

[3] I base this survey mainly upon Van Valin and LaPolla (1997), Van Valin (2005), and Pavey (2010) with reference to other sources when relevant.

[4] There is also a focus projection, for the information structure of the clause and its interaction with syntax. The focus projection is not directly relevant to the task at hand. There is also a "prosodic projection" (O'Connor 2008), though it is not clear whether the latter projection has achieved a canonical status within the framework.

[5] Some can be realized with prosody, like illocutionary force in English (Van Valin and LaPolla 1997, 42).

2.1.1 Layered structure of the clause

The approach to syntactic structure and representation followed by Role and Reference Grammar involves two basic principles articulated in (2.1) below.

(2.1) General considerations for a theory of clause structure (Van Valin and LaPolla 1997, 22)
   a. A theory of clause structure should capture all of the universal features without imposing features on languages in which there is no evidence for them.
   b. A theory should represent comparable structures in different languages in comparable ways.

For this reason, much of RRG's syntactic representation is grounded in cognitive concepts that are built into all human categorization. RRG takes the stance that to talk about *true* language universals is to talk about communication and cognition. In particular, the language universal categories of PREDICATE and ARGUMENT share an iconic relationship with the language specific lexical categories of verb and noun. They are also based on the fundamental cognitive concepts of predication and reference, without which there is no language or communication. The concepts arise from the embodied reality of human experience of participants and actions/events. Many cognitive linguists have argued at length that our experience of embodiment and interactions with each other and with objects in the world motivate both the semantic and syntactic structure of language (Langacker 1987; Lakoff 1987; Lakoff and Johnson 1999).

Role and Reference Grammar takes this view of human communication and its relationship to cognition as its starting point for its theory of syntactic structure. [6] The concepts of predication and reference form the groundwork for semantic and syntactic structure. RRG builds its syntactic representation on the foundation of the following semantic oppositions

[6] While RRG does not place itself within the same range of frameworks subsumed within cognitive linguistics in the same way that Cognitive Grammar or Construction Grammar are, the framework still builds on the same research that grounds those frameworks (Van Valin and LaPolla 1997, 28). Role and Reference Grammar is, in a very real sense, a cousin of Construction Grammar, one that bridges the gap between European and West Coast Functionalism. For the term West Coast Functionalism, see Butler, Gómez-González and Doval-Suárez (2003, 2f.).

presented in Table 1 (Van Valin and LaPolla 1997, 25).

Predicate +Arguments	Non-arguments

Table 1. *Universal oppositions underlying clause structure*

This diagram involves an ambiguity, however. The term ARGUMENT can refer to either a semantic or syntactic entity. The distinction is relatively small, but important because of the question of precedence. Table 1 deals with semantic arguments. It is the semantic distinctions above that motivate the syntactic categories in RRG's approach to clausal structure. This semantics-syntax relationship is shown in Table 2 (Van Valin 2005, 5).

Underlying semantic element(s)	Syntactic unit
Predicate	Nucleus
Argument in semantic representation of predicate	Core argument
Non-arguments	Periphery
Predicate + Arguments	Core
Predicate + Arguments + Non-arguments	Clause (= Core + Periphery)

Table 2. *Semantic units and syntactic units of the layered structure of the clause*

The units in the right column represent the syntactic layers and components of the clause. These basic distinctions provide the foundation for the constituent projection and operator projection in the RRG syntactic representation. This represents a dramatic departure from other approaches to modeling syntax because it explicitly presents syntactic structure in a non-autonomous manner.[7] The syntactic nucleus is motivated by the semantic predicate. Syntactic arguments are motivated by semantic arguments. Peripheries are motivated by non-argument entities. The core of a clause

[7] That is to say, RRG takes semantics as it starting point for syntactic structure. While there are a number of linguistic frameworks that deny the autonomy of syntactic structure, most still maintain the standard phrase structure trees or X-bar theory for their representation of constituent structure, to some degree or another. LFG (Bresnan 2001) and HPSG (Sag, Wasow and Bender 2003), for example both reject the autonomy of syntax as a theoretical principle, but still continue to use a syntactic representation based on principles derived from mainstream generative theory.

is motivated by the predication, composed of a predicate and its arguments, and the clause, by the proposition, composed of a predicate and its arguments together with non-arguments. All of these build into a layered structure, as seen in Figure 1 below (Van Valin 2010).

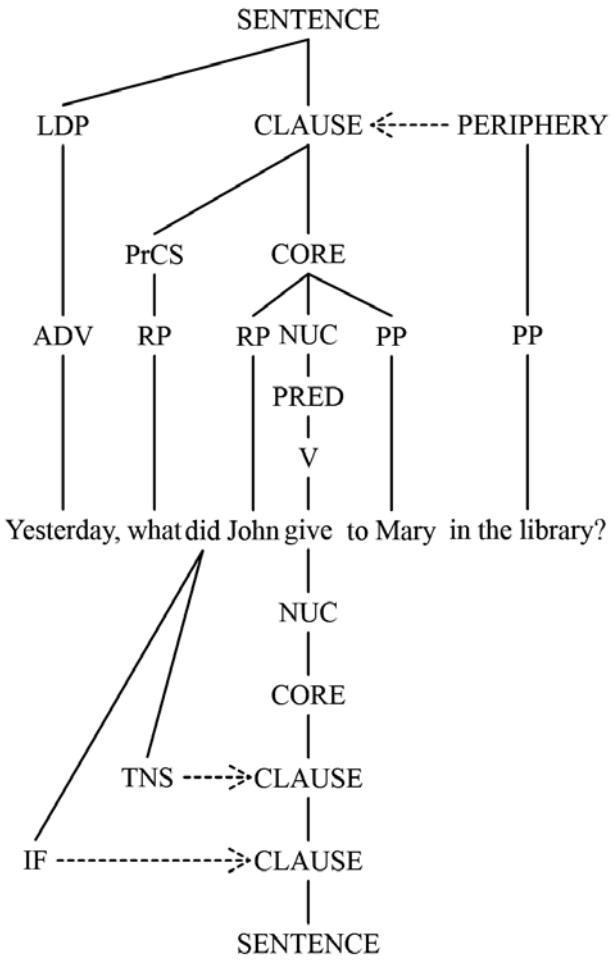

Figure 1. Layered structure of the clause for an English sentence

Here, we see the verb functioning as the predicate of the clause, forming the nucleus as the lowest layer of the clause structure. The nucleus joins with the two arguments, *John* and *to Mary*, to form the core.[8] We have a periphery connecting to the core on the right containing a non-

[8] RP stands for *reference phrase* and PP stands for *prepositional phrase*. The term *reference phrase* is preferred in current RRG literature because not all arguments are noun phrases, but they are all referring expressions. Using the term *reference phrase* also helps capture the iconic relationship of the syntax to one of two of the basic semantic categories of communication: reference. This approach is particularly useful in Greek syntax,

argument that provides a location for the state/event. The core exists within the clause layer, along with a pre-core slot (PrCS), a special position for question words in languages where they do not appear *in situ*.[9] The layer for the clause is the outer boundary of the proposition, along with the left-detached position (LDP), within the sentence layer.[10]

The most relevant aspect of RRG's layered structure of the clause in Figure 1 for our purposes is the operator projection beneath the clause, repeated by itself below in Figure 2.

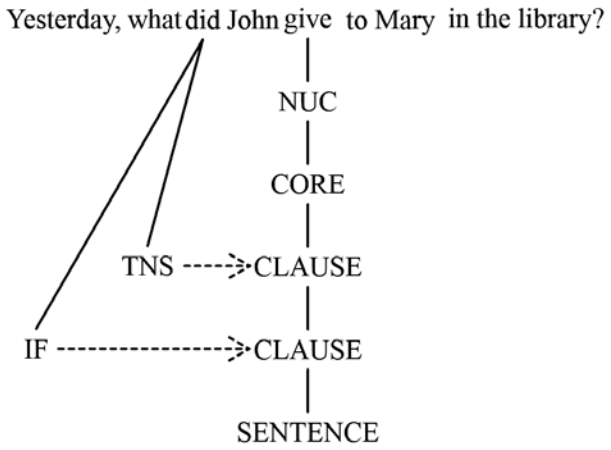

Figure 2. Operator projection of the layered structure of the clause

We see here that the operator portion of the representation projects morphosyntactic information such as tense (TNS) and illocutionary force (IF) from the auxiliary *did* in the clause. Both the constituent projection and the operator projection share the basic iconic structure that builds syntactic structure in layers based on parallel semantic elements. However, the operator

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where just about any constituent element can be modified by a definite article and made to function as an argument, including adjectives, numbers, participles, infinitives, and even in some unique cases, finite clauses.

[9] Some verb-final languages have a post-core slot instead (Van Valin 2008, 5). Both pre-core and post-core slots provide the syntactic position for focal elements.

[10] The LDP involves left-dislocated constituents, used for activating referents (Lambrecht 1994), and various framing devices, such as the temporal frame presented in Figure 1, where *yesterday* is not a part of the proposition, but establishes a point of departure for the proposition as a whole. Like with the pre-core slot, it is also possible for a language to have a right-detached position.

projection interacts with the layered structure of the clause in a fundamentally different manner. Operators in RRG involve morphosyntactic categories that contribute meaning to the clause and its parts. They are closed classes of words or morphemes. Unlike arguments and predicates, their semantic contribution does not involve reference or predication. These sorts of particles or morphemes exist independently of syntactic constituents and are not treated as such.

While the constituent projection represents the ordering of constituents on the basis of syntactic and information structural rules and principles, operators are ordered within the clause on the basis of their scope over the clause (Van Valin 2005, 8). There are three such layers, each representing a different semantic relationship within the clause. These layers (nuclear, core, and clause) and their respective operators are provided below in Table 3.[11]

Semantic Unit	RRG Layer	Operator
Predicate	Nucleus	Aspect
		Negation
		Directionals
Predicate +Arguments	Core	Directionals
		Deontic modality
		Negation (internal)
Predicate +Arguments (+Non-arguments)	Clause	Status
		Tense
		Negation (external)
		Evidentials
		Illocutionary Force

Table 3. *Operators and the Layered Structure of the Clause*

Nuclear level operators involve grammatical morphemes that modify only the action, event or state of the clause. Similarly, core level operators modify the relationship between the nucleus and its semantic arguments, usually the actor argument. Lastly, the clause level operators modify

[11] The position of negation and directionals in multiple layers is motivated by their semantics. See footnote 12 below.

the entirety of the proposition. These layers are defined by the operators that exist within them, as Van Valin states, "The classification of a particular operator as nuclear, core, or clausal is a direct function of its meaning" (2005, 9). Aspect's status as a nuclear operator comes from the fact that it refers to the nature of the predicate without reference to the participants. Likewise, tense's position in the clause layer is from the fact that predications along with their arguments and peripheral constituents are located in time. Negation and directionals both may appear in different layers and involve different semantic interpretations depending on the layer involved.[12] While the layered nature of operators derives from the scope they have over portions of a clause, RRG also claims that this layered structure is typologically predictive. Nuclear operators will consistently appear closer to the clause nucleus than core level operators cross-linguistically. Similarly, core level operators will appear closer to the nucleus than clause level operators. Thus, RRG claims an iconic relationship between the ordering of operators in relation to each other and their semantic nature as modifying the nucleus, core, or clause level (Van Valin 2005, 11).

RRG also emphasizes these operators are not universal: "[n]o language need have all of these operators as grammatical categories. For example, English, unlike Kewa and Quechua, does not have evidentiality as a grammatical category. The only operators which every language has are illocutionary force and negation" (2005, 9). Thus, one basic step for descriptive analysis in Role and Reference Grammar is discovering which operators a language has.

Another key aspect of RRG's approach to semantic operators is their existence as separate from the constituent projection, as in Figure 1 above. The ordering of constituents is

[12] A sentence like, *John did not give the gorillas their food*, could mean John gave the gorilla another animal's food. This would be core negation since only an argument is negated. It could also mean John did not feed the gorillas at all. This would be clause negation, negating the entire proposition. Nuclear negation is the negation of the predicate alone. In English nuclear negation tends to be lexical, such as *John undressed before bed*, where only the predicate and not the arguments are involved in the negation. The situation is similar for directionals. Nuclear directionals refer to the direction of the action or event; core directionals refer to the direction of the participants.

driven by a combination of syntactic constraints and principles of information structure. But operators do not participate in that system. Instead, as we have just seen, the ordering of operators follows considerations of scope in relation to the principle of iconicity. The view of Role and Reference Grammar on this issue, then, is that this ordering difference makes it counterproductive for a linguistic theory to represent grammatical categories such as operators within the same structure as constituent representation (Van Valin 2005, 12). Allowing operators to have their own projection within the Syntactic Representation alongside the constituent projection makes it possible to capture these ordering differences.

2.1.2 Semantic representation[13]

The discussion above has made regular reference to semantics. I have emphasized that the predicate forms the backbone of the clausal proposition. It is, thus, central to RRG's semantic representation; as Van Valin states, "Underlying any system of lexical representation for verbs and other predicators, implicitly or explicitly, is a theory of verb classes" (Van Valin 2005, 31). Role and Reference Grammar takes as a starting point for its semantic representation the classification proposed by Vendler (1967) as states, activities, accomplishments, and achievements. This model was modified in light of Dowty (1979) and Smith (1997).[14] In the following discussion, I follow the terminology of Pavey (2010) and Butler (2003) and refer to these types as *predicate classes*. This captures the important fact that these labels involve types

[13] The time between Van Valin and LaPolla (1997) and Van Valin (2005) saw some changes in the semantic representation. I follow the most recent version of RRG's theory of semantic representation.

[14] These kinds of distinctions among predicates have received a number of different labels. Perhaps most prominent among them has been the term *Aktionsart*, German for *action type*. Other terms that have gained some credence among linguists are *actionality* (a term that is essentially an Anglicized version of the German word *Aktionsart*), *lexical aspect* (Olsen 1994, Croft 2012), and *situation aspect*. The final term was proposed by Smith (1997) as a label that attempts to capture both the inherent semantics of the category and also its relationship to aspect. When referring to the distinction between perfective and imperfective which we might label as *aspect proper*, Smith (1997) prefers the term *viewpoint aspect*.

of predication rather than lexemes and is thus a more transparent label than the alternatives.[15]

The original four Vendlerian classes (state, achievement, accomplishment, activity) are provided in example (2.2) with representative English predicates from Van Valin (2005, 32).

(2.2) a. States: *be sick, be dead, know, believe*
b. Achievements: *pop, explode, shatter* (the intransitive versions)
c. Accomplishments: *melt, freeze, dry* (the intransitive versions); *learn*
d. Activities: *march. walk, roll* (the intransitive versions); *swim, think, write*

The distinctions among these types are rather clear, at least for their most prototypical instantiations. States and activities are both atelic, while achievements and accomplishments involve a change of state, and thus are inherently telic. States may be distinguished from activities by their static nature compared to the dynamic nature of activities. Likewise, achievements are instantaneous or punctual, while accomplishments are non-punctual.

Role and Reference Grammar includes two additional classes. The first is Smith's (1997) *semelfactive*. Semelfactives are related to achievements in being instantaneous. Unlike achievements, they do not involve a change of state. For example, the achievement, *The balloon popped*, involves a change in the state of the balloon from inflated to deflated. Conversely, a sentence such as, *The candle flickered*, involves no change of state. The candle has participated in a particular state of affairs (flickering), but afterward is still in the same condition as before. As such, *The candle flickered* is a semelfactive. The second additional class in RRG is a complex type formed from activity predicates, called *active achievements*.[16] This class may be formed by

[15] The traditional term *Aktionsart* has a complex history in Greek grammar as far back as the 1870s with work in Indo-European that conflated aspect and *Aktionsart* together into a single category, beginning with Georg Curtius' (1873) use of the term *zeitsart*. This adds additional difficulty for using this term, since it involves the history of Greek grammar over the past 150 years that has developed independent of mainstream linguistics.

[16] There is some inconsistency in the terminology here. Active achievements were previously labeled *active accomplishments*, a term used as recently as Van Valin (2005). It has since been revised to *active achievement* in Pavey (2010) on the basis that the final change of state involved in the class is an instantaneous one. The examples in (2.3) below are taken from Van Valin (2005, 33), but have been revised according to this shift in terminology.

taking an activity predicate and adding an endpoint. Active Achievements tend to be verbs of motion, consumption, and creation as shown in example (2.3).

(2.3)	a.	The soldiers marched in the park.	Activity
	a'.	The soldiers marched to the park.	Active achievement
	b.	Dana ate fish.	Activity
	b'.	Dana ate the fish.	Active achievement
	c.	Leslie painted for several hours.	Activity
	c'.	Leslie painted Mary's portrait.	Active achievement

We can derive all these clauses from four features: [± static], [± dynamic], [± telic], [± punctual]. The basic division involves static and non-static. Van Valin states,

> "[This] distinguishes verbs which code a 'happening' from those which code a 'non-happening'. In other words, with reference to some state of affairs, one could ask, 'what happened?' or 'what is happening?' If for example, a sentence like *Bob just ran out the door* could be the answer to this question, then the verb *run* is [-static]. On the other hand, a sentence like *John knows Bill well* could not be the answer to this question, because nothing is taking place. Hence, *know* is a [+static] verb" (2005, 33).

The 'happening' test helps us draw a distinction between state predicates and the other five predicate types. That is to say, states do not happen; they simply exist. The other features are less dramatic in the distinctions they create between predicates, marking more nuanced contrasts between the five classes, shown in (2.4).[17]

(2.4)	a.	State:	[+static], [−dynamic], [−telic], [−punctual]
	b.	Activity	[−static], [+dynamic], [−telic], [−punctual]
	c.	Accomplishment	[−static], [−dynamic], [+telic], [−punctual]
	d.	Semelfactive	[−static], [±dynamic], [−telic], [+punctual]
	e.	Achievement	[−static], [−dynamic], [+telic], [+punctual]
	f.	Active achievement	[−static], [+dynamic], [+telic], [−punctual]

[17] The inclusion of the feature [± dynamic] in the presentation of Van Valin (2005) exists entirely for the distinction of active achievements from accomplishments, which share the features [+telic] and [−punctual]. Otherwise, [± dynamic] is redundant in terms of minimal distinguishability of features.

All six of these basic predicate classes also have an addition more complex causative counterpart.[18] Non-causatives predicates are provided below in example (2.5) together with their causative counterparts.

(2.5)	a.	Tucker was terrified.	State
	a'.	Pierre terrifies Tucker.	Causative state
	b.	Dave walked around the park.	Activity
	b'.	Dave walked his dog in the park.	Causative activity
	c.	The door opened abruptly.	Accomplishment
	c'.	Rachel opened the door slowly.	Causative accomplishment
	d.	The car crashed into the barrier.	Achievement
	d'.	Dave crashed the car into the barrier.	Causative achievement
	e.	The soldiers marched to the park.	Active achievement
	e'.	The captain marched the soldiers to camp.	Causative active achievement
	f.	The lightning flashed in the night.	Semelfactive
	f'.	Henry flashed his headlights at another car.	Causative semelfactive

Each causative situation contributes an additional argument to the syntax. This reflects an increase in the number of participants involved in the proposition. Non-causative intransitive predicates alternate with causative transitive ones and non-causative transitive predicates alternate with causative ditransitive ones.

Central to this typology are a number of well-defined morphosyntactic tests for the classification of a given predicate as a state, activity, accomplishment, achievement, semelfactive, or active achievement. These tests function as an essential theoretical mechanism for language description in RRG since they aim to provide language-internal criteria for the status of a given predicate. Table 4 presents the seven tests commonly used in the RRG literature, along with the semantic features that are being evaluated, and how each of the predicate classes responds to the test when realized in natural language.

[18] The addition of causatives to the system will be seen to be an important one for the analysis of the Greek perfect in chapter four. Despite this, it is also a distinction that has, unfortunately, not played a role in the discussions of predicate/*Aktionsart* classes for Ancient Greek (e.g. Fanning [1990], Olsen [1994], Napoli [2006]).

Test → / Property tested → / Predicate Class ↓	+Progressive	*+vigorously, energetically*	*+quickly, slowly*	+X *for* <time period>	+X *in an hour*	Stative modifier	Causative paraphrase
	[−static, −punctual]	[+dynamic]	[−punctual] (applies only to [−static])	[−punctual]	[+telic]	[+telic] (applies only to [+punctual])	[+causative]
State	−*	−	−	+*	−	+	−
Activity	+	+	+	+	−	−	−
Accomplishment	+	−	+	Irrelevant*	+	+	−
Semelfactive	−*	−*	−*	+*	−*	−	−
Achievement	−*	−	−*	−*	−*	+	−
Active achievement	+	+	+	Irrelevant*	+	+*	−
Causative state	+*	+*	−	+	−	+	+
Causative activity	+	+	+	+	+	+	+
Causative accomplishment	+	+*	+	Irrelevant*	+	+	+
Causative semelfactive	−*	+*	−*	−*	−*	−	+
Causative achievement	−	+*	−*	−	−*	+	+
Causative active achievement	+	+	+	Irrelevant*	+	+	+

Table 4. *Tests for Predicate Classes*[19]

[19] The table is derived from Butler (2003, 357) and Van Valin (2005, 38-9) with a few adaptions. Butler lacks *semelfactives* in his table and the stative modifier test for *semelfactives* and *achievements*. Asterisks indicate that there is some caveat in the application of the test. See Van Valin (2005) for details.

A few brief comments may be made about these tests. First, note that discussions of the first test consistently emphasize the fact that it is only relevant for languages that have a progressive aspectual form, such as English, Turkish and Icelandic (Van Valin 2005, 35). This is an important point and one that deserves to be emphasized because progressive aspect is clearly distinct from imperfective aspect. We can see this difference when we compare the English progressive with the Greek imperfective. The progressive aspect is perhaps best viewed as a related aspectual type in connection to the imperfective aspect, with the latter denoting a given state of affairs as being incomplete (but not *necessarily* ongoing) and the former denoting a given state of affairs that is both incomplete *and* ongoing. This distinction explains the following contrast. Both the Greek imperfective and English progressive may be used to express incomplete and ongoing situations with comparable forms, as seen in example (2.6).

(2.6) ἐντολὴν καινὴν **δίδωμι** ὑμῖν.
ento'le-n ke'ne-n ˌdi-do-mi=y'min
command-ACC.SG new-ACC.SG **IMPFV-give-IMPFV.NPST.1SG**=you.DAT.SG
I am giving you a new commandment (John 13:34).

In example (2.6), we see the Greek text and its English translation are roughly comparable in their verb forms. In the ongoing moment of speaking, Jesus is giving them a new commandment to follow, with Greek using an imperfective and the English using the progressive aspect. This may be compared with a situation that is incomplete, but not ongoing, as with example (2.7).

(2.7) ὁ θεὸς τοῖς ἑπομένοις αὐτῷ **δίδωσιν** εὐδαίμονα βίον.
o=t^{h}e'o-s tys=epo-'men-ys af'to **'di-do-sin**
the=god-NOM.SG the=follow-PART-DAT.PL DAT.3SG **IMPFV-give-IMPFV.NPST.3SG**
ev'demona 'bio-n.
happy.ACC.SG life-ACC.SG
God **gives** a happy life to those who follow him (Josephus, *Antiquities* 1.20).

In example (2.7), the English translation cannot use the progressive aspect to mark a habitual or iterative state of affairs because they are generally intermittent, rather than ongoing. This is in

spite of the fact that habituality and iterativity both involve states of affairs that may be conceived of as being incomplete. For this reason, the English translation uses the simple present form, *gives*, rather than the progressive, *is giving*. The lack of a grammatical contrast in examples (2.7) and (2.6) demonstrates that Greek does not have a progressive aspect.

Secondly, these tests should not be viewed as solely sufficient for categorizing a given predicate, but together they provide a useful set of diagnostics. Van Valin (2005) emphasizes that these tests should be tailored to the language being examined in order to maximize their usefulness.[20] It is also essential to be mindful of what Van Valin calls, "'local co-occurrence effects' in interpreting the tests" (2005, 40) that can appear while applying the tests. He warns,

> For example, suppose one applied test 3 to the English verb *rush*, as in *She rushed across the room*, in order to determine whether this verb has temporal duration or not, yielding *She rushed quickly/swiftly/*slowly across the room*. Some but not all pace adverbs are possible here; what is one to conclude? The conclusion is that *rush* has temporal duration and therefore is either an active accomplishment or activity verb. … [P]art of the inherent meaning of *rush* is to do something with some degree of rapidity, *slowly* conflicts with this aspect of the meaning of *rush*. … [T]he incompatibility of *rush* and *slowly* is due to an aspect of the meaning of *rush* which is unrelated to what test 3 is testing for. (Van Valin 2005, 40)

Finally, these tests were designed for spoken language. They were never intended to be applied to ancient languages that only exist in texts. The textual nature of Koine Greek creates challenges for the analysis of predicates using Role and Reference Grammar. The reality of this situation

[20] It could be necessary, in some cases, to devise additional tests for languages to determine semantic classes of predicates.

necessitates much more caution on our part in any claims we make about the nature of Greek predicates. It also requires us to be more flexible and adaptive in how we go about applying various tests, where necessary, perhaps proposing additional tests for the evaluation of written texts.[21] Nevertheless, the application of these tests for predicate classes to text corpora rather than merely the evaluative judgment of native speakers is not without precedent. Butler (2003), in his comparative survey of Functional Grammar, Role and Reference Grammar, and Systemic Functional Grammar is reliant almost entirely on digital corpuses for his analysis and evaluation of these three structural-functional linguistic frameworks.

2.1.3 Logical Structure

The logical structure functions as the semantic counterpart to the syntactic representation that was presented above in section 2.1.1. It brings together the predicates, marked in bold (**predicate′**), with their arguments, which are denoted by letters from the Roman alphabet enclosed in parentheses: (x, y, z). The complexity of the representation is closely tied to the semantic complexity of the class itself. For example, result states involve only bare predicates, so a sentence such as *The television is broken* would be represented as **broken′** (x). The proposition as a whole would be: **broken′** (television). Transitive states are represented similarly, with two arguments delimited by commas.[22] Activity predicates all involve the predicate **do′**, as in **do′** (x, [**walk′** (x)]) or **do′** (x, [**eat′** (x, y)]). All other predicate types are based on these two classes. The more semantically complex predicate classes also use logical operators in small caps (e.g. BECOME for accomplishments, INGR for achievements, SEML for semelfactives and CAUSE for

[21] This has already been attempted for Ancient Greek, at least to some extent. Stork (1982) discusses the challenge of testing predicate classes in an ancient language at length and proposes a few possible tests to supplement those that are less useful in the application to written corpora. See section 4.2.1 for more discussion.

[22] The predicate in a sentence like *John knows Steve* would be represented as **know'** (x, y). See Van Valin (2005, 46) for discussion of other types of state predicates.

causatives). Accomplishment predicates add the operator BECOME, such as BECOME **melted′** (x). A sentence such as *The ice melted* would then receive the semantic representation BECOME **melted′** (ice). Semelfactives and achievements follow a similar pattern with the operator appearing before the predicate. A semelfactive clause like *The audience clapped their hands* has the representation SEML **do′** (audience, [**clap′** (audience, hands)]) and an achievement like *The window shattered* would be represented as INGR **shattered′** (window). An active achievement such as *The soldiers marched to the park* involves the more complex representation: **do′** (soldiers, [**march′** (soldiers)]) & [INGR **be at′** (park, soldiers)]. Lastly, causative clauses involve the joining of what is usually activity predicate with a predicate of any other type by means of the CAUSE operator. Thus, the clause *Micah shattered the window* would be represented as **do′** (Micah, Ø) CAUSE INGR **shattered′** (window). This representation for causatives can be adapted for any causative type by replacing the second representation following the CAUSE operator with the relevant class.

Semantic representations in this thesis are only used for descriptive and practical purposes, in order to make complex or subtle relationships more apparent to the reader. More detailed discussions can be found in the standard RRG descriptions, particularly Van Valin (2005) and Van Valin and LaPolla (1997).

2.2 Observations about Grammatical Categories and Predicate Classes in RRG

The purpose of the above survey of Role and Reference Grammar has been twofold. First of all, a summary of the relevant portions of the framework has been necessary in order to provide for better comprehension of the analysis of the Greek perfect in chapter four. Secondly, and perhaps more importantly, the above survey provides a context for an evaluation and discussion of the strengths and weaknesses of Role and Reference Grammar in terms of its stated goals and aims.

As I stated in chapter one, this thesis is fundamentally written within Role and Reference Grammar. We are attempting to put forward a theory of tense and aspect that can be directly integrated into Role and Reference Grammar, adopting and building on those aspects of RRG's approach to operators that are strong and effective while supplementing and expanding RRG's approach where we deem it to be less than sufficient. To that end, what is needed now is an evaluation of RRG in terms of where it succeeds and where it fails to satisfy its own goals.

Perhaps the most notable issue with Role and Reference Grammar's framework for our purposes is the problem stated above in Chapter 1. We are still left with a rather large gap when we compare the rich descriptive and analytical capacity of RRG's semantic representation of predicate types (with its extensive set of empirical tests for determining semantic structure) to the general lack of an analytical foundation for the categories of tense and aspect. Thus, while there are no fewer than six tests for distinguishing states from non-states, Role and Reference Grammar provides not even one test for determining whether an operator is imperfective or perfective—or, in our case here, whether a perfect should be viewed as tense or aspect. This descriptive gap is all the more surprising in light of the commonly recognized semantic relationship that exists between the category of aspect and actionality/*Aktionsart* (e.g. Smith 1997), where some linguists go as far as to suggest that the latter is the lexical realization of the former.[23]

This large difference between the descriptive tools the framework makes available for categories of actionality compared to those for verbal operators is problematic for the practical application of Role and Reference Grammar for grammatical analysis or linguistic fieldwork. As

[23] That is, of course, one of the more extreme perspectives and most linguists' views exist on a spectrum from those that argue aspect and actionality should be kept entirely separate (e.g. Verkuyl 1993) to those who treat them as functioning as within the same domain (e.g. Smith 1997).

such, the theory fails in its stated goals at this point. RRG is quite thorough in its analysis of one portion of grammar, but theoretically and descriptively lacking in another closely related area. With that said, there are a few other areas in RRG's current presentation of verbal semantic operators that are worth noting, because they are theoretically relevant to the task at hand and at the very least we need to have an awareness of them going forward.

2.2.1 Operators and Discrete categories

On a more theoretical level, Role and Reference Grammar treats semantic operator categories as discrete entities with fixed boundaries, even though most languages involve some degree of overlap between operators. Boutin (1994, 227) emphasizes this with respect to Bonggi:

> [The RRG model] results in oversimplification of these verbal categories. … [A]spect is neither morphosyntactically nor semantically a homogeneous category. Although viewpoint aspect primarily modifies the nucleus, in some cases it has a wide scope, e.g. in the case of the temporal adverb *hahal* 'still'. Another disadvantage of the model is that it tends to result in the treatment of aspect, tense, and modality as discrete categories when, in fact, they are interrelated.

At a basic level, an approach that formalizes operators as discrete categories, such as that of RRG, underutilizes the cross-linguistic research on the question of the nature of human categorization. The consensus of this research finds its roots in the studies of color terminology done by Berlin and Kay (1969). The goal of their research was to examine the apparently arbitrary variation in color terminology across languages. They concluded, "[A]lthough different languages encode in their vocabularies different numbers of basic color categories, a total universal inventory of exactly eleven basic color categories exist from which the eleven or fewer basic color terms of any language are always drawn" (1969, 2). Taylor (2003, 9) provides a

useful summary of their results: "Although the range of colours that are designated by *red* (or its equivalent in other languages) might vary from person to person, there is a remarkable unanimity on what constitutes a 'good red'." The implication of this study and similar ones that have been performed since (e.g. Rosch [1975] on the categorization of types of furniture, Lakoff's [1987] discussion of noun classes in Dyirbal and deictic expressions *here* and *there* in English) is that the human mind is incredibly consistent in its approach to categorizing the world. If this thread of research deserves to be taken seriously, then perhaps it needs to be formalized in the analysis of tense, aspect and other operators.

2.2.2 The relationship between Predicate Classes and Aspectual Categories

Another question involves the relationship between predicate classes and semantic operators. While some approaches to aspect, such as Smith (1997), subsume types of actionality/*Aktionsart* together with aspect proper (e.g. perfectivity and imperfectivity) so that they are viewed as two pieces of a larger whole, Role and Reference Grammar treats the two categories as distinct.[24] This is not to say that the semantic parallels between them are not recognized. Telicity, for example, is acknowledged as a relevant factor for both aspect and predicate types. Rather, a formal division exists in the framework between operators and predicate classes. RRG's semantic operators, including tense and aspect, function within the framework's syntactic representation and are also accounted for within the semantic representation. Van Valin's (2005, 50) simplified representation is provided in example (2.8).

[24] The approach one takes to these categories has practical implications for the organization of a grammar. A grammar that follows the approach of Smith (1997) would present both categories in a unified fashion, examining how situation aspect (*Aktionsart*) interacts with viewpoint aspect (aspect proper), followed by the interaction between aspect and other grammatical categories such as tense or modality. The RRG approach, on the other hand, would examine aspect in conjunction with other semantic operators such as tense, modality, status, and negation separate from *Aktionsart*. All these together would feed into the semantic representation where *Aktionsart* classes are examined. So the former approach treats *Aktionsart* as a piece of the puzzle moving toward the broader clausal semantics, while the latter treats *Aktionsart* as logically independent of other categories while still feeding into the semantic representation of the clause.

(2.8) Has Kim been crying?
‹$_{IF}$INT ‹$_{TNS}$PRES ‹$_{ASP}$PERF PROG ‹**do'** (Kim, [**cry'** (Kim)])››››

As you can see, in the semantic representation operators are still layered in terms of their scope around the predicate. As such, semantic operators still exist independently from the predicate classes themselves. This leaves us with an interesting situation. One wonders how to deal with a language where the predicate classes themselves are encoded inflectionally. This is an important question since the currently popular view among grammarians of Ancient Greek is that the Greek perfect encodes stativity (Porter 1989, McKay 1994, Rijksbaron 2007). Assuming for the present moment—and merely for the sake of the argument—this is an accurate portrayal of the language, then stativity ought to receive a position in the operator projection as an aspect operator (Pavey, *p.c.*). This would seemingly result in the double marking of stativity within the semantic representation.

Beyond that, we still find ourselves in the situation where the representation proposed is little more than that: a representation.[25] An impressive set of morphosyntactic tests are provided for one part of the semantics with nothing provided for another. This point is not about a flaw in RRG's organization. It is about the sufficiency of the semantic representation. I recognize that RRG's aim is not to provide a comprehensive decompositional semantic framework. To do so would miss the point. The framework is syntactically-oriented. RRG provides a basic semantic representation primarily for the purpose of explaining morphosyntax. The insufficiency involves the descriptive/analytic mechanism for analyzing predicates that takes place before to the semantic representation. It exists for predicate types. It does not exist for aspect and other operators.

[25] Part of the issue is complexity: the more semantic elements that are proposed, the more cumbersome the representation (Van Valin 2005, 53). Nevertheless, the tests for semantic operators would exist independently of the representation just as the tests for predicate types exist independently of the representation.

2.2.3 The challenge of complex categories

In addition to the issues above, the question of polysemic forms is not dealt with explicitly within Role and Reference Grammar. Because RRG does not make any specific statement on the question it is not entirely clear how the framework deals with the question, for example, of past tense usage in English, as seen in the two contrasting sentences in example (2.9)?

(2.9) a. If Ed came tomorrow, we could play bridge.
b. If Ed comes tomorrow, we can play bridge.

These clauses, from Huddleston (1984, 147), illustrate an important point of English grammar. The difference here is not temporal location. *Came* does not refer to past time; nor does *comes* refer to present time. What we have here, then, involves a polysemic relationship of senses for English tense forms, with the alternation between *came* and *comes* in (2.9) being one of probability. That is, *came* refers to a situation that is less probable (in Huddleston's terms more "factually remote"), whereas *comes* refers to a situation that is more probable (i.e. less factually remote). In RRG, this is a difference of epistemic modality, which is subsumed under the *status* operator. I would anticipate the answer would be that RRG would normally treat the *comes/came* alternation as involving tense, but when encountering situations such as the conditionals above, the forms would be categorized as status operators instead.[26] This is not unreasonable; it provides an accurate account of the semantics of the clauses. Even still, this accuracy fails to account for the fact that these two usages are both formally and cognitively related. The use of the past tense in conditionals to refer to factual remoteness represents a metaphoric conceptualization whereby the speaker of English conceives of a less probable event as more

[26] This is essentially what RRG does for English modal particles, which are ambiguous for deontic modality (a core level operator) or epistemic modality (a form of status and thus a clause level operator).

temporally distant.[27] It could mean such relationships are simply not acknowledged at all within RRG, but it is more probable that these relationships between usages are to be expressed in prose descriptions, independent of the linguistic framework.

Like above, these issues are directly related to the main issue articulated in chapter 1. Though Role and Reference Grammar articulates a well-developed framework for predicate classes with a useful set of diagnostics for evaluating differences in predicate semantics, its ability to deal with the complexity of grammatical categories is underdeveloped. Our goal moving forward is to suggest a proposal that might contribute toward filling in these gaps in a manner that shows respect for the current theoretical structure of Role and Reference Grammar.

2.3 Conclusions

The goal of this thesis is an evaluation of how Role and Reference Grammar deals with the difficult issues of peripheral and complex grammatical categories, such as tense and aspect. The introduction noted that there was a notable gap in RRG in terms of where the framework has been developed and where it has not. Some areas, such as complex constructions and predicate types have received extensive treatments, while other areas have received little work. This is particularly the case within the realm of operators, where for the most part, a set of traditional categories have been assumed with little provision of theoretical and descriptive tools for their evaluation and analysis. Following the rather detailed survey of the relevant sections of RRG theory dealing with verbal and clausal semantics, tense, aspect, and predicate classes, I have put forward three basic issues that arise from this gap in the framework. RRG, in its current form, has simply taken a set of broad and traditional grammatical categories with little guidance as to

[27] While the propositional content of the clause is non-temporal, I would argue that the temporal component is still in play at the cognitive level (Feldman 2006, Bache 1995).

how they should be applied to a given language. This results in a situation where operators have the appearance of discrete entities without reference to how they relate to each other semantically or how they relate to the semantics of predicate classes.

The goal of what follows in chapter 3 is to lay a theoretical foundation for proposing useful descriptive tools and theoretical principles that might contribute to filling in the theoretical gap in RRG described by Butler. Role and Reference Grammar has a long-standing tradition of building its framework upon well-defined descriptive principles and empirically sound typological claims. To that end, chapter 3 seeks to lay just such a foundation for the analysis and description of grammatical categories such as tense and aspect. A number of methodological and typological studies are surveyed and then synthesized in a meaningful and relevant manner.

Chapter 3. Toward a methodology for analyzing tense and aspect in RRG

The emphasis here in chapter 3 is to survey and evaluate several select pieces of research on tense and aspect that are especially relevant to the goals at hand. These works can be broken down into two groups. The first focuses on methodological issues that arise in evaluating the nature of individual grammatical forms in a given grammatical category, adopting the approach developed by Bache (1995). In the second section, I focus on typological issues. Typological studies of tense and aspect provide an essential building block for both the evaluation of the Greek perfect and in expanding Role and Reference Grammar's typological foundation for descriptive examination of these verbal operators from a variety of sources (Bhat 1999; Dahl 1985, 2000; Bybee 1985; Bybee, Perkins, & Pagliuca 1994). Each of these issues has played an important part in the formation of other portions of the Role and Reference Grammar framework. It is hoped that the same can be done here for the categories of tense and aspect. While the discussion of method in section 3.1 is, for our purposes, necessarily prior to that of typology, it is not entirely logically prior. Typological studies invariably function to provide guidance for the establishment of the semantic features involved in determining a given conceptual category and its meta-language. The structure followed here is practical, not theoretical.[28]

3.1 Methodological issues in the analysis of grammatical categories

Linguistic research on grammatical categories like tense and aspect presents an unusual situation. There is a massive and ever-growing amount of literature on these categories. But surprisingly little explicitly deals with basic methodological issues. Bache (1995, 19) observes in this respect that, "[f]ew people seem to worry about basic methodological problems, such as how to identify

[28] The situation is akin to what Dixon (2007) describes in the analysis of phonology, morphology, syntax, and the lexicon. One quickly finds that the analysis of one cannot be done without having already done the other three. No individual realm of linguistics can be extricated from the other.

the concepts of the categories involved, or how to construct an appropriate general metalanguage." Bache himself does not seek to overcome this problem entirely. He only hopes to "provoke an intensification of efforts to improve the state of the art" (20). Assuming that his is an accurate description of the state of research and to the extent that Bache's monograph deals specifically with tense, aspect and action, it is perhaps less surprising that Role and Reference Grammar has not offered as comprehensive a set of descriptive tools for verbal operators as it does for the semantic representation of predicates. This state of affairs might give the appearance of an overly ambitious set of goals here, but thankfully, Bache (1995) has provided a useful set of guidelines for the evaluation of tense and aspect categories, which, together with the handful of other discussions of methodology, allow for the possibility of overcoming a few of the challenges that we face in expanding RRG's descriptive potential.

These challenges involve questions of labels for categories and how they relate to a given language, which we will term the *object language* and the broader linguistic conception of the nature of natural language as expressed within a given framework, which, for lack of a better term, we can call a *universal grammar*.[29] The nature of categories is a foundational issue. There are also complex issues surrounding the evaluation of a given morphological form. Minimal pairs and contrastive substitution are useful procedures for determining whether a grammatical category, such as past tense or progressive aspect, exists in a language, but finding minimal pairs and accurately describing their significance are two different things. Bache (1995) presents

[29] The use of this term does not imply a mainstream generative conception of the nature of language. Bache defines the term as, "a generalized, abstract reflection of the phenomena encountered in source-languages and described in specific grammars" (1995, 85). Universal grammar is, then, for Bache an idealized construct. A given universal category, such as tense or aspect, functions as a schematic prototype for its individual instantiations in language. This view is notably similar to what Bhat (1999) describes in his typological investigation of tense, aspect, and mood, discussed below in section 3.2.1.

examples for these issues from a variety of languages, but I use examples from other analyses of Greek tense and aspect to illustrate these methodological points throughout this section.

3.1.1 Categories, labels, and conceptual structure

Bache's approach necessitates dealing with the question of grammatical categories and their semantics from the perspective of conceptual structure. This is important because conceptual structure allows us to deal with semantic categories in terms of explanatory adequacy (Bache 1995, 58-9). Conceptual structure goes beyond language; it arises from the totality of human cognition (Lakoff 1987). When we connect linguistic meaning with general cognition, we are able to provide an environment where it is possible to contextualize the semantic descriptions within the realm of human nature and experience. It then becomes a much simpler task to move from a contextualized description to a motivated description, as we will see below in section 3.2 and chapter 5. In this way, we are then able to evaluate claims about grammatical categories and, importantly, "find supporting evidence and falsify them in a meaningful way" (Bache 1995, 59).

In this context, it becomes possible to recognize that a meta-linguistic choice (a choice of one grammatical label for a form over against another label) implies more than just an empirical claim about the language in question. It also represents an explicit choice of one descriptive apparatus over against another. But the latter choice, in some sense, needs to be logically prior to the former one. This does not mean that the linguist or grammarian must have determined what categories they are using before they examine the language data. Such an approach would be begging the question. Rather, I suggest the categorical label in question must be linguistically justifiable as a label (ideally both cognitively and typologically) *before* the empirical questions of the language data can be sufficiently evaluated. Labels for grammatical categories do not exist in a vacuum, nor do they exist in a sort of grab bag, where one can be replaced by another label

on a whim without sufficient methodological justification. The introduction of meta-linguistic categories for a given language description ought to be accompanied by well-defined and explicit criteria for their attribution to specific linguistic phenomena. For example, when one applies the label *perfect* or *past* to a grammatical morpheme in a language, how does that label relate to one's broader conception of the nature of linguistic structure and likewise, how does one's conception of the nature of linguistic structure influence the choice of a label for a particular grammatical morpheme?[30] As Bache notes, "The continually bidirectional relationship between metalanguage [the descriptive framework] and object-language [the natural language being described], and the possible repercussions of this relationship in universal grammar, must be formalized in our terminology" (1995, 65).[31]

Consider the example of Porter's (1989) analysis of the Greek verbal system, where he introduces the label *remote* as his preferred way of referring to the past/non-past distinction in Greek. Independent of whether this is a justifiable term for describing the language data,[32] the use of the label *remote* introduces a challenging situation for the relationship of his analysis of Greek tense and aspect to virtually all other literature on tense and aspect. In light of Bache (1995), we might ask what repercussions this decision has for the relationship between Porter's

[30] When I say "one's conception of the nature of linguistic structure," I refer to a given linguist's general view of language. For example, in The Minimalist Program, *move α* has a relationship to specific pieces of language data and also to the larger generative framework. Similarly, the choice of the label *cosubordination* has implications for how a person views larger issues about connections between words, phrases, and clauses in RRG.

[31] These two different, but closely related, questions result in two different but necessarily related approaches to the study of language. We can approach linguistic research by studying a given language using a particular metalanguage. Or we can approach it by examining a metalanguage in light of language specific data. The latter is generally the domain of typological research such as Bybee, Perkins and Pagliuca (1994) or Dahl (1985, 2000). The former is exemplified by those works where a particular language is the object of study, such as Fanning (1990) or Haspelmath (1992) for Greek, or Bache (1985) for English. Ideally both approaches feed into each other.

[32] Porter's argument is primarily based on instances of contrastive substitution, where supposed past tense verbs have a real-world present reference and supposed present tense verbs have real-world past time reference. Making judgments about the significance of contrastive substitutions is the focal point of section 3.1.2 below.

analysis and universal grammar. For example, the use of the term *remote* tends to refer not to the non-existence of tense in the language, but to a variety of types of past tenses that express distinctions in how distant in the past a given state of affairs is. In such languages, "[t]ense choice is dependent on the temporal distance between the time of speech and the topic time" (Dahl and Velupillai 2011, n.p.). So in this case, we have a situation where someone has adopted a common and recognized grammatical label within linguistics, but has shifted its meaning dramatically. Instead of referring to a set of past tenses that involve different temporal distances from the time of speech, Porter uses the term *remoteness* for languages that give the appearance of marking temporal location on the verb, while not actually doing so, an approach to language description that would result in a highly improbable situation where virtually no language at all could be described as having tense. Ancient Greek has clear morphological marking that is used to distinguish temporal reference, [33] but Porter rejects the category of tense as appropriate for this marking because of contextual usages like historical presents. Unsurprisingly, Porter's view has not gained traction with most scholars of Ancient Greek. The typological implication of Porter's claim seems to be that there is a definable class of languages in the world that in many ways gives the appearance of grammaticalizing tense while, in fact, grammaticalizing spatial relations

[33] In terms of Greek, the morphosyntax is actually extremely clear. The past vs. non-past distinction is marked by the appearance of an *e-* prefix to the verb stem, together with the past tense subject agreement suffix as with example (i) below. The null morpheme is provided for visualization purposes only rather than theoretical ones. If the prefix *e-*, is not a marker of tense, one wonders what other purpose it serves.

(i) a. χωλ-οὶ περι-Ø-πατ-οῦσιν
xol-ˈy peri-∅-paˈt-usin
lame-NOM.PL around-NPST-walk.IMPFV-NPST.3PL
The lame are walking (Lk 7:22).

b. αὐτό-ς περι-ε-πάτ-ει
afˈto-s peri-e-ˈpat-ei
he-NOM.SG around-**PST**-walk.IMPFV-PST.3SG
He was walking around (cf. Acts 3:8).

For a survey of the Greek verbal system, see Appendix B.

instead, which are occasionally realized in terms of temporality.[34]

The labels chosen for grammatical forms do matter. They matter beyond the individual language in question. As we have seen above, there are broad implications for terminological choices. This is why there is perhaps wisdom in Role and Reference Grammar's fairly conservative inventory of verbal operators, since this also makes it cross-linguistically useful in a meaningful way. Categories like tense, aspect, modality, and illocutionary force are all sufficiently typologically grounded for language description. The challenge is in the nature of their sub-categories and the semantic relationships among those categories. This is a more difficult and complicated affair, as we will see in section 3.2.

3.1.2 Linguistic choice, example sentences, and grammatical categories

In grammatical descriptions, example sentences are used to demonstrate contrasts between two or more forms for the purposes of arguing for a particular interpretation of language data. The use of contrast in identical environments and contrast in analogous environments are ways to present information about linguistic choices in the language being described. Choice in grammar assumes "the existence of substitutional relations" (Bache 1995, 108). This type of contrastive analysis is prevalent across much of the field, but little is said about the methodological assumptions behind the sentences chosen for describing linguistic contrasts.

[34] Of course, since Porter has no interest in linguistic typology, he nowhere makes this claim himself, but what alternative interpretation of his claims exists is not clear. An alternative explanation is that Porter would aim to revise all tense terminology in general, so that *remoteness* functions as a superior language specific and cross-linguistic label for the traditional tense labels since languages that have the category of tense consistently tend toward using the category for both temporal and non-temporal situations (e.g. the use of the English past tense in conditionals). But if this is the case, then we have a different problem, articulated by Huddleston (1984, 148): "[a]s we try to bring more and more uses of a category or item within the scope of our semantic analysis of it, the meaning proposed will become more and more general, with less and less content." The alternative is to allow for polysemy, which also avoided another problem of Porter's *remoteness* analysis. If the Greek *e-* prefix truly marked *remoteness* rather than *past tense*, then we would expect it to also allow for non-past temporal remoteness means like futurity. A third and most likely possibility could be that his analysis is intended as an *ad hoc* language description and as such broader cross-linguistic issues are irrelevant. Even still, if this is true, then it seems to be very much at odds with the Systemic Functional Linguistics framework he employs in his work.

How do we evaluate linguistic choices? Linguistic choices in grammar imply meaningful differences (Runge 2010, 5). If there is a difference in form, we should expect one for meaning. But this is not always clear in practice. In fact, we can talk about a number of kinds of linguistic choices, with some being more constrained in their selection and others being less constrained. We can talk about these types in terms of a typology of example sentences.[35] Bache (1995, 127) suggests organizing minimal pairs into four types. These are presented in Table 5.[36]

TYPE	REPLACEMENT	RESULT
I	cannot be carried out owing to systemic gap	∅
II	sentence X →sentence X'	*Sentence X' (ungrammatical)
III	sentence X →sentence X'	!Sentence X' (distinct change of meaning)
IV	sentence X →sentence X'	(!)Sentence X' (slight /no change of meaning)

Table 5. *Types of example sentences*

At one end of the spectrum, there are situations where there simply is no choice available. These are situations where there is a paradigmatic gap in a grammatical paradigm. For example, there are a handful of Greek verbs that disallow one or another aspectual form. The copular verb *'ene* (εἶναι), 'to be', alternates for tense, but has no perfective aspectual form. We call these Type I sentence pairs. Type II sentence pairs are only slightly different. In these cases, a word has a full paradigm. However, for a given sentence pair, there is only one form that can be construed as grammatical. Thus in example (3.1), we see that for most state predicates in English, the progressive aspect is not an available option.

(3.1) a. This bottle contains two pints of milk.
b. *This bottle is containing two pints of milk.

[35] This typology is summarized from Bache (1995, 125-138).

[36] *Replacement* refers to the replacement of one grammatical form for another, which then *results* in the situation described in column three.

We see here there is no grammatical alternative with the progressive. The sentence in (3.1b) cannot be construed as grammatical.[37] Dealing with natural texts, contrasts of grammaticality are different; however, they do occur. The Apocalypse of John, written by a non-native speaker provides more opportunity for finding ungrammatical clauses than most texts. We can see one example of this in section (3.2). In this case, we are looking at a different grammatical contrast in the verb, one between non-past imperfective and non-past perfective verb-forms.

(3.2) a. **διδῶ** ἐκ τῆς συναγωγῆς τοῦ Σατανᾶ ...
di-ˈdo-∅ ek = tes = synagoˈge-s tu = sataˈn-a.
IMPFV-cause-NPST.1SG from=the=synagogue-GEN.SG the=Satan-GEN.SG
*I **will cause**[38] [those] from the synagogue of Satan… (Rev 3:9).

b. **ποιήσω** αὐτοὺς ἵνα ἥξουσιν καὶ προσκυνήσουσιν ἐνώπιον τῶν ποδῶν σου.
pyˈe-s-o afˈt-us ˈina ˈek-s-usin ke = proskyˈne-s-usin
make-PERFV-NPST.1SG 3.ACC.PL COMP arrive-PERFV-NPST.3PL and=bow-PERFV-NPST.3PL
eˈnopion ton = poˈd-on = su.
before the=feet-GEN.PL=you.GEN.SG
I **will cause** them to come and bow before your feet (Rev 3:9).

These two clauses appear directly beside each other in Revelation 3. Just as the English stative verb *contain* cannot be used with the English progressive aspect, the Greek verb *diˈdo,* (διδῶ) 'I am causing' here in example (3.2) cannot be used in this future referring context which makes the resulting clause ungrammatical.[39] We know that this is a future referring context because the

[37] Note that the non-stative, secondary causative sense of this verb can take the progressive, as in *When the commander arrived they were already containing the situation*, but this sense has a far more limited distribution than the sense presented above in example (3.1). The non-causative sense does not allow a progressive.

[38] This verb is elsewhere glossed as 'give'. This is the primary sense of the verb. The sense 'cause' is a secondary one that requires a clausal complement (cf. BDAG, 242; Danove 2009, 185-7).

[39] See Laughlin's (1902) survey of grammatical errors in the text of Revelation for a brief, but useful discussion. There is a tendency among evangelical Christian scholars to avoid the possibility of ungrammaticality on theological grounds. Many seem to wrongly view ungrammaticality as a threat to their conception of scripture as inerrant or infallible. Standard reference grammars make it quite clear that the use of non-past imperfective verbs is semantically restricted to accomplishments and active achievements, with the vast majority of instances involving verbs of motion. Moreover, the fact that the author explicitly corrected himself, lends credence to the idea that he recognized the ungrammaticality of the construction (cf. BDF §323).

author has had a consistent pattern in writing to each of the seven churches in chapters 2-3 of the book. Consistently, the letters consist of a statement of the condition of the church which is then followed by Jesus' future response to the church's behavior.[40] In this case, here, we have the interesting situation where the author has begun writing an ungrammatical clause (3.2a): "*I will cause those from the synagogue…" using a nonpast imperfective verb in a future referring context. He then stops halfway through the clause, corrects himself, and then begins again with the non-past perfective form that functions as the future in Koine Greek as we see in example (3.2b): "I will cause them to come and bow before your feet." The ungrammatical verb in sentence (3.2a) is also significant because of the fact that rather than the standard form of the non-past imperfective ˈ*didomi*, (δίδωμι) 'I am causing', in the older *-mi* conjugation, the author regularizes the paradigm to the more dominant *-o* conjugation with *diˈdo*, (διδῶ) 'I am causing', again affecting the grammaticality of the choice.[41] As such, the initial clause in example (3.2a) would likely be viewed by native Greek speakers as ungrammatical on two counts. Just like the English, the difference between the pair of sentences is one of grammaticality.

Further along, we have Type III sentence pairs where both sentences are grammatical and the difference is one of propositional reference. The choice of a given form in each sentence is determined by intensional factors, where the defining properties of the aspectual form motivate

[40] Thus, we have Jesus's future tense responses to Ephesus in Rev 2:5-6, to Smyrna in 2:10, to Pergamum in 2:15-17, to Thyatira in 2:23-28, Philadelphia (our example above) in 3:9-12, and lastly, Laodicea in 3:20-21.

[41] These two conjugations' names come from the form taken in the non-past imperfective active indicative 1SG. The older *-mi* conjugation continues to be used with a handful of highly productive verbs, such as ˈ*didomi*, (δίδωμι) 'I am causing'. See the brief survey in appendix b. There are only three instances of the regularized non-*mi* form across the entire corpus: here in Rev 3:9, then also in Appian, *Foreign Wars: Libyca* 1 and Hyperides, *Speeches: Lycophron* 10. However, all three vary in their accentuation. See Mussies (1971, 284-5).

truth-conditional differences between the two sentences.[42] The propositional content of these examples varies on the basis of the aspectual form chosen. Bache (1995, 123) provides the sentences in example (3.3) as representative of this type of sentence pair for English.

(3.3) a. Sally **sleeps** in the room next door.
b. !Sally **is sleeping** in the room next door.[43]

The simple present in (3.3a) refers to a habitual event. It answers the question: Where does Sally normally sleep? It makes no reference to her current location or whether she is sleeping right now. The progressive aspect in (3.3b) expresses the opposite, with no reference to Sally's normal sleeping location, answering the question: Where is Sally at the moment? These two propositions necessarily refer to distinct events in the world. The interpretation of (3.3a) takes the English simple present as a defining property for the situation to which it refers and the interpretation of (3.3b) requires the English progressive as a defining property for the situation to which it refers (i.e. a referent). The aspectual choice between the two is motivated by intensional factors.

We find a similar distinction with the perfective and imperfective aspects in Koine Greek in example (3.4), albeit without perfectly contrastive examples.[44] Nevertheless, the referential and propositional difference between the two sentences is quite clear.

(3.4) a. Γυναῖκος ἀνδρεῖος ... **ἔδωκεν** βρώματα τῷ οἴκῳ.
gyˈneko-s anˈdreo-s **ˈe-do-k-en** ˈbromat-a
woman-NOM.SG courageous-NOM.SG **PST-give-PERFV-PST.3SG** food-ACC.PL
to=ˈyk-o
the=household-DAT.SG
A courageous wife … **gives/provides** food for the household (Prov 31:15).

[42] The phrase 'intensional factors' does not refer to the difference between the two sentences, but to factors that motivate the choice of aspect in each individual sentence.

[43] The use of the exclamation mark denotes a difference in either propositional content or reference, between two sentences, where there is no issue of grammaticality.

[44] Koine Greek has no equivalent verb-form to the English simple present. As such, the Greek perfective past verb-form often fills this role when referring to gnomic situations or general truths.

b. γνώμην ἐν τούτῳ **δίδωμι**.
ˈgnome-n en=ˈtut-o **ˈdi-do-mi**
opinion-ACC.SG in=this-DAT.SG **IMPFV-give-NPST.1SG**
I am giving [my] advice in this [matter] (2 Cor 8:10).

The sentence with the perfective, ˈ*edoken* (ἔδωκεν) 'gives', in example (3.4a) expresses a general statement about a generic woman. Like the English example (3.3a), it makes no reference to whether the woman is currently giving food to her family and household. 'Woman', here, is non-referential. The sentence in (3.4b) parallels the English example (3.3b) in referring to a specific act in progress with its imperfective verb, ˈ*didomi* (δίδωμι), 'I am giving'. The imperfective conveys that Paul is in the process of telling his audience that they ought to give generously for their fellow believers in need in Jerusalem. He interrupts his exhortation to the Corinthians to emphasize that he is only giving advice, after which he picks up where he left off in his exhortation. In both bases, the aspect chosen is a defining property of the clauses' interpretation.

Our last type of contrastive sentences involves those that are the least constrained in selection and usage, provided in (3.5) below for English (from Bache 1995, 123).

(3.5) a. I **had** a chat with him the other day.
b. I **was having** a chat with him the other day.

This is a Type IV sentence pair. The difference here involves how the speaker seeks to present an event. The propositional content in (3.5a) with the perfective aspect is not distinct from the progressive aspect in (3.5b). Both verb-forms can be used interchangeably in the same context.[45] In this case, the grammatical choice is not governed by the grammaticality of the construction.

[45] For example, one interlocutor might say, *I ran into Steve this morning. He told me that he's going back to school*, to which the other might reply, *Yeah, I had / was having a chat with him about that just the other day.* Either form is grammatically acceptable. This is not to say that the sentences are identical. They will still (potentially) be used to serve different discourse purposes, but this is precisely what makes the difference between them *extensional* in nature: the aspectual form used by the author is not necessary because of the external referent (i.e. neither simple past nor progressive past convey inherent, defining properties to the situation).

The difference in aspectual choice in these two sentences is a result of the speaker's choice to conceive of the situation as in progress or not. Since aspect is not constrained by the sentence's real-world referents, the choice is extensional and non-intrinsic. Other non-defining properties (e.g. discourse, style, genre etc.) might influence the choice of one aspect over the other.[46]

A parallel situation holds for the Koine Greek sentences. Greek has a situation where the past perfective forms and the present imperfective forms may be used to refer to universal situations. The proverb from example (3.4) demonstrates this nicely in example (3.6).

(3.6) a. ὁ θεὸς τοῖς ἑπομένοις αὐτῷ **δίδωσιν** εὐδαίμονα βίον.
o=t^{h}eo-s tys=epo-men-ys aft-o **di-do-sin**
the=god-NOM.SG the=follow-PART-DAT.PL 3.MASC.DAT.SG **IMPFV-give-NPST.3G**
evdemona bio-n.
happy.ACC.SG life-ACC.SG
God **gives** a happy life to those who follow him (Josephus, *Antiquities* 1.20).

b. Γυναῖκος ἀνδρεῖος ... **ἔδωκεν** βρώματα τῷ οἴκῳ.
gy'neko-s an'dreo-s **'e-do-k-en** 'bromat-a
woman-NOM.SG courageous-NOM.SG **PST.give-PERFV-PST.3SG** food-ACC.PL
to='yk-o
the=household-DAT.SG
A courageous wife … **gives/provides** food for the household (Proverbs 31:10, 15).

The difference in the meaning of the imperfective verb-form in (3.6a) and the perfective verb-form in example (3.6b) is a subtle one. Like the English sentences, it involves how the speaker chooses to conceptualize an event. Were the two verb-forms switched, the propositional content of the two clauses would remain identical and there would be no disruption in their referent. Both statements convey what the author views as a general truth. Without native speakers we cannot say for sure, but a possible account for the subtle aspectual distinction could be phrased in

[46] Bache admits using the terms intensional and extensional, "rather carelessly," however he also emphasizes that the difference between Type III and Type IV is not merely one of semantic vs. pragmatic. Both types refer to a purely semantic difference between grammatical forms. The semantic difference between the two type IV sentences involves a "quantitative [difference in] referential scope (the progressive referring 'only' to the middle phase and the nonprogressive referring to the beginning, middle and end as a whole, but without the beginning or end being significant)" (Bache, p.c.).

this way: the imperfective aspect in (3.6a) emphasizes that the event portrayed is so regular that you can rely on its happening, whereas in (3.6b) the perfective aspect's lack of any internal temporal structure pragmatically conveys its general nature. From the perspective of the events described, either the imperfective habituality or perfective timelessness could be used effectively for either event. There is no reason to believe the author of Proverbs 31:15 does not think such a wife provides food regularly, nor is it that Josephus views God's giving of a happy life to his followers as anything other than universal. The difference lies in the writer's choice in the presentation of the event in light over various external factors and influences.[47]

We see from the discussion above that the example sentences that we, as linguists, use for grammatical analysis can be categorized into four types ranging from non-existent contrasts, where there is no grammatical alternative because of a gap in a paradigm to contrasts in conceptualization, where the two sentences are minimally distinct or nearly synonymous. This continuum and its prototypical types are summarized in Table 5 above, which I have repeated here for convenience as Table 6 (Bache 1995, 127).

TYPE	REPLACEMENT	RESULT
I	cannot be carried out owing to systemic gap	∅
II	sentence X →sentence X'	*Sentence X' (ungrammatical)
III	sentence X →sentence X'	!Sentence X' (distinct change of meaning)
IV	sentence X →sentence X'	(!)Sentence X' (slight /no change of meaning)

Table 6. *Types of example sentences*

[47] Armstrong does, however, make an observation about the syntactic difference between the imperfective gnomic and the perfective gnomic. The perfective gnomic construction, while it can appear with adverbs such as *pol'lakis* (πολλάκις) 'often', it cannot appear with adverbs that refer to universality, such as *a'e* (ἀεί), 'always'. For this reason, we can say that both gnomic perfectives and gnomic imperfectives still align themselves according to their basic semantic properties of internal temporal structure.

How any given pair of contrastive sentences fits this typology is not always clear-cut. The four types we have described should be best viewed as prototypical categories. The central members of each type of sentence pairs are going to appear more well-defined and clear cut, but they all have fuzzy boundaries. As an example, let us consider the distinction between the Type III sentences and the Type IV sentences, which involves referential or truth-conditional differences versus subtle non-referential differences. The two sentences in example (3.7) comparing the Greek past perfective and past imperfective forms helpfully demonstrate this point.

(3.7) a. **ἔδωκεν** τοῖς μαθηταῖς τοὺς ἄρτους.
ˈe-do-k-en tys=mat^{h}eˈtes tus=ˈart-us
PST-give-PERFV-PST.3SG the=disciple.ACC.PL the=bread-ACC.PL
[Jesus] **gave** the disciples the loaves (Matt 14:19).

b. **ἐδίδου** τοὺς τοῖς μαθηταῖς [ἑπτὰ ἄρτους].
ˈe-di-d(o)-u tys=mat^{h}eˈtes [tus= ˈart-us]
PST-IMPFV-give-PST.3SG the=disciple.ACC.PL [the= bread-ACC.PL]
[Jesus] **was giving** the disciples [the loaves] (Matt 15:36).

The context of Matthew tells us these are separate events, but for the sake of argument let us imagine we do not know that. In that case, we might say the difference between (3.7a) and (3.7b) is a Type IV contrast involving a non-propositional difference in meaning, where both clauses could be used interchangeably to refer to the same event. Alternatively, there are differences that might imply a Type III contrast. The past perfective form in (3.7a) suggests the giving of bread ended before the speech event, but imperfective aspect here only conveys that the giving of bread *was in progress* with no claim as to its completion. On the basis of aspect alone, there is no reason to assume that Jesus in example (3.7b) ever finished giving out the bread. He may have been interrupted by any number of distractions. Thus one might conclude these two clauses refer to referentially distinct events. This would imply that this pair involves a Type III contrast. While a decision for the contrast here is difficult, I prefer Type III as the preferred construal of the difference in (3.7). Others with whom I have discussed these examples have disagreed. And

that is precisely the point: no clear line exists where Type III contrasts end and Type IV contrasts begin. Neither sentence in example (3.7) is likely to be proposed as representative or prototypical. Rather, the previous examples in (3.1) through (3.6) would be viewed as good candidates for representative or prototypical examples of our four categories of sentence types.[48]

These kinds of ambiguous examples, where a set of sentences are borderline between the different classes exemplified above, exist for the boundaries between all four categories. [49] This might seem counter intuitive. Surely when there is a gap in the paradigm, there can be no ambiguity. Either there is a gap or there is not a gap. Nevertheless, the fuzzy boundaries between Type I and Type II exist for at least two significant reasons. For one, language is not a static entity. It is neither frozen in time nor frozen in the brain. It is constantly in flux not only across generations, but in the mind of the individual speaker and even in the midst of particular communicative interactions, as Hopper (1987) has demonstrated.[50] John, the author of Revelation, provides us with a unique piece of data that exhibits this fact in one of the most theologically profound statements in the New Testament, provided in example (3.8) below.

(3.8) Ἐγώ εἰμι τὸ Ἄλφα καὶ τὸ Ὦ, λέγει κύριος, ὁ θεός, ὁ ὢν καὶ **ὁ ἦν** καὶ ὁ ἐρχόμενος, ὁ παντοκράτωρ.
o=ˈon ke=o=ˈen ke=o=erˈxo-men-os
the=be.IMPFV.PART.NOM.SG and=**the=be.PST.IMPFV.IND.3SG** and=the=come.PART.MID-NOM.SG
I am the Alpha and the Omega, says the Lord God, the one who is and **the one who was** and who is to come, the Almighty (Revelation 1:8).

Unlike other places in Revelation, this grammatical error is intentional. It is also an error that covers the ambiguities between three of our four types of sentence pairs. Using a participle along with a definite article as the head of an RP (reference phrase) is a standard construction in Koine

[48] Type I was discussed in the paragraph just before example (3.1).

[49] For examples of borderline cases for all four types, see Bache (1995, 125-34).

[50] See also the papers collected in Bybee and Hopper (2001).

Greek.[51] Participles are marked for aspect, but they are not marked for tense. This presents a challenge for the author here, since he is trying to make a statement involving both aspect and tense: the ongoing (and thus imperfective) existence of God not only in the present, but also the past and future. The use of the existential verb as an imperfective participle, ˈ*on* (ὤν) 'being', is used for present time reference. Likewise, the imperfective participle of the motion verb, *er*ˈ*xomenos* (ἐρχόμενος) 'is coming', provides a useful construction for future time reference. These are both effectively fully grammatical for making temporal reference with a participle independent of a morphological tense marker. But the middle verb, which we have marked in bold, is highly unusual. This verb is the same existential verb as the first participle, but in its past imperfective indicative form, ˈ*en* (ἦν) 'was'. John, as the author here, has a few challenges. First, he is dealing with the fact that the lexeme in question ˈ*ene* (εἶναι) 'to be' has no past participle form. The form does not exist; there is a systematic gap. Thus, technically, we have what should be a Type I situation. There is no verb-form available. However, our author has attempted to work around that, but in doing so, he has placed an existing verb-form into what would otherwise be an ungrammatical context. He has used the indicative verb, ˈ*en* (ἦν) 'was', in a syntactic position that, grammatically, is limited to substantives only. Even still, this was a deliberate choice on his part.[52] As such, we have also moved beyond a simple binary distinction between grammatical and ungrammatical, since the writer has a specific meaning intended beyond the ungrammaticality.

[51] By my count there are at least 1,469 substantival participles in the New Testament alone.

[52] This is the consensus of scholarship on the question. See Beale (1999, 188) as a representative example. Also note that John repeats this formula several times: Rev 1:4, 8; 4:8; 11:17; and 16:5. The last two instances lack the final future referring portion.

Now, were we interested only in competence, there would be no issue. The sentence is ungrammatical. But RRG, as a framework, is not satisfied with dealing only with competence and its realization in formal syntactic relations, but also "with semantic and pragmatic coocurrence [sic] and combinatory relations" (Van Valin and LaPolla 1997, 13). In sum, performance and its entails (communication, cognition, semantics, pragmatics, etc.) must be taken into accounted for a grammar to be an adequate one. If we are interested in a grammar that accounts for actual language use like here in Revelation 1:8, we treat our typology of sentences as gradient. These are idealized prototypes. Any individual realization may be more or less like one of these prototypes and each one is delineated by the grammatical or semantic features described above.[53] Bache's (1995, 138) diagram presenting these defining characteristics and their differences is provided below in Figure 3.

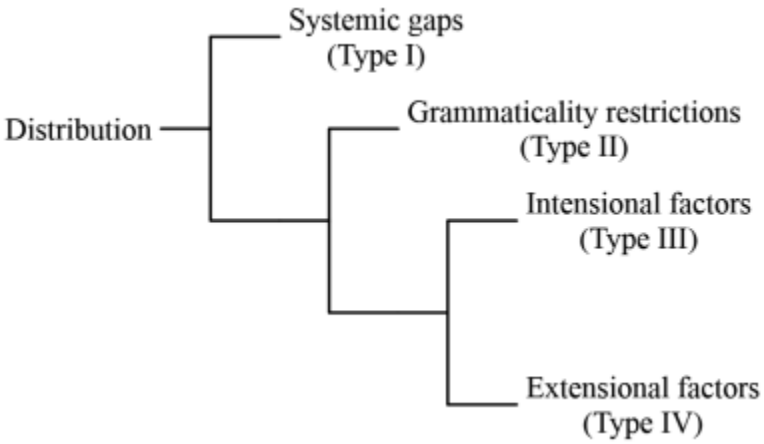

Figure 3. A systemic network of example sentences

However, I would suggest that the prototype effects described above and the existence of borderline cases that Bache himself describes (1995, 125-34) would imply that, rather than the hierarchy presented above, a more useful and more accurate representation would be a scalar

[53] This general argument for a continuum with prototypical realizations is adapted from Bache's own claims for the framework he uses. He states, "What the system does is present certain hallmarks - typical cases - in what is actually a cline or continuum of rather complex linguistic potentiality" (Bache 1995, 127).

diagram moving from grammatical contrasts that are maximally distinct or ungrammatical, as our Type I sentence pairs, to the other end of the spectrum where there is near synonymy between sentences. All four categories of grammatical contrast can be placed somewhere on this gradient scale, as proposed in Figure 4 below.

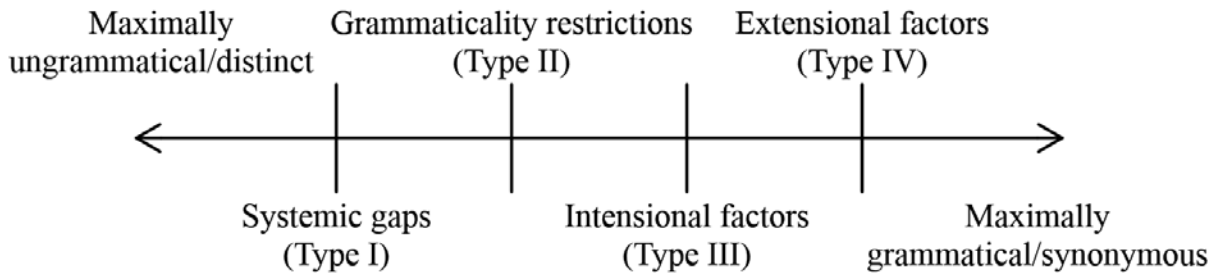

Figure 4. A continuum of example sentences

Practically, Type I (systemic gaps) and Type IV (extensional factors) each functions as the ends of the scale. The existence of systemic gaps in a paradigm is the necessary limit on the left. On the other hand, perfect synonymy is *theoretically* possible, even if it is not entirely probable.[54] A scalar diagram also captures the prototypical features of the categories themselves. Sentences that express grammatical contrasts of Type II and III express the distinctions between more central and more prototypical usages of the grammatical category and are thus the preferred types of sentence pairs for making claims about the nature of morphological and syntactic forms in a language, though any divergences that might exist in Types I and IV must also be accounted for in conjunction with Types II and III. We would not argue on the basis of the Type IV sentence pair in example (3.5) that English does not distinguish the progressive past and the

[54] Perfect synonymy would be most likely to occur as brief blips in the history of a language where one grammatical form is replacing another. Consider the Greek verb ˈ*eken*, (ἥκειν) 'to have come/arrive'. While this verb originally only appeared in the imperfective aspect, a perfect form eventually arose since the lexical meaning of the verb was essentially identical to the concept of the Greek perfect. This alternation could be viewed as a good example of complete synonymy, though there would likely still be factors of dialect and register that could motivate the choice of one form over against the other.

simple past merely because *I had a chat with him the other day* and *I was having a chat with him the other day* are interchangeable in a given discourse context. An accurate analysis of grammatical forms, such as tense and aspect operators, needs to be primarily based on Types II and III. The interpretation of Type I and IV data must be explained on the basis of substantive contrasts of the two central categories. It is precisely this difference in semantic and grammatical *substance* that is significant. Type I sentences do not have sufficient grammatical substance for making an accurate evaluation of meaningful differences because there is only one available option in the paradigm. Conversely, Type IV sentence pairs, in effect, lack semantic substance, since the two sentences are truth-conditionally or propositionally identical. Because Type IV sentences only involve differences in the conceptualization of an event, determining what that conceptualization is necessitates a grasp of the meaning of grammatical forms on the basis of the central types of grammatical contrasts: those involving interchanges of grammaticality or propositional content (Types II and III).

The priority of the central two types of sentence pairs does not allow us to disregard Types I and IV, however. An analysis of only the Types II and III without reference to Types I and IV would result in a description that accurately conveys the semantic differences between two morphological forms, but still likely fails to explain important portions of language data sufficiently. As an example, consider that basic grammatical and semantic contrasts in the Koine Greek voice system have been recognized consistently in all grammars (i.e. Types II and III). At the same time, little to no explanation has been given for the motivations behind the Greek middle voice synonymous with the use of the active with a reflexive pronoun (Type IV sentences) or why certain verbs only appear in the middle voice and have no active form while other verbs only appear in the active voice and have no middle form (Type I sentences). This has

resulted in a history of inadequate descriptions of the Greek voice system that has only begun to be rectified in the past couple decades (e.g. Allan 2003).

The opposite problem arises in grammatical descriptions with too much emphasis on the outer types in our scale, where instances of near synonymy (i.e. Type IV sentence pairs) are taken as evidence of a lack of a meaningful difference between forms. This is precisely what has happened in tense and aspect debates in Koine Greek that began in the late 1980's. Porter (1989) and those who have followed him have claimed that Greek is a tenseless language on the basis of contrasts such as those provided in example (3.9).[55]

(3.9) a. οὐκ **ἔγνως** τὰ γενόμενα ἐν αὐτῇ ἐν ταῖς ἡμέραις ταύταις.
uk = **ˈe-gno-s** ta = geˈno-men-a en = aft-e
NEG=**PST-know.PERFV-PST.2SG** the=become.PERFV-PART-ACC.PL in=it-DAT.SG
en = tes = emer-es taft-es
in=the=day-DAT.PL this-DAT.PL
You don't **know** the state of things in [Jerusalem] in these days? (Luke 24:18)

b. **ἔγνωκα** ὑμᾶς.
ˈe-gno-k-a yˈmas
PERF-know-PERF-NPST.1SG you.ACC.PL
I know you (John 5:42).

c. **γινώσκω** αὐτά.
giˈnosk-o afˈta
know.IMPFV-NPST.1SG this.ACC.PL
I know these things (Isaiah 48:7).

The argument goes that since all three of these clauses express the temporal location of the speaker in the translation, the distinction between past tense and present tense does not exist in the language and that my glossing of past (3.9a) and non-past (3.9b-c) is wrong. I would suggest instead that this set of clauses involves a Type IV grammatical contrast: nuanced extensional differences, or better, that their translations represent such a contrast. The verb used in these

[55] These examples are from Porter (1989, 83). They are also repeated as representative of Porter's claims for tense in Porter and Pitts (2008, 219-20). The translations are his, but the glossing and emphasis are mine—hence the use of past and non-past.

examples has two senses. The diachronically original and synchronically primary sense involves a change of state: *I come to know something* or *I learn something*. The secondary sense is stative: *I know*. Example (3.9a), with the past perfective form of the verb *ˈegnos* is better viewed as involving the change-of-state sense, rather than the stative sense. I would suggest the change-of-state sense is necessitated by the context of the passage. One of the two men on the road to Emmaus is expressing his surprise that Jesus is unaware of the recent past events: Jesus' trial and execution. It is not particularly convincing for Porter to prefer the secondary sense of the verb as evidence of Greek being tenseless when the primary sense makes perfect sense as being past referring. But if we accept the primary sense *come to know,* then the situation denoted by the clause involves past time reference. The present situation of knowing, in Porter's translation, is nothing more than a logical result of an agent-oriented change of state predicate. A better translation would be, "Haven't you learned what's been happening in Jerusalem these days?"

This situation with the past perfective, to some extent, parallels the semantics of the perfect in example (3.9b). Greek perfects like the one in this clause are derived from telic imperfectives, so that the primary sense of the verb in the non-past *giˈnosko* (γινώσκω), 'I am coming to know, I am learning', denotes that the endpoint of the change of state has been achieved: *ˈegnoka* (ἔγνωκα), 'I know'.[56] Thus, the implicit result of the telic past perfective above in (3.9a) is made explicit by the perfect of the same verb, resulting in the sort of subtle difference in meaning that Bache (1995) describes for Type IV sentences.[57]

[56] It should be noted that this discussion assumes the analysis of the Greek perfect argued for below in chapter 4. I ask that my readers withhold judgment on this point regarding the semantics of the perfect until then, though I can state this is essentially the same conclusion of Haspelmath (1992) and Haug (2004).

[57] It should be emphasized that Porter's translation is still an inaccurate one, since the past perfective of example (3.9a) technically has past time reference with only an implied present time state. At the same time, this

The nonpast imperfective in example (3.9c) has a subtle relationship with the perfect in (3.9b) in a different way than what we saw with the past perfective. For reference, the two sentences are repeated in example (3.10).

(3.10) a. **ἔγνωκα** ὑμᾶς.
ˈe-gno-k-a yˈmas
PERF-know-PERF-NPST.1SG you.ACC.PL
I know you (John 5:42).
b. **γινώσκω** αὐτά.
giˈnosk-o afˈta
know.IMPFV-NPST.1SG 3.NEUT.ACC.PL
I know these things (Isaiah 48:7).

Again, we see that the selection of the verb-form, at least in translation, conveys no propositional difference. In terms of truth-conditionality and propositional content, it would be perfectly adequate for a Greek speaker to replace the imperfective verb in (3.10b) with the perfect verb in (3.10a) without hindering the meaning of the statements. Instead, the choice between the forms involves the authors' conceptualization of the event. In the case of (3.10b), the imperfective, non-past verb denotes that a state of knowledge is maintained at the time of speaking. The Greek perfect in (3.10a) denotes that a state of knowledge has been attained at some point in the past and still holds. But both clauses express that a present state-of-affairs exists. In each case, the speaker has made a choice as to how to conceive of and express the state-of-affairs.

What I have shown is that Porter (1989) has attempted to argue for a central, primary meaning of these verb-forms on the basis of Type IV sentences, those that express only subtle differences in the conceptualization of an event. As I have already pointed out above, this is methodologically problematic, since the kind of differences in conceptualization expressed by Type IV sentences should preferably be determined on the basis of an analysis of Type II and III

quite subtle difference between the language's past perfective verb-forms and the perfect verb-forms eventually contributed to the disappearance of the perfect in later periods of the language.

sentences first.[58] It is both natural and expected that a language will have situations where semantic contrasts are minimized. These situations must be explained in one's analysis, though they must not form the foundation of the description. To start with a pair of sentences that minimize semantic differences and then argue backward on that basis that the language in question, thus, does not grammaticalize the category in question is to put the cart before the horse. Since Type IV sentences involve the minimization of semantic differences, Porter (1989) has essentially argued that apparent synonymy should be viewed as definitive for determining the existence of tense in the language. I suggest instead that Koine Greek does mark tense and its grammatical marking is made explicitly clear by means of the prefix *e-* 'PAST' along with the past tense subject agreement suffixes, as Runge (2011) has demonstrated quite clearly.

The purpose of the discussion above was to show that the concepts of categorization and prototypicality can function as useful methodological apparatus for Role and Reference Grammar in distinguishing the value and significance of various grammatical and semantic contrasts. Prototype theory has made important contributions to semantics over the past several decades, particularly in terms of the nature of human categorization. And because questions of categorization are so tightly integrated into the analysis of grammatical categories like tense, aspect, and other semantic operators, there is a greater need to explicitly state them, as I have here. I argue that the categories we use in grammatical analysis should satisfy the cognitive, psychological, and linguistic research into how humans categorize in general (see Taylor 2003).

3.2 Typological perspectives on tense and aspect

The typological literature on tense and aspect is massive. For that reason the goal here is not to

[58] This flaw on the part of Porter (1989) is somewhat unexpected since Bache's (1995) discussion is little more than a repeat of the same ideas he discussed in another article (1985) with slight changes in terminology. Porter (1989) lists that earlier article in his bibliography, though it apparently played little part in how he performed his grammatical analysis of tense and aspect.

provide a complete survey. I only examine a few key works on the intersection between language typology and tense and aspect. We are primarily interested in definitions and criteria applied to categories and subcategories. There is a general consistency in how the categories of tense and aspect are defined within the typological and cross-linguistic literature. Comrie's (1976, 3) definition of aspect as involving the grammaticalization of the "internal temporal constituency," of a situation, for example, continues to be well accepted across the secondary literature.[59]

Unfortunately, despite a broader general consensus, the details are complicated for the category of aspect. Bhat (1999, 44) distinguishes between three classes of aspectual categories. First is the perfective vs. imperfective distinction. This class involves simply the binary choice between the expression of temporal constituency (imperfective) and the lack of temporal constituency (perfective). Bhat's second class is *phasal aspect*, which involves distinctions that express different forms of temporal constituency (ingressive, resultative, progressive, etc.). The third class, Bhat labels *quantificational aspect*, in which he includes those aspectual types which involve some sort of countability (semelfactive, iterative, and habitual aspects). These groupings are theoretically adequate, but appear to show little relation to how languages allocate their grammatical resources to aspectual categories. Many languages mix and match among these aspectual types. Thus, English has a simple past and a progressive with no imperfective.

Quantificational aspect as a category is also a difficult category in descriptive practice. Armstrong (1981), following a typology proposed in Mourelatos (1981), demonstrates that for Classical Greek, the perfective/imperfective distinction aligns itself along lines of quantifiability, but his claim is much stronger than that, arguing that count quantification is "basic to perfectivity

[59] For example, Bhat (1999, 43; his emphasis) defines aspect similarly, "indicating the *temporal structure* of an event, i.e. the way in which the event occurs in time." Likewise, Smith (1997, 1) defines aspect in the following manner: "Aspectual meaning contributes temporal information and point of view to sentences." Both these definitions capture the same basic idea of the category of aspect as expressed in Comrie's definition.

and event predication" (2). This is clear both in Classical Greek (as Armstrong shows) and also Koine Greek. Perfective aspect appears with cardinal count adverbs. These include count adverbs, such as: *apaks* (ἅπαξ) 'once', *dis* (δίς) 'twice', *tris* (τρίς) 'thrice', *tetrakis* (τετράκις) 'four times', *pentakis* (πεντάκις) 'five times', and *eksakis* (ἑξάκις), 'six times'. The reason for this correlation is that predicates with perfective aspect are countable because they lack internal temporal structure. When we examine those few places where count adverbs appear with imperfective predicates, this becomes even clearer, as with example (3.11).

(3.11) a. **δὶς ἐτροπώθησαν** οἱ πατέρες σου ἐν τῇ γῇ αὐτῶν.
ˈdis e-troˈpo-the-sa-n y=paˈter-es=su
twicePST**-cause.to.flee-**MID**-**PERFV**-3**PL the=father-NOM.PL=you.GEN.SG
en=te=ˈge af't-on
in=the=land.DAT.SG 3-GEN.PL
Twice your ancestors **were put to flight** in their own land (1 Macc 10:72).

b. **δὶς καθ' ἑκάστην ἡμέραν ἐπιθυμιᾶται** τὰ πάντων εὐωδέστατα θυμιαμάτων.
ˈdis kat^{h}=eˈkasten eˈmera-n epit^{h}yˈmja-te
twice according to=each day-ACC.SG**offer.incense.**IMPFV-NPST.3SG
ta=pant-on evoˈdestat-a t^{h}ymjaˈmat-on
the.ACC.PL=all-GEN.PL most.fragrant-ACC.PL incense-GEN.PL.
The most fragrant of all incenses **are offered up twice each day** (Philo, *The Special Laws*, I 171).

In the first sentence (3.11a), we see that *dis* (δίς) 'twice' marks the perfective predicate as a countable event. Conversely, in example (3.11b) *dis* (δίς) 'twice' necessitates a frequency interpretation of the quantifier for the imperfective verb. Thus the counting denoted by *dis* (δίς) 'twice' in this second sentence functions as a description of the internal temporal structure rather than explicitly marking its lack, as it does with perfective aspect predicates. This interpretation is confirmed by prepositional phrase *kat^{h}=eˈkasten eˈmeran* 'according to each day'.

Bhat's category of quantificational aspect is only relevant for languages with an explicit grammatical form marking such aspectual meaning independently of the perfective/ imperfective

distinction. In both the case of phasal aspect and quantificational aspect, the Greek data above shows that languages lacking such semantic categories can use the more primary perfective vs. imperfective distinction in a manner that allows for phasal and quantificational interpretations.[60]

In a similar vein, the standard conception of tense as involving the temporal location of an event is also not significantly contested (e.g. Bhat 1999, 13). The subcategories of tense are realized along a number of parameters. Perhaps the most basic cross-linguistic distinction for tense categories involves distinguishing between deictic tenses and non-deictic tenses, sometimes referred to as absolute and relative tenses, respectively. Languages may differentiate grammatically between temporal locations that have a reference point coincident with the speech event (deictic tense) and temporal locations with a reference point distinct from the speech event (non-deictic). Deictic tenses are those that are anchored to the speech event, while non-deictic tenses use some other reference point as the anchor. Like the sub-types of aspect, languages are not limited only to deictic tenses or only to non-deictic tenses in how they present temporal reference. Lastly, the other commonly discussed distinction involves *remoteness* (Bhat 1999, Comrie 1985), where a language marks degrees of temporal distance from a reference point. Zulu, for example, marks distinctions in remoteness on the basis of whether a given situation was, "more than one day away" or "not more than one day away" (Dahl 1985, 125).[61]

3.2.1 Typology and the perfect

The establishment of cross-linguistically relevant attributes for grammatical categories such as

[60] Bhat notes, "Languages that differentiate between perfective and imperfective aspects generally express habitual and iterative meanings with the help of their imperfective forms" (1999, 54). This is true, but I would go further to suggest that languages that grammaticalize a progressive aspect rather than a basic imperfective express habitual and iterative meaning by other means. I observed in chapter two above (examples [2.6-7]) that habituality, being disallowed by the English progressive, is expressed by the English simple present and that conversely for Greek, habituality is expressed by the imperfective aspect and is disallowed from the Greek perfective.

[61] This is common in Bantu, but Dahl emphasizes that the phenomenon arises in many language families.

tense and aspect falls within the domain of typology in conjunction with communication and cognition. While there is a need to organize a sufficient set of linguistic tests for evaluating tense and aspect, space limitations force us to primarily focus on surveying theoretical concepts and those tests relevant to the category of the perfect, having briefly examined typological approaches to tense and aspect and their subcategories. There is some variation in terms of how typologists have described perfects across languages. In this section, we will examine two prominent approaches for the typological analysis of tense, aspect, and related categories. The first has been developed centrally by Joan Bybee and Östen Dahl, while the second approach has come out of the work by D. N. S. Bhat (1999). We will examine both of these in turn.

3.2.1.1 The Bybee-Dahl Approach

Dahl (1985) devotes an entire chapter to surveying perfects and related categories since there are a number of grammatical morphemes (grams) across languages with parallel semantic features. His work in the 1980s correlated closely with that of Bybee (1985) and since then they have relied heavily upon each other in their typologically-grounded analyses. Grammatical categories such as tense and aspect do not play a significant role in their approach. As Dahl puts it,

> "The B&D [Bybee & Dahl] approach differs from most other treatments of tense and aspect in that the basic units of description are not 'the category of tense' and 'the category of aspect' but rather what we call **grams**, i.e., things like Progressive in English, the Passésimple in French etc. Notions like tense, aspect, and mood are seen as ways of characterizing the semantic content of grams, or domains for which their meanings are chosen, but do not, in a typical case, represent structurally significant entities in grammatical systems" (2000, 7).

More central to their approach than such meta-categories are the grammaticalization paths that particular grams take. This approach results in a state of affairs where relationships between grams are organized cross-linguistically in three ways. The first way is by their shared origins, whether lexical or grammatical and, secondly, their shared paths of future grammatical or semantic change, lexically or grammatically. Lastly, they are organized synchronically in terms of their usage which is viewed as gradient. Thus, Bybee and Dahl are able to speak of diachronic prototypicality in terms of idealized grams that derive other idealized grams and also synchronic prototypicality in terms of frequency of appearance in particular linguistic contexts. This results in a conceptual space of categories that does not fit the standard divisions into tense categories on the one hand and aspect categories on the other. Instead, this approach prefers the concepts of core categories and peripheral categories. Figure 5 illustrates this conceptual space.

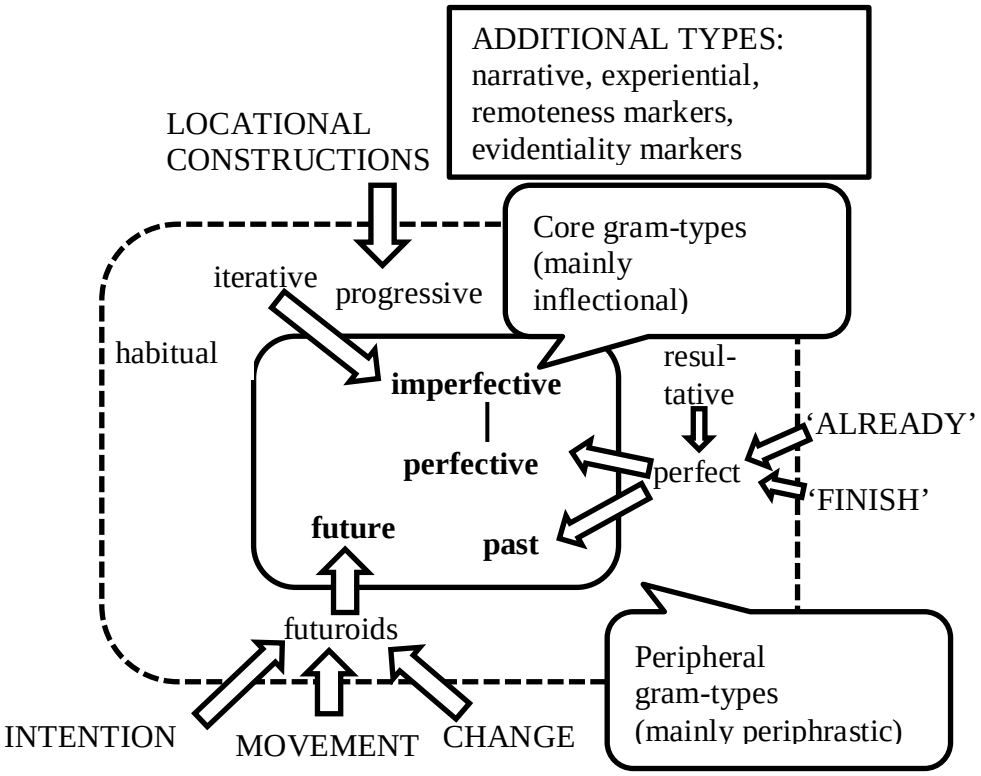

Figure 5. Dahl's cognitive space for tense and aspect grammatical morphemes (2000, 15)

The core grams are defined by formal properties, such as inflectional marking, as well as functional properties such as their tendency to be obligatory in their primary usages. Peripheral gram-types, conversely, have the tendency to be realized more often by periphrasis and involve more complex semantics. They are also less obligatory in their usage (Dahl 2000, 14). An important result of this approach is that it becomes impossible to talk about tense as a phenomenon independent from aspect or, in effect, state whether a given morpheme should be described as a realization of tense or aspect.

The grammatical forms that have traditionally been labeled as perfects in various languages and then categorized by some linguists as being within the domain of tense and by others as being within the domain of aspect are clustered to the right in Figure 5 above.

However, for the Bybee-Dahl approach, that debate is mitigated in its entirety. For example, Bybee, Perkins and Pagliuca (1994) present a set of gram-types with semantics traditionally connected with the category of the perfect: resultatives, completives, and anteriors on the basis of their similar paths of grammaticalization: all three of these, though from separate sources, move along toward being grammaticalized as the same two core grams: past, perfective, or both past and perfective.[62] Each of these gram-types is defined on the basis of its unique semantic properties while also sharing parallel patterns of grammaticalization.[63] Their semantics are also related. Completives are grammatical morphemes that denote that a state of affairs has been done "thoroughly and to completion" (Bybee, Perkins and Pagliuca 1994, 54). They are

[62] The labels of resultative and anterior in Bybee, Perkins and Pagliuca (1994) generally parallel those of other typological studies. Smith (1997), for example, distinguishes a number of semantic features that have been generally ascribed to perfects, while noting that not all languages with perfects involve all these features. These include perfectivity, resultant stativity, the situation precedes the reference time, and current relevance—the last of which is described as, "a special property … ascribed to the subject, due to the participation in the situation" (106).

[63] Since the labels 'tense' and 'aspect' do not play a role here, I refrain, for the time being, from using them. They will return in the synthesis of this section with the standard RRG approach to these categories.

analogous to the perfect gram in Figure 5 on page 56 above that finds its origin and semantics in lexemes that denote completion—note the arrow above connecting the perfect gram to 'Finish'. Anteriors denote a situation that takes place prior to a reference time, and is pragmatically relevant to the situation at the reference time. They tend to collocate with relational adverbs such as *already*. Resultatives, according to Bybee, Perkins and Pagliuca, "signal that a state exists as a result of a past action" (1994, 54). They can only be used with verbs with an inherent endpoint since a resultant state implies that there was a change of state at one point.

The description of these perfect-like categories provides a useful starting point for recognizing a number of language-specific categories and their semantic features and origins. It has the potential to go beyond the basic set of categories in the current RRG framework, while also providing arguably a more natural conceptualizing of semantic categories. That is to say, they do a better job recognizing that more often than not tense-aspect grams cannot be pigeon-holed into only being tense or only being aspect. Individual tense-aspect grams, like all categories within the prototype theory conception of human categorization, are not discrete entities with well-defined boundaries. When it comes to describing the more peripheral categories, such as perfects, resultatives, futuroids, etc. (see Figure 5), the Bybee-Dahl approach successfully sidesteps the complex question of labeling these categories as being tense, aspect, or modality. On the other hand, their general disinterest in a higher level organization among these grammatical categories surely results in these linguists disregarding what has been one of the more definitive generalizations about verbal systems: that the grammaticalization of temporal deixis (tense) functions distinctively from the grammaticalization of temporal constituency (aspect). The Bybee-Dahl approach also loses out on the significant typological observations about the relative scope of tense and aspect and its implications for syntactic ordering that has

been put forward in Role and Reference Grammar. We might say that Bybee-Dahl place the emphasis on the individual grams to the detriment and neglect of metacategories, while RRG focuses on the metacategories and their relationship to each other while expressing very little interest in the individual grams. The question becomes whether these two approaches can be brought together.

3.2.1.2 The Bhat (1999) Approach

There is also an additional typological approach to tense and aspect categories which might be employed. Bhat (1999) proposes a model for tense, aspect, and mood that groups languages based on the prominence they give in their grammatical system to one of these categories over against the others: tense prominent, aspect prominent, or mood prominent. This is an idealized typology based on prototype theory, where any given language is more or less like one of the idealized types. Some languages might give roughly equal prominence to more than one grammatical category. These idealized language types are characterized by the degree to which a given category is grammaticalized, the extent to which it is obligatory, systematic in its realization and pervasive in the verbal system compared to the other two categories. Bhat argues that the prominence of one category over the other two also correlates with the tendency in a given language to retain distinctions of that category more than others when verbs are used in non-predicative contexts, the tendency to view other sub-categories in terms of the more prominent category, and to encode the prominent category as inflection and other categories by other means, such as auxiliaries (Bhat 1999, 100). A language that prioritizes the *past* and *non-past* grams over *imperfective*, *perfective* and other categories may be described as a tense prominent language and a language that prioritizes the grammaticalization of *imperfective* and *perfective* may be treated as an aspect prominent language.

By conceptualizing the typology of languages in terms of the prominence that they give to tense or aspect, we are able to capture a number of generalizations from the Bybee-Dahl approach in a way that might be useful for Role and Reference Grammar. In essence, Bhat has extended prototype semantics from the level of the language-specific grammatical morpheme and brought it up to the level of the framework itself, such that instead of talking about the prototypical nature of a morpheme, we are talking about prototypical nature of a language. And in doing so, he is able to bring back the metacategories, tense and aspect, while also still capturing the fact that some grammatical categories are more peripheral and less stable in their realization than others. Bhat recognizes not only that these core categories such as *past*, *non-past*, *perfective*, *imperfective*, and so forth are more likely to be realized grammatically than periphrastically, but also the tendency of languages to prioritize the grammaticalization of some of these grams over against others.[64] It is precisely this fact that motivates his conception of grammatical prominence. When a language grammaticalizes a *past* and *non-past* rather than *perfective* and *imperfective*, that language is a tense-prominent language.

The peripheral categories of the Bybee-Dahl approach in Figure 5 above on page 56 follow logically from this perspective.[65] Bhat, following Hopper and Thompson's (1984) analysis of lexical categories, argues that the prominence of one grammatical category over against another can result in the decategorization or recategorization of other grams—where a particular grammatical morpheme belonging to one category is reanalyzed as functioning within

[64] The other piece of evidence of categorial prominence beyond grammaticalization is the likelihood for a given form to be expressed in non-finite clauses, such as imperatives, infinitives, or participles. This is contrary to the standard view of how tense, aspect, and mood are grammaticalized—that aspect is more likely to appear in non-finite forms than tense, for example. Bhat (1999, 143) suggests that this perspective toward aspect and tense is a direct result of the limits of past study on certain Indo-European aspect prominent languages, such as Russian, noting conversely that mood prominent languages, such as Amele, may have realis distinctions in non-finite forms.

[65] While Bhat does not state this fact himself, it seems likely that he is aware of it considering how often Bhat (1999) refers to Bybee, Perkins and Pagliuca (1994).

another category, like what happens with the modal uses of the English past tense in conditional constructions. Future, habituality, negation, and the perfect, Bhat suggests, are susceptible to this phenomenon.[66]

While space prohibits examining this process with every category, it would be useful to look at Bhat's argument for a couple types: the future and then our category of primary interest, the perfect. The primary function of the future category is traditionally described as involving the temporal location of a state-of-affairs as subsequent to a reference point (typically the speech event). For that reason, the category quite clearly fits within the realm of tense. At the same time, however, many linguists have observed that the concept of future often derives historically from modal forms, expressing desire, obligation, and ability, (Bybee, Perkins and Pagliuca 1994, 280; Dahl 2000, 15). Because of this, Bhat makes the following proposal,

> What I am suggesting here is that the notion of future, if it does occur in a language, would be temporal or modal depending upon the prominence that the language attaches to the categories of tense and mood respectively. If a tense-prominent language has a distinct future form, we can expect it to function primarily as a tense form, with the modal connotations occurring only as its implications; in the case of a mood-prominent language, on the other hand, such a form would primarily be a modal one (1999, 176-7).

In a similar manner, an aspect-prominent language will likely involve future forms that are organized within the aspectual system.[67] The Ancient Greek future forms are notable in this

[66] Another example is the tense-prominent language Kannada. Kannada encodes aspectual and modal distinctions with auxiliaries. Aspectual distinctions like completivity are realized by the attachment of auxiliaries to the language's past tense forms. Auxiliaries that mark progressive and habitual aspects, attach likewise to present tense forms. The completive is recategorized alongside past tense while the progressive and habitual aspects are recategorized alongside present tense (Bhat 1999, 165).

[67] Bhat (1999, 177) notes that Navajo is a clear example of this (cf. also Smith, 1997).

regard, since the origin of the future forms has been the subject of intense debate. Some (Sihler 1995) hold that the future form is derived from the Proto-Indo-European desiderative suffix *-*s*. Under this analysis, the future would be viewed as essentially modal in nature. Others, however, have argued that the Greek future should be viewed as derived from the perfective aspect suffix, which also takes the form -*s*. Willmott (2008, 79), picks up this train of thought and goes as far as to suggest that both the future tense and the perfective subjunctive arose from perfective non-past, each splitting then taking on different meanings. There is no real consensus on which view of the Greek future is the correct one. Both Willmott (2008) and Lightfoot (1975) conclude on the issue that the evidence is simply too ambiguous to decide in either direction. For reasons beyond the scope of this discussion, I prefer the desiderative origin. There is one thing that is incontrovertible, however. While there is no agreement as to the modal or aspectual origin of the -*s* future suffix, the future form, -*t*^{h}*es*,'FUT.MID', used only with middle verbs, can only be viewed as derived from the middle perfective portmanteau suffix, -*t*^{h}*e*. Moreover, it appears from ancient grammatical descriptions (e.g. Dionysius Thrax) that, regardless of the origins of the -*s* future form, native speakers of Koine Greek reanalyzed it as aspectual: a non-past version of the perfective aspect.

In the case of the perfect, a similar pattern can be observed. The related peripheral grams described by Bybee, Perkins and Pagliuca (1994), resultative completive, and anterior, may be described as more tense-like or more-aspect like. And along these lines, for a tense-prominent language, perfects are most accurately described as involving a "past event that has current (present) relevance" (Bhat 1999, 170)—which is precisely Bybee, Perkins and Pagliuca's (1994, 54) definition of anteriors. English, Finnish, and many Dravidian languages are representative of

this type. Finnish, according to Sulkala and Karjarainen (1992, 297), forms its perfect by joining together the present form of the copula auxiliary *olla*, 'to be', with the past participle form of the main verb, as in example (3.12). The Finnish past perfect is formed in a similar manner. It involves the joining together of the past form of the copula, *oli*, together with a past participle, as with example (3.13).

(3.12) he **ovat** **matkusta-nee-t** somaliaan
they be.NEUT.PST.3PL travel-PST.PART.-PL Somalia
They have traveled to Somalia.

(3.13) Viime kevään minna **oli** **ollut** tallinnassa
last spring Minna **be.PST.3SG** **be.PST.PART** Tallinna
Minna **had been** to Tallinna last spring.

Both categories are formed from a temporal basis and Finnish grammar, as such, treats them as tense. Like English, the most important contrast between the two forms is one of temporal location: past vs. non-past. Bhat emphasizes, "[The] notion of relevance, in the case of the present perfect, can only be non-past; it cannot be past" (1999, 171). This is also true of English. Consider the following sentences in example (3.14).

(3.14) a. David and Tiffany are living in Chicago.
b. Rachel has lived in Chicago.
c. Rachel had lived in Chicago.

The first sentence is regular progressive non-past and its propositional content presents a current state of affairs at the speech time. The second sentence in example (3.14b) has an English present perfect. [68] Propositionally, this clause presents a past situation whose relevance correlates with non-past tense. The final sentence, in (3.14c), involves a past perfect, in which the past state of

[68] Depending on the context, it could convey that the situation involves past relevance. This would be the case if it appeared within a narrative being conveyed in the past tense. Alternatively, it could convey that the situation involves non-present relevance. This would be the case if the sentence appeared in a dialogue, as with example (ii).

(ii) Speaker A: Do you know anyone who lives in Chicago? I cannot afford a hotel for my trip.
Speaker B: Rachel has lived in Chicago, but, well, I suppose that doesn't help you now.

affairs disallows present relevance. Its deictic anchor exists at a point that took place before the speech time. English, like Finnish, forms its perfect on the basis of its tense contrasts, using the past and non-past forms of the possessive verb *have* for its perfect and past perfect alike.

An aspectually prominent language, like the Niger-Congo language Supyire derives its perfect, not from tense morphemes, but from aspectual ones, as shown in example (3.15).

(3.15) a. u **à** **pa** táñjáà
he **PERF** **come.PERF** yesterday
He came yesterday [and is still here].
b. u ná **m-pá** tàñjáà
he **PST INTR-come** yesterday
He came yesterday.

Carlson (1994, 337) states that the perfect morpheme, *à*, in (3.15a) is derived etymologically from the proto-form of the verb with the meaning *come* in the imperfective: **mà*. At the same time, he emphasizes that synchronically the Supyire perfect is aspectually perfective and that there is no "perfect progressive" in the language (1994, 337).

Finally, beyond providing a structured way of integrating the Bybee-Dahl approach to language description, Bhat's proposal may also allow for a more nuanced approach to the ordering of operators within Role and Reference Grammar in a manner that still maintains the basic typology developed within the framework. Bhat (1999, 161) goes as far as to suggest that there are languages where the prominence of a given category carries precedence over scope restrictions.[69] That particular suggestion notwithstanding, it is also entirely possible that in those contexts where linguists encounter operator ordering violations, the grammatical forms in question have been misanalysed—where the language of description has hindered analysis of the

[69] He argues this on the basis of the fact that the most prominent category in a given language tends to be grammaticalized to a greater degree than the others, being realized inflectionally rather than with auxiliaries—and thus, by definition, appears closer to the verb than others.

language being described because the language of description might, say, be tense-prominent and the language being analyzed might be aspect-prominent—something that Bhat (1999) argues has happened on a number of occasions. In other words, those categories that tend to function on the boundaries of tense, aspect, and modality, as discussed above, might give the appearance of ordering violations, when they actually function as a different operator. For some cases, such as the analysis of future forms as involving epistemic modality, the distinction explains why the English future auxiliary *will* appears farther away from the predicate than other tense morphemes.[70] In Koine Greek, the analysis of the *future* as derived from perfective aspect also explains why both the future suffixes (*-s* and *-t^{h}*) appear closer to the verbal root than the tense morphemes that appear as portmanteau morphemes with the subject agreement suffixes.

3.2.2 Morphosyntactic and semantic tests

The perfect for a given language will be defined on the basis of whether it aligns itself with the prototypical tense grams (past and non-past/present) or with the prototypical aspect grams (perfective and imperfective). I make the assumption that these prototypical grams will be more transparent in their usage and thus their meaning more easily determined.[71] This assumption is grounded in the idea that we can distinguish these core grams from the peripheral, with the latter then being defined in terms of the former. Thus, even for the evaluation of a single gram, deciding whether tense or aspect is the prominent category ought to be a central aim. So then, the various tests and criteria can be organized along two lines of thought. We can examine these tests on a scale from general to specific. In addition, we can also approach the tests and criteria in

[70] Whether treated as a status or tense operator, the English auxiliary *will* does not violate any scope-based ordering predictions either way since both epistemic modality (status) and tense are clause level operators.

[71] For example, the distinction between past and non-past can be readily determined on the basis of their anchoring to the speech event for deictic tenses.

terms of the area of grammar being examined, whether it involves the structure of morphology, syntax, or discourse.

3.2.2.1 Tests for grammatical prominence

The more general criteria tend to be those that deal with whether tense or aspect is the more prominent category in the language. Among these are criteria that touch on the larger question of language structure and morphosyntactic properties. These function as the preliminary criteria for evaluating the language as being more tense prominent or aspect prominent. They include things like degree of grammaticalization, paradigmatization (i.e. systematicity), obligatoriness, and pervasiveness (Bhat 1999, 95). Elements within the prominent category tend to demonstrate a higher degree of grammaticalization. This is realized not only in terms of an element carrying more grammatical meaning than lexical meaning, but also in elements more likely to be inflectional than derivational (Bhat 1999, 96; Kurylowicz 1964, 36). In terms of obligatoriness and paradigmatization, Bhat (1999) relies on Lehmann (1985), who notes that both these concepts exist in parallel to and are associated with the concept of grammaticalization (cf. Lehmann 2002, 110).[72] The prominent category of a language is more likely to have more formatives that are obligatory and they will tend to be realized within a structured paradigm. The less prominent categories are, in turn, more likely be optional or realized by periphrastic constructions. Pervasiveness is related to obligatoriness and paradigmaticity and involves the degree to which a category is realized across multiple morphosyntactic and semantic contexts. Pervasiveness asks the questions, "Is the grammatical category realized consistently across the paradigm?" and, "Does the category appear across multiple distinct paradigms?" Pervasiveness

[72] Lehamnn (2002) is a revised version of Lehmann (1985). It presents a fairly comprehensive theory of grammaticalization. While Lehmann himself emphasizes that the volume is still essentially 1980's material, there are no substantive differences in terms of the relevant issues here (i.e. the relationship between paradigmaticity and obligatoriness with grammaticalization).

allows us to distinguish between multiple grammatical categories that are both highly obligatory and highly paradigmatic in their formal realization. I summarize all these factors in Table7.

Criteria	**Some possible realizations**
Degree of grammaticalization	Auxiliaries vs. Affixes?
	Inflectional vs. Derivational?
Degree of paradigmaticity	Extent to which a category is systematically organized
Degree of Obligatoriness	Extent to which a category is grammatically necessary
Pervasiveness	Extent to which a category exists across a given set of forms

Table 7. *Criteria for Grammatical Prominence (Bhat 1999, 96-7)*

None of these criteria, whether grammaticalization, paradigmaticity, obligatoriness, or pervasiveness, are sufficient on their own for determining whether tense or aspect is the more prominent category. Together, however, they constitute a useful set of parameters for making a substantive preliminary judgment on the question of categorial prominence. I say *preliminary* because we also want to avoid pre-judging what is happening in the language data for whatever grammatical morpheme is being examined (in this case, the Greek perfect). To that end, gram-specific tests are essential for firmer conclusions.

3.2.2.2 Tests for tense and aspect

In this context, we can sketch out a number of distributional tests for morphology, syntax, semantics, and discourse. I focus primarily on those relevant to the Greek perfect—tests for anteriors, resultatives, and completives, but the principles should also be applicable to other tense and aspect operators. A larger scale goal would be to develop a battery of tests for peripheral grammatical morphemes that are at greater risk of being misanalysed as a result of interference from the language of description. Unfortunately, proposing tests for other ambiguous categories will have to wait for future research.

In terms of morphology, we are still dealing primarily with the same questions of grammaticalization, paradigmaticity, obligatoriness, and pervasiveness as above. Except here, we

are interested in how our perfect-like morpheme interacts with these phenomena. The fundamental question is one of distribution. Does a given grammatical morpheme function unambiguously within the paradigm of the tense system or the aspect system? It must be granted, however, that this test cannot be used on its own in some languages depending on their morphological structure, since some languages do not draw definitive boundaries between tense and aspect morphology.[73] In such cases, other tests take priority. The Role and Reference Grammar scope predictions become important here, since the alignment of a given morpheme with tense or aspect morphemes is predicted to be an iconic representation of the scope that tense or aspect has over the predicate. This might possibly allow for a determination even where the paradigm is ambiguous.

In addition to questions of the scope predictions from Role and Reference Grammar, we can also examine a given morpheme in a language in terms of the basic nature of tense as denoting temporal location and aspect as denoting temporal structure. That is to say, if a perfect-like morpheme functions within the tense system, we will expect there to be a clear relationship as to how the morpheme relates to the speech event or some other deictic anchor. Determining this could be difficult without access to native speakers.[74] We would not expect an aspectual morpheme to function this way. Explicit tests for aspectuality are easier. Mourelatos (1981, 202-10) observes that the behavior of individual aspects can be analyzed in terms of their quantification. He argued that we should expect a perfective aspect morpheme to correlate with

[73] Ancient Hebrew is a good example of such a language, where it is essentially impossible to distinguish between tense and aspect in the morphological structure (Cook 2012).

[74] Bhat (1999) notes that while some believe the correlation of tense morphemes with temporal adverbials could be used to test the category of tense, this is not reliable since these two systems are independent of each other. "Tense is independent of temporal adverbials and can stand on its own without the support of the latter; the adverbials, on the other hand, are constrained by tense even though there do occur some contexts in which they may conflict with tense" (35). For this reason, it is possible to test the meaning of temporal adverbials using tense, but more complicated the other way around.

cardinal count quantification and an imperfective aspect morpheme to correlate with frequency count quantification (1981, 209). The distinction is tied to the manner in which we conceive of a situation or event. If we present an event as taking place multiple times "within a recurrent period" (205), then we can refer to the quantification of that event as being a *frequency count*. Equally, if we present an event as taking place in an absolute manner without reference to a recurrent period, we can describe the event quantification as involving a *cardinal count*. Situations/events that may be modified by frequency count adjuncts are unbounded in their internal temporal structure, while situations or events modified by cardinal count adjuncts are bounded in their internal temporal structure. [75]

Armstrong (1981) tests this view of quantification and aspect in Classical Greek for perfectivity and imperfectivity. He finds that they function effectively for distinguishing between types of aspectual markers. He also notes that the Classical Greek perfect is more difficult. He claims that it allows for the frequency adverb *a'e* (ἀεί) 'always', in certain contexts and cardinal count adverbs in other context. However, it is debatable as to whether this is actually a frequency adverb when used with the Classical Greek perfect. In Armstrong's own data, with imperfectives, *a'e* (ἀεί) 'always', refers to the constant happening of an event, but with the perfect *a'e* (ἀεί) 'always', cannot function in this manner because the adverb only collocates with the persistence of a state, which is, by definition, a non-event. The imperfective with the adverb refers to the ongoing regularity of the frequency, but the perfect refers to the constant

[75] This is the same basic conception of quantification that we see with the distinction between mass nouns and count nouns. For that, the mass/count distinction for nouns has come to be called, 'nominal aspect'. Rijkoff (1999, 56-9) argues that both imperfective aspect and mass nouns are grounded in their shared nature as unbounded. Imperfective aspect is unbounded in terms of its temporal structure, while mass nouns are unbounded in terms of possessing a definite shape. Perfective aspect and count nouns, on the other hand, are bounded, the former by the endpoints of the event, the latter by its physical, homogeneous shape. See Rijkoff (1999) for a useful typologically-oriented summary of the count/mass distinction in nouns.

persistence. There is no frequency.[76] For our current purposes, the central point is as follows. While this test is technically focused on how an aspect morpheme will interact with quantification, the test can also provide a useful mechanism for evaluating whether or not a given unanalyzed (or under-analyzed) morpheme is aspectual in nature in the same way that tests for temporal deixis do for tense. This is because regardless of the results, the test itself is centrally concerned with internal temporal structure. If a given morpheme in a language is truly an aspectual morpheme we would expect it to respond to the test according to a particular distribution. On the other hand, if a morpheme is not an aspectual morpheme (and thus says nothing about internal temporal structure), then we would expect that morpheme to be indiscriminate in how it interacts with quantification.

Finally, both tense and aspect interact with discourse structure and the flow of information in their own unique way (Hopper 1982, Wallace 1982). Information in narrative texts can be organized into two types. Foreground information moves the narrative forward by conveying events. The perfective aspect prototypically fills this role because of its lack of internal temporal structure.[77] Background information gives explanation, commentary, and clarification of the foregrounded narrative. This is prototypically expressed by imperfective aspect, as well as other aspectual types that denote more specific types of internal temporal structure. The categories of past and non-past/present tense demonstrate a parallel division: narrative proper prefers the use of past tenses for the presentation of events, while non-narrative, particularly dialogical discourse demonstrates clear inclinations toward non-past tenses. These distinctions can help confirm or challenge the conclusions from the tests of other areas of

[76] This difference becomes quite clear in the next chapter. See, in particular, section 4.2.1.

[77] Whether it fills the role of marking foreground information or simply appears in such contexts depends on one's view of the nature of aspectual categories.

grammar (syntax and morphology). If we have drawn a conclusion about a particular morpheme being a perfective aspect, then we can expect that it will behave like a perfective aspect in the discourse as well. Any conclusion we draw about a grammatical morpheme should fall in line with these observations about tense and aspect in discourse. If we find our conclusions at odds with Hopper (1982) and Wallace (1982), that should be a red flag that there is either something wrong with our initial analysis or that we have encountered language data that is singular in its discourse structuring. The latter is not probable, but in principle it cannot be ruled out.

Together with the RRG's scope predictions, each of these tests is useful for comparing individual morphemes to the categories of tense and aspect. These tests are presented in Table8.

Criteria	**Some possible realizations/implications**
Relationship to the apparent prominent category	Internal vs. External
Operator iconicity & scope	Formal location of gram in relation to other operators
Deictic/anchoredness of tense	+temporal location
Quantifiability of aspect	+temporal structure
Discourse function of aspectual grams	+foreground
	+background
Discourse function of tense grams	+narrative proper
	+non-narrative

Table 8. *Generic tests for individual grams*

Note that these criteria/tests are for the most part asking different questions. The first test is tied to our evaluative procedures for the prominent grammatical category above. How does the morpheme in question relate to the morphemes from the prominent grammatical category of the language? The second test examines the location of the morpheme in relationship to other operators. How would the scope of those operators influence our determination of the nature of the morpheme in question? The rest of the tests evaluate the semantics of a morpheme in terms of the superordinate categories of tense and aspect. Does it function to convey the temporal

location of an event or does it function to convey the temporal structure of an event?[78] Lastly, how does the morpheme function within the discourse in terms of what we know about tense and aspect's interactions with discourse structure?

3.2.2.3 Tests for perfect-like grams

Moving to tests that focus on evaluating the semantic nature of individual perfect-like grams, our resources for tests are based centrally upon Bybee, Perkins and Pagliuca (1994). Recall that they approach perfect-like morphemes with three gram-types: anterior, resultative, and completive. For the anterior and the resultative, Bybee, Perkin, and Pagliuca delineate two morphosyntactic tests on the basis of how the two grams correlate with certain types of adverbs. For example, they state that anterior grams will be allowed to appear with temporal adverbs such as *just* or *already*, since these two adverbs are used to refer to a prior state-of-affairs, while at the same time disallowing temporal adverbs such as *still*, which refers to a persistent situation (1994, 54, 63-5).[79] What defines the relationship between these adverb types and anteriors are *relationality* and *temporality*. While Bybee, Perkins and Pagliuca do not state this explicitly, the determining factor that ties these two together should be viewed as *temporal reference*, where the adverbs *just* and *already* denote a non-deictic temporal location.[80] These two temporal adverbs are used to refer to a situation that exists prior to some reference point in the same way that a non-deictic tense would. This interpretation falls in line with Bybee, Perkins and Pagliuca's definition of the *anterior* gram as, "[signaling] that the situation occurs prior to reference time and is relevant to

[78] It is possible that both occur. Often times, the two are nearly impossible to unravel (cf. Cook 2012).

[79] Note that the English adverb *still* also has a non-temporal sense with the sense of 'nevertheless' as in the sentence: *Despite your best efforts to prevent him, John has still completed the project*. This sense is acceptable with anteriors, but it is also irrelevant to the purpose of the test (cf. Bybee, Perkins and Pagliuca 1994, 65).

[80] Non-deictic, as we noted previously, means that the reference point may not be the speech event.

the situation at reference time" (1994, 54). According to this reading of Bybee, Perkins and Pagliuca, *anterior* grams can be viewed as being more tense-oriented than aspect-oriented. We would expect that an anterior gram would be more likely to appear in a tense-prominent language as is the case in English (Bybee, Perkins and Pagliuca 1994, 12).

Resultative grams, on the other hand, involve the opposite distribution. Bybee, Perkins and Pagliuca (1994, 54, 63-5) argue that they correlate grammatically with temporal adverbs like *still*, but disallow temporal adverbs like *just* and *already*. Once again, we should view their distribution with such adverbs as being motivated by the semantic nature of the gram. The adverb *still*, unlike *just* and *already*, conveys temporal *persistence*, which involves not the temporal location of an event, but the temporal structure of the event. As such, resultatives must be viewed as inherently aspectual.

At this point, unfortunately, Bybee, Perkins and Pagliuca (1994) do not clearly lay out any more explicit or well-formed morphosyntactic tests for any of the three gram-types, whether anterior, resultative, or completives. This may make things somewhat more difficult and potentially problematic at first glance, especially since they provide no tests one way or the other for their completive gram-type. Thankfully, the situation is less dire. We can still derive a few more tests from Bybee, Perkins and Pagliuca's broader discussion of these three grams and their usage. Some of these tests are lexically oriented and others involve interpretive effects that arise from interacting in other grammatical contexts. Thus, resultatives may only be formed from telic predicates. Resultatives themselves are not telic, but they nevertheless require a normally telic verb. That is, without a change of state, there can be no result (1994, 54). For this reason, in most languages that have them, resultatives tend to be disallowed with state predicates, since they are inherently atelic. However, on the occasions where a language does allow resultatives to appear

with a state predicate, the collocation creates inchoative semantics (1994, 67). This usage effectively forces state predicates into the semantic mold of the resultative gram-type.[81]

Completive grams involve a situation or event that is presented as brought to a conclusion. Because of this, completives correlate closely with change of state predicates. In their prototypical form, they have a patient that is totally affected by the event. Because of this factor, completives are often used by speakers to focus emphatically on the nature of an event as exhaustively completed. Bybee, Perkins and Pagliuca give the example of what they call "exhaustive plurals" (1994, 57), especially with plural subjects of intransitive clauses and plural objects of transitive clauses. In such cases, a speaker uses a completive not only to convey that there was a completed change of state, but also that the affected participant(s) are affected by the event to the highest degree possible.[82] This feature of the exhaustive completion for an event in some instances has the potential to spill over to state predicates in a rather particular manner. Bybee, Perkins and Pagliuca show there is a tendency to use completives to refer to the affected participant emphatically or intensively in a manner that allows for analogical extension into state predicates fairly readily. They describe these completives with state predicates as, "emphasizing the completeness with which the state applies to the entity" (1994, 74).

In total, this provides us with a set of seven distinct tests for the three gram-types. These tests are summarized below. Across the top, the first row states the test in question and the second row states the property tested. The far left column provides each of the three grams with their responses to the seven tests following to the right in their respective row.

[81] Anteriors that are historically derived from resultatives might also have this usage (Bybee, Perkins and Pagliuca 1994, 75).

[82] Compare, for example, the sentences *They died* and *They all died, every single one of them.* According to Bybee, Perkins and Pagliuca (1994, 57), the latter is more likely to be conveyed with a completive in a language that had a grammatical contrast between perfective and completive grams.

Test →	+*just, already*	+*still*	+formed from telic predicates	Totally affected undergoer	Correlates w/exhaustive plurals	Correlates w/intensive states	Inchoative with state predicate
Property tested → Gram-type ↓	[+prior situation]	[+persistent state]	[+telic source]	[+telic]	[+telic]	[+intensive]	[+inchoative]
Anterior	+	–	Irrelevant*	Irrelevant*	–*	–*	–*
Resultative	–	+	+	–*	–	–	+*
Completive	Irrelevant*	Irrelevant*	+	+	+	+*	–

Table 9. *Tests for anterior, resultative, and completive grams*

Understanding the qualifications for these tests denoted by asterisks is essential for successful evaluation of a given morpheme. Starting from the left side of the table, we can note the first two tests involving the collation of adverbs are both irrelevant to completives. Completives are aspectual in nature, but their internal temporal structure is decidedly different than that of the resultative, while also having the appearance of being marked for [+prior situation]. For this reason, these tests cannot serve to determine whether a morpheme is a completive one way or the other. In the same way, whether or not a given morpheme collocates specifically with change of state (i.e. telic) predicates is not relevant to anteriors. Anteriors do not appear to have any restrictions on their distribution on what types of predicates they can be used with in the way that completives and resultatives do. Because of this, they will likely pass both of the next two tests in most (if not all) languages that have an anterior. Alternatively, if they do not pass one of the tests, then it becomes quite possible that the morpheme in question is not an anterior gram.[83]

The manner in which the resultative gram interacts with the totally affected undergoer criteria requires some explaining as well. Resultatives are formed from change of state predicates and in that sense, the participant in a resultative is inherently an affected patient. What is not clear, however, is whether this status of the participant will actually be realized contextually in natural language. The types of examples that Bybee, Perkins and Pagliuca (1994) provide suggest that the predicates in clauses with resultative grams are purely stative in nature (e.g. *The door is closed*). This fits well with the fact that resultative grams correlate with persistent state adverbs. For that reason, while resultatives require change of state predicates, their participants cannot be construed as patients. Non-resultative clauses with the same predicates would have a

[83] These tests are of a fundamentally different variety compared to the tests for predicate classes. While we expect states to pass certain tests and fail others, we do not expect state predicates to simply not exist. This, however, is precisely the case with these tests where we are testing the existence of the grammatical category.

patient (e.g. *John closed the door* or *The door was closed by John*), but prototypical resultatives make no reference to the change of state itself, only the resultant state and thus their participant should not be marked as a patient. This is the opposite of the prototypical completive which always has a totally affected undergoer argument.

Moving on to the test for exhaustive plural correlation, we must note the asterisk for the anterior gram. Semantically speaking, there is no reason why the anterior cannot collocate with exhaustive plurals. However, that collocation is not motivated by the gram itself. The completive gram correlates with exhaustive plurals in a manner than is motivated by its inherent semantics.[84]

The final two tests involve the non-prototypical functions of resultative and completive grams. Neither gram, in its prototypical realization can occur with a state predicate since this contradicts their basic semantics. Completives deal with this issue by means of analogical extension, where the totally affected undergoer is replaced by a highly affected experiencer. Anterior grams receive an asterisk here because anteriors that arise historically from completives often retain this intensive state usage. In a different manner, resultative grams introduce an additional semantic element into the predicate: inchoativity. In those non-prototypical cases where a resultative gram is realized with a state predicate, the collocation necessarily implies a change of state where there would normally be none. And again, anteriors that are historically derived from resultative grams might continue to allow this function. Because of how anteriors relate to these two tests diachronically, they are primarily supplemental in nature and primarily function to confirm the conclusions of the previous tests. Further, we must also acknowledge that diachronic study of the language can be essential for drawing firmer conclusions.

[84] I anticipate that this test will only function in a secondary manner for the evaluation of a given perfect-like morpheme. A more sophisticated analysis with this test might involve looking at the statistical prevalence of exhaustive plurals with completive grams compared to anterior grams. This would, however, require examining multiple languages, which is unfortunately beyond the scope of this project.

3.3 Conclusions

The goal of this chapter was to examine methodological issues surrounding the evaluation of tense and aspect categories. I adopted an approach to evaluating grammatical contrasts from Bache (1995) and then surveyed of several pieces of secondary literature that deal with tense and aspect from the perspective of more general language typology. The research of Dahl (1985; 2000), Bybee, Perkins and Pagliuca (1994) and Bhat (1999), along with several more narrowly defined studies, Armstrong (1981), Hopper (1982), and Wallace (1982), has contributed a variety of semantic, morphosyntactic, and discourse-oriented tests for the evaluation of grammatical morphemes. The descriptive tests for language analysis have been sourced from these pieces of secondary literature. As it stands, some tests, particularly those related to the perfect-like anterior, resultative, and completive grams, involve a fair number of complicates. Telicity's irrelevance to the anterior gram makes some tests quite ambiguous. I propose a solution to this in conjunction with the Greek data used to evaluate these tests in chapter 4.

However, we have seen that there are difficulties in terms of how we might integrate the ideas of the Bybee-Dahl approach to Role and Reference Grammar since the former's approach de-emphasizes the value of metacategories like tense and aspect and prefers to deal only with the individual language-specific categories such as past, non-past, present, future and perfective, imperfective, and progressive. Pending the application of the various tests presented here to the Greek perfect in chapter 4, I attempt to resolve the difficulties surrounding the integration our competing theoretical approach in chapter 5, using Bhat's (1999) conception of tense-prominent and aspect-prominent languages as a bridging mechanism between the Bybee-Dahl approach and RRG. If this can be done successfully, we can fill the lacuna that exists in the analysis of operators in Role and Reference Grammar and bolster the descriptive power of the framework.

Chapter 4. The Greek perfect: A test case

The purpose of this chapter is to evaluate the descriptive apparatus proposed in the previous chapter, its morphosyntactic tests, typological structure, and cognitive foundation by applying it to a well-defined descriptive problem in Ancient Greek: the morphological form traditionally labeled as the perfect tense. Classical and New Testament scholars have long recognized the grammatical mismatch that exists between it and the English perfect when doing exegesis and translation. Questions surrounding the perfect involve its status as a tense or aspect operator, the nature of its semantics, and how it may be situated within broader linguistic typology. The proposals laid out in the previous chapter will contribute to providing answers to at least some of these questions. The success of the analysis will then allow us to make corrections to the initial set of tests, before attempting to integrate my ideas into Role and Reference Grammar.

The main views regarding the Greek perfect are quickly outlined below. This provides some orientation for understanding the historical backdrop of this grammatical morpheme and also provides a survey of the disagreement over its meaning and function. Doing so allows me to situate my analysis within the context of the contemporary literature, specifically as it relates to where there is consensus and where there is disagreement. I am then able to apply my proposed set of morphosyntactic and semantic tests in a way that moves from the more general to specific. Thus, I begin first with the tests for grammatical prominence, to the tests for evaluating the broader metacategories of tense and aspect, to the more specific tests for individual gram-types. This is essentially the same order found in section 3.2.2.

4.1 Recent approaches to the Greek perfect: A methodological perspective

One of the challenges to the analysis of the perfect, a challenge I have noted extensively in the previous chapter in section 3.2.1, is that of definitions, be they definitions in the general

linguistic literature, definitions in the typological literature, or definitions in the language specific studies of this grammatical category. All of these impact how we approach a language. They influence how a given morpheme is analyzed and how its meaning is viewed afterward. Comrie (1976) lumps all perfects across multiple languages together in his presentation of the category. As a result, our ability to distinguish perfects across multiple languages is diminished. The Koine Greek perfect is a synthetic morphological verb-form with origins in Proto-Indo-European, derived from the PIE stative verb class (Clackson 2007, Horrocks 2010, Janasoff 2005). The consensus for the earliest accessible periods of the language (Homeric Greek) is that the perfect was a resultative gram, in the sense of Bybee, Perkins and Pagliuca (1994). This analysis of the Homeric Greek perfect is standard, with Haspelmath (1992) being representative. He argues for a diachronic shift between Homer (~900 BC) and the Classical era (600-400 BC), during which the perfect changed from a resultative gram to an anterior gram. This view has general agreement, albeit with minor differences by others (Haug 2004, 2008, Bentein 2012), though none goes as far as Haspelmath in how much the shift from resultative to anterior has taken place.[85] Haug (p.c.), at least, does not accept that this shift was completed in the Classical period, or potentially even in the Koine period (300 BC-300 AD), and McKay (1980, 1965) rejects that any change of substance took place at all until after the Byzantine period, which is marked by Emperor Constantine moving the empire's capital to Byzantium in 330 AD.

On the other hand, this rather consistent perspective of the nature of the perfect for earlier periods of the language grows muddled during the Koine period, after the empire of Alexander the Great and the rise of the Roman Empire. There is no consensus as to the nature of the perfect

[85] This is also likely true of the Classical Greek grammarians as well in the work of Rijksbaron (2007) and Sicking and Stork (1996), though none of these scholars use this set of terminology, which makes knowing for sure just how much they align with the consensus above a bit more difficult.

among New Testament scholars studying Greek grammar and few accept the consensus of earlier periods entirely.[86] Fanning (1990) generally falls in line with a Classicist perspective, though he also views this gram as denoting perfective aspect grammaticalizing the semantics of the state predicate type. In this, Fanning adopts Comrie's (1976) view of the perfect wholesale, which is potentially unhelpful since Comrie (1976) treats the semantics of the perfect as uniform across languages with only minor variations.[87] Slightly farther from the consensus, Porter (1989) accepts the view that the perfect is stative, but denies any conception of tense and argues that stativity should not be viewed as the grammaticalization of the state predicate type, but instead is its own aspect independent of perfective and imperfective.[88] Moving even further away from the Classicist, Evans (2001) and Campbell (2007) argue the perfect is neither perfective nor stative, but instead *imperfective*. This represents the most radical revision of the grammatical tradition to date. Indeed, Campbell (2007) is perhaps more extreme in also rejecting any sense of stativity and rejecting the category of tense, except in the future. In the context of this secondary literature, I attempt to analyze the Greek perfect with the morphosyntactic and semantic tests put forward in the previous chapter.

4.2 Descriptive Analysis

Following the methodological synthesis proposed in chapter three, this analysis adopts the categories and definitions of the perfect and related categories articulated by Bybee, Perkins and Pagliuca (1994), which in turn I have correlated with the patterns of idealized languages

[86] This is true even as a starting point. That is to say, some do not even accept the possibility that the Homeric and Classical Greek consensus reflects an accurate understanding of previous periods of the language.

[87] Comrie's (1976, 56-61) types of perfects all assume the exact same basic definition. Also, the so-called, "literal" translations he provides for Greek resultative perfect verbs (1976, 57), are not accurate.

[88] Porter (1989) also gives the impression of rejecting *Aktionsart* predicate classes in general.

described by Bhat (Bhat 1999) as aspect-prominent or tense-prominent.[89] To review those conclusions briefly, those languages which have a completive gram or a resultative gram tend to correlate with aspect prominence, while languages which have an anterior gram (e.g. English) tend to correlate with tense prominence. Each of these gram types then also correlates with a specific set of contextual usages motivated by their core semantics.[90] As I work through the analysis that follows, I try to refrain from labeling this grammatical morpheme explicitly as a resultative, completive, or anterior. Instead, I purposefully use language such as, "resultative-like," "completive-like" or "anterior-like." As will be seen, the categorization itself is not clear cut and I do not want to present final conclusions until the entire analysis is available. The purpose of this exercise is not the analysis itself, but the evaluation of the method and framework used. Our goal is to work through the data in order to evaluate what kind of gram the traditional Greek perfect is, whether resultative, anterior, completive, or some mix of more than one. At the same time, because the larger purpose of this thesis is to put forward a useful proposal for how Role and Reference Grammar deals with tense and aspect, I also make regular observations about the effectiveness of the tests and evaluative procedures adopted from chapter three.

Before moving forward, a brief review of Bache's (1995) typology of sentences as a descriptive mechanism might be beneficial. Contrastive pairs of example sentences can be placed on a continuum from those that are maximally ungrammatical or distinct to those that are maximally grammatical or synonymous, as shown in Figure 6, repeated from Figure 4.

[89] For reasons of space and practicality, I have dispensed with Bhat's category of mood-prominent languages. Also notably, in Bhat's own discussion of the perfect, he also makes no reference to how a perfect in a mood prominent language would look like as compared to the other two language types.

[90] These contextual usages come from Bybee, Perkins and Pagliuca (1994), but if or when usage appears to diverge from their typology, other categories from the literature will be discussed.

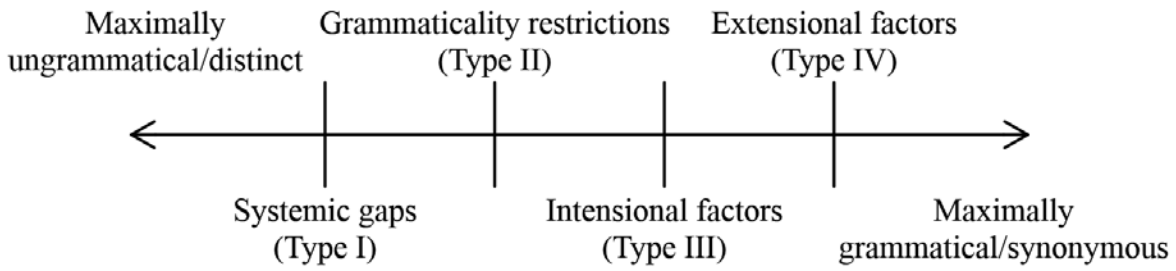

Figure 6. Continuum of contrastive example sentences

Like we observed in section 3.1.2, the central types are expected to express more prototypical semantics of a given category, whereas the outer types are expected tend to indicate peripheral usages. All contrasts, however, must be explained with reference to each other, though we expect the non-prototypical instantiations to be motivated metaphorically from the prototypical ones.

4.2.1 Tests for grammatical prominence, tense & aspect

Before examining the morphological marking of the perfect and its distribution with other morphemes, some comment must be made about the Ancient Greek verb's morphological structure. Greek morphology makes use of extensive cumulative exponence, a phenomenon that involves a particular formative or morpheme expressing multiple semantic features or exponents (Matthews 1991, 8-9). Cumulative exponence may be either fusional where the two features are expressed by a single morpheme or it may be overlapping, where the semantics of one morpheme continues on into the next. The Ancient Greek verb involves the latter and is realized in the verb in the subject agreement (person and number). A verb root, such as **ly* (λυ) 'release' might select an aspectual suffix, such as *-s* 'PERFECTIVE'. That same root could then also select *e-*, the past tense prefix. Both these choices would then have a cumulative effect upon the form of the suffix morpheme denoting modality, transitivity, person, and number. For this reason, the Greek verb has been traditionally viewed as having tense/aspect "stems" which are then inflected for other categories. At the same time, if we momentarily look beyond this complex situation at

the expression of modality, voice, person, and number, the rest of the verb morphology can be organized into a position class chart rather easily. Table 10 on the next page shows the distribution of tense and aspect morphemes and their positions with respect to the verbal root.[91]

-2 'TENSE'	**-1 'PERFECT'**	**Root**	**+1 'ASPECT'**	**+2 'MODALITY, TENSE, ASPECT, VOICE, PERSON & NUMBER AGREEMENT'**
Ø 'NPST'	Ø	ly 'release'	Ø 'IMPERFECTIVE	
e- 'PST'	Ø		-s 'PERFECTIVE'	
	[C]e- 'PERFECT'		-k 'PERFECT'	

Table 10. *Tense and aspect morphology*

The +2 position with its exponents has over 60 possible forms for each verb. The morphological distribution of the perfect marked by the reduplicative circumfix *[C]e- -k*, is contrastive with that of the morphemes for imperfective and perfective aspect.[92] The perfect reduplication pattern and the *-k* is disallowed from appearing together with the imperfective aspect or the perfective suffix *-s*. Conversely, nothing prevents the past tense prefix *e-* from appearing together with the perfect morpheme.[93] This is our first indication as to whether Greek is tense-prominent or aspect-prominent. Since the perfect morphology is in complementary distribution with other aspect markers, treating Greek as aspect-prominent becomes more likely.[94] The morphological structure presented here also suggests that Greek is aspect-prominent in terms of the scope of the

[91] The final suffix where the cumulative exponence is realized is not included in this chart. See also the survey of verbal morphology provided in Appendix B for more discussion. Also, in the morphemic glossing of examples, I only label those meanings relevant to the discussion at hand.

[92] Note that the reduplication and the *-k* suffix attach directly to the root of the verb, rather than the stem. There are a few verbs, however, lacking the *-k* suffix and are only marked by reduplication. These will be noted where relevant. The difference between them and those verbs that have the *-k* suffix does not represent a semantic contrast.

[93] There is consonantal reduplication that appears before the stem, involving the first consonant of the root and the vowel /e/. When the root begins with a vowel, there is no initial consonant and the /e/ replaces the root's initial vowel. For example, *amar*ˈ*tane* (ἁμαρτάνει) 'he is sinning' becomes ***e***ˈ*marte****k****en* (ἡμάρτηκεν) 'he has sinned'.Note that the orthographic spelling varies from the pronunciation and reflects an earlier period of the language that had a much larger vowel inventory (Allen 1987, Gignac 1976, Horrocks 2010).

[94] In contrast the English perfect allows for alternations of both tense and aspect: *He has gone home* vs. *He had gone home* and then also: *He had gone home* vs. *He had been going home*.

operators. Not only does the perfect pattern with other aspect morphemes, but the realization of tense quite clearly appears outside and farther way from the root than the perfect morphology. This suggests that the tense morphology has scope not only over the imperfective and perfective aspects, but also the perfect as well.

In terms of grammaticalization, paradigmaticity, obligatoriness, and pervasiveness, the last two are most relevant for Greek (cf. Table 7). While both tense and aspect are realized inflectionally in the paradigm, aspect is the more pervasive category in its grammaticalization. Tense is only realized in the indicative mood and cannot appear with the subjunctive or imperative moods. This is shown in Table 11 below.

	Indicative		**Subjunctive**
	Non-past	**Past**	**None**
Imperfective	ˈlyomen (λύομεν) 'I am loosening x'	eˈlyomen (ἐλύομεν) 'I was loosening x'	ˈlylmen (λύλμεν) 'I should be loosening x'
Perfective	ˈlysomen (λύσομεν) 'I will loosen x'	eˈlysamen (ἐλύσαμεν) 'I loosened x'	ˈlysomen (λύσωμεν) 'I should loosen x'
Perfect	leˈlykamen (λελύκαμεν) 'I have loosened x'	eleˈlykemen (ἐλελύκειμεν) OR leˈlykemen (λελύκειμεν) 'I had loosened x'	lelyˈkotes ˈomen (λελυκότες ὦμεν) 'I should have loosened x'

Table 11. *Aspect & tense in the indicative vs. the subjunctive*

In the indicative there are alternations of both tense and aspect, while the subjunctive only has a single form for each aspect without reference to tense one way or the other.[95]

Since the tests and criteria thus far suggest that aspect is the correct metacategory for the Greek perfect, evaluating the morpheme in terms of how it interacts with quantification is the

[95] The perfective subjunctive is phonological identical to the non-past perfective indicative. This is also true for many other forms across the paradigm—the 3rd person plural form was chosen to mitigate this problem. For that reason, the interpretation of these forms in oral communication would be highly dependent upon context, though this is less an issue for us since the orthography still maintains the historical distinction, though some times, aural transcription of manuscripts over the centuries introduced changes, when a scribe listening to a manuscript being read out loud inserted a subjunctive for an indicative or vice versa.

next logical step. This test involves the difference between cardinal count and frequency count adverbs (Armstrong 1981, Mourelatos 1981). If our perfect-like morpheme is aspectual in nature then we should expect that it patterns in some consistent and predictable manner with adverbial quantification. We would not expect this to be the case for a tense morpheme. The basic constraint is that the perfective aspect only allows cardinal count quantification (once, twice, thrice, etc.) and imperfective aspect only allows frequency count quantification (always, twice a year, five times a day, etc.). Armstrong (1981) and Mourelatos (1981) claim that because perfective aspect is bounded in terms of internal temporal structure, quantification must only apply to the event as a whole. Conversely, frequency count should only occur with imperfective aspect since the imperfective only involves the internal temporal structure of the event as progressive, habitual, iterative, or unfinished.

> In terms of the Classical Greek perfect, Armstrong (1981, 3) also makes the claim, "The 'perfect' is capable of co-occurring with either kind of adverb at various periods of its development (although there is no period at which it ever co-occurs with such adverbs as 'once a day', it is found from Homer's day with 'always' and from the late fifth century with 'once' twice, and so on). … [T]he usage of the perfect with these adverbs is a reflection of its original kinship with present as a stative and its developing relation with the aorist as a resultative."[96]

Beyond this, Armstrong says nothing else about the Greek perfect and quantification. Unlike his analysis of the perfective and imperfective aspects, he does not explicitly examine the relationship between quantification and the perfect. This passing comment does hold, however,

[96] There is a gap here between our terminology that follows Bybee, Perkins and Pagliuca (1994) and that of Armstrong. The general conversion, however, follows the standard Classical perspective of the perfect discussed above. What Armstrong calls a "stative" Bybee, Perkins and Pagliuca would call "resultative" and what Armstrong calls "resultative," they would call an "Anterior."

albeit with small revisions. In the examples below in (4.1) and (4.2), the quantification refers to the cardinal countability of the event, rather than the frequency countability of the event.

(4.1) **ἅπαξ λελάληκα**, ἐπὶ δὲ τῷ δευτέρῳ οὐ προσθήσω.
ˈapaks le-lale-k-a, eˈpi=de to=defˈter-o u=prosˈtʰe-s-o
once **PERF-speak-PERF-1SG** for=and the=second-DAT.SG NEG=add-FUT-1SG
Once I have spoken, and for a second time I will not continue (LXX Job 40:5).

(4.2) **ἅπαξ** ... εἰς ἀθέτησιν τῆς ἁμαρτίας ... **πεφανέρωται.**
apaks es=aˈtʰetesi-n tes=amarˈtia-s **pe-pʰanˈero-te**
once for=removal-ACC.SG the=sin-GEN.PL **PERF-appear-3SG**
Once … for the removal of sin … **he has appeared** (Heb 9:26).

The cardinal count adverb, ˈ*apaks* (ἅπαξ) ‘once’, in both these examples refers to the specific number of times an event occurred. Job spoke once and states explicitly that he has no intention of doing it again in example (4.1). Likewise, Jesus appeared a single time for the purpose of removing sin in (4.2). Either a completive or an anterior could allow this collocation, though only completives could be said to have a distinct distribution, since anteriors are not aspectual.

Conversely, perfects with resultative-like meaning *appear* to correlate with frequency count quantification. We find instances of Greek perfects with such adverbs, as in example (4.3).

(4.3) ἀκλινὴς **ἕστηκεν ἀεί**
akliˈne-s **ˈe-ste-k-en** aˈe
unwavering-NOM.SG **PERF-make.stand-PERF-3SG** **always**
He always stands[97] unwavering (Philo, *Alleg. Interp*. II 83).

According to Amstrong, the adverb *aˈe* (ἀεί) ‘always’ denotes the event's frequency, answering the question, “How often does he stand unwavering?” However, we noted in section 3.2.2 that this adverb should perhaps be better viewed as denoting persistence rather than frequency.

[97] The perfect ˈ*esteken* (ἕστηκεν) ‘he is standing’ alternates with the causative imperfective, ˈ*istesin* (ἵστησιν) ‘he sets/causes to be standing’, where the perfect denotes the resultant state of the imperfective causative state. See section 4.2.3.3 for discussion.

The situation here with resultative perfects is fundamentally different than what Armstrong describes for the imperfective aspect. Adverbs like 'always' are used to refer to resultatives because of their internal temporal structure as *persistent*, rather than *incomplete*. Thus, it is debatable whether this can in any way be reasonably construed as frequency count. It makes more sense that this adverb fits better with the concept of persistence that is inherently involved in resultative-like grams in the same way as the adverbs with the meaning 'still' according to Bybee, Perkins and Pagliuca (1994).

Non-resultative-like perfects can correlate with what would normally be frequency count quantification also, but they take persistent state interpretation instead, as with example (4.4).[98]

(4.4) **τετελείωκεν** εἰς τὸ διηνεκὲς τοὺς ἁγιαζομένους
te-te'leo-k-en es=to=djene'ke-s tus=agiazo'men-us
PERF-make.perfect-PERF-3SG for=the=time-**ACC.SG** the=holy.one-ACC.PL
He has made the saints (i.e. the holy ones) **perfect** for all time (Heb 10:14).

In such contexts, the frequency quantification refers to the persistence of the state of the participant affected by the predicate. Both the Greek text and the English translation are grammatical. However, they involve dramatically different syntactic structures. The Greek has a single nucleus that the temporal adjunct then modifies, but the English translation involves secondary predication and thus has two nuclei. The secondary predicate *perfect* in the English translation is in a co-subordinate relationship (in an RRG sense) with *has made*. The temporal adjunct *for all time* cannot modify the primary nucleus.

The distribution of cardinal count and frequency count adverbs falls in line with Armstrong (1981), in that either can occur with the perfect depending on the semantics of the

[98] This clause is non-resultative because it is a causative. Resultatives are parallel to English statives. The middle voice of this verb would be a resultative, as in John 19:28: *'ede 'panta **te'telestai*** (ἤδη πάντα **τετέλεσται**) 'Everything **is** finally **completed**'.

predicate. The fact that the Greek perfect demonstrates an explicit and definable distributional pattern with adverbial quantifiers fits with the idea that the Greek perfect is aspectual in nature. This aligns with the previous data examined and suggests that the set of tests presented thus far work together in a cohesive manner.

Lastly, before moving on to the tests and criteria for the specific perfect gram types, there is one final test for the metacategories of tense and aspect. This one focuses on how the Greek perfect functions within larger portions of text. In discussing this distributional test in chapter three, I noted that linguists recognize a general division of two types of information in narrative texts. Foreground information conveys the event sequence as it unfolds (Hopper 1982, 6). Background information supports the mainline narrative sequence by providing commentary on it and filling in additional information that the speaker considers necessary or important for effective comprehension of the text on the part of the audience. Foreground information tends to primarily be expressed by the perfective aspect. Stephen Wallace states:

> If a language has a contrast between a perfective (completive, non-durative, punctual) aspect and other aspects, then part of the meaning of the perfective aspect, at least in narration, is to specify major, sequential, foregrounded events, while part of the meaning of the contrasting non-perfective aspect, particularly an imperfective, is to give supportive background information (Wallace, 1982, 209).

This view of aspect's function in discourse is recognized as consistent for Greek (Runge 2010, Levinsohn 2000).

In this context, what is the role of the Greek perfect? Does this grammatical form function in narrative contexts more like a perfective or an imperfective? In evaluating the usage of the perfect with reference to these questions, I use a portion of text that is larger than the

regular single clause examples I have been using thus far and instead I will take a look at a paragraph-size text from Josephus' *Jewish Antiquities* to discover whether Greek perfects are used for foreground or background in narrative.[99] The text and translation are provided in example (4.5). The clauses with the perfect verbs are underlined and the perfect verbs themselves are highlighted in bold.

(4.5) Ὀλίγον δὲ τῷ Δαυίδῃ προελθόντι Σιβᾶς ὁ τοῦ Μεμφιβόσθου συνήντησεν, ὃν προνοησόμενον **ἀπεστάλκει** τῶν κτήσεων ἃς **δεδώρητο** τῷ Ἰωνάθου τοῦ Σαούλου παιδὸς υἱῷ, μετὰ ζεύγους ὄνων **καταπεφορτισμένων** τοῖς ἐπιτηδείοις, ἐξ ὧν ἐκέλευσε λαμβάνειν ὧν αὐτός τε καὶ οἱ σὺν αὐτῷ δέοιντο. πυνθανομένου δέ, ποῦ **καταλέλοιπε** τὸν Μεμφίβοσθον, ἐν Ἱεροσολύμοις ἔλεγε προσδοκῶντα χειροτονηθήσεσθαι βασιλέα διὰ τὴν ὑπάρχουσαν ταραχὴν εἰς μνήμην ὧν εὐηργέτησεν αὐτοὺς Σαοῦλος. ἀγανακτήσας δ᾽ ἐπὶ τούτῳ πάνθ᾽ ὅσα τῷ Μεμφιβόσθῳ παρεχώρησε Σιβᾷ χαρίζεται. πολὺ γὰρ δικαιότερον αὐτὸν ἐκείνου ταῦτ᾽ ἔχειν **ἐπέγνωκε**· καὶ ὁ μὲν Σιβᾶς περιχαρὴς ἦν.
Now after David advanced a little further, Ziba met him, the servant of Mephibosheth whom **David had sent** to oversee the estate that **he had given as a gift** to the son of Saul's son Jonathan. Ziba [was] with a pair of donkeys **that were completely loaded** with provisions. From these, Ziba directed David to take what he and those with him might need. But when [David] asked why **he was separated** from Mephibosheth, Ziba replied that Mephibosheth was waiting in Jerusalem to be appointed king in memory of the services Saul rendered them because of the current confusion. At this David, growing indignant, granted to Ziba everything, as much as he conceded to Mephibosheth. For **he was now convinced** it was much better for Ziba to have these things. And Ziba, for his part, was elated (Josephus, *Antiquities* 7.205-6).

Within this short portion of narrative, there are a total of five perfects, four indicative and one participle. These are repeated below in examples (4.6) through (4.10) with a few observations about the functions of the perfect within the larger discourse.

(4.6) ὃν προνοησόμενον **ἀπεστάλκει** τῶν κτήσεων

ˈon	pronoe-ˈso-men-on	**ap<e>ˈstal-k-e**	ton=ˈktese-on
REL.PRO	oversee.PERF.FUT-MID.PART-ACC.SG	**<PST>send-PERF-3SG**	the=estate-GEN.PL

whom **David had sent** to oversee the estate

[99] This portion of narrative from Josephus' retelling of the Old Testament story is derived from 2 Samuel 16. King David has fled Jerusalem in fear of his son Absalom who has just declared himself king, where he encounters Ziba, Mephibosheth's servant, who for his own personal gain tricks David into thinking that his master is a traitor.

(4.7) ἃς **δεδώρητο** τῷ Ἰωνάθου τοῦ Σαούλου παιδὸς υἱῷ
ˈas **deˈdore-to** to=Ioˈnatʰ-u tu=Saˈul-u peˈdo-s yi-o
REL.PRO **PERF-gift-PST.3SG** the=Jonathan-GEN.SG the=Saul-GEN.SG child-GEN.SG son.DAT.SG
which **he had given as a gift** to the son of Jonathan the son of Saul.

(4.8) μετὰ ζεύγους ὄνων **καταπεφορτισμένων** τοῖς ἐπιτηδείοις
meˈta ˈzevg-us ˈon-on **kata<pe>pʰortis-men-on** tys=epiteˈde-ys
with pair-ACC.PL donkey-ACC.PL **<PERF>load-PART.MID-GEN.PL** the=provision-DAT.PL
with a pair of donkeys **that were completely loaded** with provisions

These first three perfects can be grouped together. The first two past perfects are in relative clauses and the third is a participial clause. Neither of the relative clauses in examples (4.6) and (4.7) moves the narrative forward. They instead provide relevant backstory about events that have already taken place and are relevant for the audience's comprehension of the current portion of the story. The participle in example (4.8) has a similar function. This clause also does not move forward the narrative; rather its purpose is to provide visual information that helps create the proper visual scene in the mind of the audience. The fourth perfect in our brief portion of narrative in example (4.9) appears in indirect speech.[100]

(4.9) πυνθανομένου δέ, ποῦ **καταλέλοιπε** τὸν Μεμφίβοσθον
puntʰanoˈmen-u=de ˈpu **kata<ˈle>lyp-e** ton=memˈpʰibostʰo-n
inquire.IMPERFV-PART-GEN.SG=but how **<PERF>cause.to.leave-3SG** the= Mephibosheth-ACC.SG
But when [David] asked why **he was separated** from Mephibosheth…

This is the closest we come in this section to a perfect that functions in the foreground of the narrative. However, neither direct nor indirect speech are narrative proper and should not be viewed as moving the narrative forward the way true foreground material would. As Dooley and Levinsohn (2000, 51) put it, "Reported conversations are not an end in themselves, but point forward to the non-speech events which form the foreground of the story." This view is

[100] Note that the perfect in this clause is not marked for past tense, though the English translation uses a past stative. While in English one might say, *John says that he will eat later* in the present tense, one would say *John said he would eat later* in the past tense and the tense of the verb of indirect speech shifts to the past. This not the case for Koine Greek. There is no shift in the past tense and thus example (4.9) uses a non-past perfect verb.

particularly clear here, since this instance of reported speech is a complement to a participle rather than a finite verb. The broader purpose of the larger matrix clause is to set the stage for Ziba's lie about his master, which then causes the climax of their encounter with David's indignation. Both the perfect in the indirect speech and the participle that introduces it function as background information that frames the next major event in the narrative.

Lastly, in (4.10), our last perfect is the only one that is finite and structurally independent.

(4.10) πολὺ γὰρ δικαιότερον αὐτὸν ἐκείνου ταῦτ᾽ ἔχειν **ἐπέγνωκε**

po'lu	'gar	dike'oter-on	af't-on	e'ken-u	taft = 'ex-en	**e'p<e>gno-k-e**
more	for	right-ACC.SG	3P-ACC.SG	that-GEN.SG	these=have-INF	**<PST>decide-PERF-3SG**

For **he was now convinced** it was much better for Ziba to have these things.

Here too, the perfect is being used to provide supplementary information to the mainline narrative. This correlates well with the use of the post-positive discourse particle, '*gar* (γάρ), which has the function of introducing explanatory or clarifying clauses, as noted by both traditional grammarians and contemporary linguists (Robertson 1923, 1190, Runge 2010, 53). Clauses introduced by '*gar* (γάρ) are parenthetical. In this case, the clause is used by Josephus to let his audience into the mind of King David and explains the reasoning behind his actions.

In sum, none of the perfects that appear in this brief portion of narrative function to move the narrative forward in the manner that the perfective aspect does. Instead, the Greek perfect has more in common with the imperfective aspect, supplying additional background information about circumstances, past happenings, and dialogue that provides context for the larger story. In this context, we have seen four syntactic strategies for perfects to be used in this manner: relative clauses, participle clauses, indirect speech, and parenthetical/explanatory clauses introduced by discourse particles such '*gar* (γάρ) 'for'. The backgrounding nature of the Greek perfect is well documented elsewhere, particularly in Campbell (2007). He makes the mistake of arguing that

because the perfect is not used to convey foregrounding information to move the narrative forward, it should be viewed as an imperfective form. This view, however, does not fit with the above analysis. In contrast, I argue that the imperfective aspect and the perfect are aspectually distinct. They both do convey temporal internal structure (Comrie 1976), but the *type* of temporal internal structure is distinct. The imperfective has no inherent endpoint, while the perfect at times places the focus on the completion of a backgrounded event and other times presents an event as a persistent state that existed concurrently with the foregrounded narrative. Importantly for our current purposes, we see that the Greek perfect's function in discourse is grounded in internal temporal structure rather than in temporal reference— this is evidence of its aspectual nature.

Throughout this section, the evidence has consistently pointed us in the direction that the Greek perfect should be viewed as functioning within the domain of aspect rather than tense. We saw this in its grammaticalization and paradigm, as well as in its semantics, and function in discourse. On several occasions, we have also seen hints as to its own inherent semantics, particularly in our examination of how the Greek perfect interacted with adverbial quantification and in discourse structuring. These are issues that will now receive more attention in our gram-specific tests in the following two sections below.

4.2.2 Gram-specific tests part I: Adverbial modification

The discussion of gram-specific tests comes in two sections. The first, shorter portion focuses on the two tests involving adverbial modification. The second, larger one examines how the Greek perfect interacts with verbs/predicates. In both these sections, we have moved from examining aspect and tense more generally to looking at tests for all three grams: anteriors, resultatives, and completives. I do this despite the fact that Bybee, Perkins and Pagliuca's definition of the anterior places it within the realm of tense rather than aspect. This decision is a methodologically

significant one. While all the evidence thus far has pointed away from the perfect as a tense morpheme, we cannot predict ahead of time how language evolution and change might influence the data itself. Anteriors have the potential to develop from either resultatives or completives, so there is no principled reason why we should not find anterior-like usage. A theoretically sound framework for the evaluation of tense and aspect operators must take these issues into account.

These first two gram-specific tests that take a look at adverbial modification are designed to test the basic semantics of anteriors and resultatives. The results of these tests are provided in Table 12 with a brief summary following.

Test → Property tested → Gram-type ↓	+*just, already* [+prior situation]	+*still* [+persistent state]
Anterior	+	−
Resultative	−	+
Completive	Irrelevant*	Irrelevant*

Table 12. *Gram-types & adverbial modification*

Anteriors, they say, correlate with adverbs with the meaning 'already', and resultatives with adverbs meaning STILL (Bybee, Perkins and Pagliuca 1994, 63-5). The difference between them is one of temporal location versus temporal structure, respectively. We find the latter meaning collocates for the Greek perfect, as we see below in example (4.11).

(4.11) ἔτι ἐρήριπτο Πομπηίου καταβαλόντος

ˈeti	e-ˈre-rip-to	Pompeˈi-u	kataba'lo-nto-s
still	PST-PERF-**destroy**-3PL	Pompey-GEN.SG	throw.down-PART-GEN.SG

They [the city walls] **were still in ruins**, since Pompey threw them down (Josephus, *Antiquities* 14.144).

This clause has resultative-like semantics, where we have an existing state that resulted from Pompey's destruction of the city. The adverb ˈ*eti* (ἔτι) 'still' collocates with the resultative

semantics of the clause. Also relevant here is the data from the previous section involving the adverb *aˈe* (ἀεί) ‘always’, which I suggested fits better as a marker of persistence than one of frequency.[101] Likewise, across our corpus of data, there are no instances of perfects collocating with either the adverb *aˈe* (ἀεί) ‘always’, or the adverb *ˈeti* (ἔτι) ‘still’ that also have non-resultative semantics, though this evidence remains circumstantial since we must allow the possibility that the corpus itself is simply not large enough.

When we move to examining adverbs with the meaning ‘already’, the situation is rather more complicated. The distribution is not as clear cut, as shown by examples (4.12) and (4.13).

(4.12) **ἤδη ἀπεκδέδοσαι** ἑπτὰ ἀνδράσιν
ˈede apek<ˈde>do-se epˈta anˈdra-sin
already <PERF>marry-2SG seven man-ACC.PL
Already you have married seven men (LXXalt Tobit 3:8).

(4.13) ἤδη τέθνηκεν
ˈede ˈte-tʰne-k-en
already PERF-die-PERF-3SG
He is already dead/has already died. (Mark 15:44).

In these examples, we see the adverb *ˈede* (ἤδη) ‘already’ may modify clauses with apparent resultative meaning or anterior meaning. While example (4.12) can only be translated with an English perfect (which is an Anterior—Bybee, Perkins and Pagliuca 1994, 12), example (4.13) is ambiguous and may be translated as an English stative or an English perfect. I suggest that this test might be more complicated than Bybee, Perkins and Pagliuca’s (1994) observation. If example (4.13) is best viewed as a resultative (the stative translation), this test should be viewed as an asymmetrical one: adjunct modifiers with the meaning ALREADY seem to co-occur with both resultatives and anteriors, but those with the meaning STILL can only co-occur with predicates

[101] See example (4.3) and the surrounding discussion.

with resultative semantics. This makes sense if we acknowledge the semantics involved here. Resultatives are only compatible with change of state predicates and denote the persistent state that arises from the change. If a Greek perfect has resultative-like meaning, the adverb ˈ*ede* (ἤδη) 'already', refers to an inferred change of state that brought about the resultative.

Minimally, we can say so far that there is a split in the usage of the Greek perfect. The fact that it takes place along the tests put forward is encouraging for my analytical model. Some instances of the Greek perfect have the distinct appearance of resultatives, while others suggest an anterior interpretation. However, these first two tests say nothing about completive semantics, because the STILL and ALREADY tests do not distinguish anteriors from completives at all. Thus currently, we cannot conclude definitively that the non-resultative Greek perfects are truly anteriors. So then, the framework and tests thus far have provided us one fairly clear result: the Greek perfect allows for resultative-like semantics. However, in terms of evaluating the status of completives versus anteriors, these first two tests are inadequate by themselves.

4.2.3 Gram-specific tests part II: Predicate classes

The rest of the gram-specific tests are significantly more interpretive in nature. These last five tests, like the first two, also come from Bybee, Perkins and Pagliuca (1994). The difference is that the ones involving adverbial modification were explicitly stated as tests. These latter tests are derived from their more general discussion of how anteriors, resultatives, and completives interact with other factors involved in the semantics of predicate types. Resultatives and Completives can only be formed from telic predicate types (though resultatives themselves are not telic). In the same vein, completives take a totally affected undergoer as one of their macro roles, which results from a change of state being brought to a *complete* conclusion. Bybee, Perkins and Pagliuca note that the affected undergoer of completives has a tendency to involve

what they call "exhaustive or universal plurals" (1994, 57).[102] Anteriors on the other hand make no distinction one way or the other between telic and atelic predicates in their realization, thus any relationship they have to telic predicates or exhaustive plurals is not a defining characteristic and thus irrelevant. Lastly there are two tests for how resultatives and completives interact with state predicates. Completives tend toward conveying intensive meaning with state predicates, while resultatives have a tendency to introduce an inchoative interpretation with state predicates. In both these cases, it is possible that an anterior might function similarly if it is historically derived from either an older completive or resultative. These five tests are shown below in Table 13 along with the property tested and the result for each gram-type.

Test →	+formed from telic predicates	Totally affected undergoer	Correlates w/exhaustive plurals	Correlates w/intensive states	Inchoative with state predicate
Property tested → Gram-type ↓	[+telic source]	[+telic]	[+telic]	[+intensive]	[+inchoative]
Anterior	Irrelevant*	Irrelevant*	–*	–*	–*
Resultative	+	–*	–	–	+*
Completive	+	+	+	+*	–

Table 13. *Gram-types and their interaction with predicate types*

The analysis of these tests in relation to the Greek perfect is organized according to the RRG predicate types. We first examine atelic predicate types and then telic ones. The causative types receive a separate discussion. This approach was chosen because of the relevance of telicity for distinguishing the semantics of completives, as we observed in the previous section.

[102] They say the following about this particular usage, "Perhaps plurality is associated with the completive sense because to carry an activity or process through to completion, in many cases, would involve affecting multiple patients" (Bybee, Perkins and Pagliuca 1994, 60). Whatever the relationship is between completives and exhaustive plurals, it also might contribute to the intensive use of completive grams when used with state predicates.

4.2.3.1 Atelic predicate types

As noted in section 2.1.2 in the survey of RRG, there are three atelic predicates types: states, activities, and semelfactives. Each type has its own defined set of semantic features. States are [+static] (e.g. *I am cold*), activities are [+dynamic] and [–punctual] (*John walked in the park*), and semelfactives are [+dynamic] and [+punctual] (*John clapped*). All three types are [–telic].

4.2.3.1.1 State predicates

Many state predicates simply do not form perfects at all. This observation goes beyond my corpus of Hellenistic Greek texts to include all of the Greek texts available in the Perseus Project database, which combined with my corpus totals roughly 15 million words.[103] The verb *ar'kɛo* (ἀρκέω) 'to be sufficient' demonstrates an alternation between imperfective (4.14a) and perfective (4.14b) but not the perfect.[104]

(4.14) a. **ἀρκοῦσίν** σοι αἱ ἀποκαλύψεις αὗται

ar¸ku-'sin = sy	e = apoka'lyps-es	'afte	
enough.IMPFV-NPST.3PL=DAT.2SG	the=revelation-NOM.PL	3.FEM.NOM.PL	

These revelations are enough for you (Hermas, Vis. III, x, 8).

b. **ἤρκεσεν** ἐπιτίμιον τῆς ἀνοίας τὰ ἀναλώματα.

'e-rke-s-en	epi'timio-n	tes = a'nya-s	ta = ana'lomat-a
PST-enough-PERFV-PST.3PL	penalty-ACC.SG	the=stupidity-GEN.SG	the=cost-NOM.SG

The expenditures **were adequate** punishment for their stupidity (Wars of the Jews 2.110).

[103] It is worth mentioning again here that observations of this kind of diachronic magnitude are based upon searching through the Perseus corpus of Greek texts in conjunction with those available in Logos Bible Software. In this case, there are no perfect forms occurring out of 1,702 instances of the verb in these texts.

[104] Other verbs like this include: *agalli'ao* (ἀγαλλιάω) 'I am overjoyed', *agryp'neo* (ἀγρυπνέω) 'I am alert', *'apemi* (ἄπειμι) 'I am absent', *ast^{h}e'neo* (ἀσθενέω) 'I am sick', *'gemo* (γέμω) 'I am full', *grego'reo* (γρηγορέω) 'I am awake' *ere'nevo* (εἰρηνεύω) 'to be at peace', *'eksemi* (ἔξειμι) 'I am out', *evdo'keo* (εὐδοκέω) 'to think well of', *ka't^{h}ezome* (καθέζομαι) 'I am sitting', *ka't^{h}evdo* (καθεύδω) 'I sleep', *'lampo* (λάμπω) 'I shine', *prosdo'kao* (προσδοκάω) 'I wait', *'steko* (στήκω) 'I stand firm'. Also, notably of two copular auxiliary verbs in Greek, one forms a perfect, *'ginome* (γίνομαι) 'I become' and the other does not, *e' mi* (εἰμί) 'I am'. This distinction between states and accomplishments in these two auxiliaries provides a notable contrast.

This verb cannot appear in the perfect. There is a gap in this verb's paradigm. [105] This establishes that there is a clear set of state predicates that exist as Type I sentences (cf. Figure 4, on page45) which have no grammatical perfect. Depending on how other state predicates behave with the Greek perfect, this data is suggestive of both resultative and completive meaning.

I find no instances of state predicates with perfects that involve differences in grammaticality (Type II) or propositional content (Type III). We have gaps in the paradigm (Type I) as with example (4.14) above and we have sentences with the same truth-conditional value or propositional content, but are different in conceptualization (Type IV). These Type IV sentence pairs are realized in two forms. The first involves state verbs, where the imperfective and perfective form of a given verb denotes a state, but the perfect conveys a pragmatic implicature that refers to the entrance into the state. This is particularly common with two-argument state predicates. Consider examples (4.15) and (4.16) below.

(4.15) a. δι' οὗ καὶ τὴν προσαγωγὴν **ἐσχήκαμεν** τῇ πίστει εἰς τὴν χάριν ταύτην
ten=prosago'ge-n **es'xe-k-amen** te='pist-e es=ten='xari-n 'tafte-n
the=access-ACC.SG **have-PERF-1PL** the=faith-DAT.SG to=the=grace-ACC.SG this-ACC.SG
We [have come to] possess/have access by faith (Rom 5:2).

b. ἡμεῖς **πεπιστεύκαμεν** ὅτι σὺ εἶ ὁ ἅγιος τοῦ θεοῦ
e'meis **pe-pis'tef-k-amen** 'oti 'sy e o='agios tu=θ^{h}e'u
NOM.1PL **PERF-believe-PERF-1PL** that you.NOM.SG are the=holy.NOM.SG the=god.GEN.SG
We [have come to] believe that you are the Holy One of God (John 6:69).

(4.16) a. καλὸν ὕδωρ **ἔχομεν** ἐν τῇ πατρίδι μου
ka'lo-n 'ydor **'ex-omen** en=te=pa'trid-i=mu
good-ACC.SG water.ACC.SG **have.IMPFV-1PL** in=the=homeland-DAT.SG=GEN.1SG
We have good water in my homeland (Josephus, Antiquities 7.312).

b. **πιστεύομεν** ὅτι ἀπὸ θεοῦ ἐξῆλθες
pis'tev-omen 'oti a'po t^{h}e'u e-'kselt^{h}-es
believe.IMPFV-1PL that from god.GEN.SG PST-come.PERFV-2SG
We believe that you came from God (John 16:30).

[105] There is a formal contrast between imperfective and perfective aspect even if the distinction between the two forms seems reduced in the translation. This is because the English progressive is disallowed with states.

Each perfect in example (4.15) implies a change of state from which the current state of possessing and believing has arisen. The clauses have implicit inchoative meaning. In contrast, the imperfective verbs in examples (4.16) convey the state of possession and the state of belief simply as existing without reference to either an initial or concluding endpoint. Contextually there still must have been a past change of state that resulted in belief, but it is no longer implicit in the verb itself. In both cases, however, the perfect and the imperfective verbs could be interchanged without affecting the situation referred to by either clause.

State predicates also involve Type IV grammatical contrasts in another way, known in traditional Greek grammatical descriptions as the *intensive perfect* usage. Rijksbaron (2007, 38) describes the usage in this way: "[i]n the case of verbs whose present stem forms [i.e. non-past, imperfective] already to some degree express a state, the perfect expresses the highest degree of that state, (so-called intensive perfect)." This function of the perfect is the first instance where the standard view of the perfect's history and its semantic change (resultative →anterior) does not fit the broader typology. Bybee, Perkins and Pagliuca (1994) do not recognize an intensive meaning with either the resultative or the anterior grams derived from resultatives. This usage instead correlates with the completive gram. The relationship between completive semantics and intensive meaning in state predicates arises quite predictably. Completives involve a participant being totally or completely affected by a change of state. The participant in the state predicate is conceived as experiencing the state to the highest degree—i.e. totally affected. Since this sort of intensive usage is not a propositional difference in meaning, it is difficult to prove its existence definitively only using texts. Nevertheless, there is still a clear correlation between adverbs with intensive semantics and perfects that are formed from state predicates. I provide a number of examples of this correlation below in examples (4.17) through (4.20).

(4.17) **μάλιστα** τῶν νομοθετῶν Λυκοῦργον **τεθαυμάκασι**

ˈmalista	ton=nomotʰeˈton	lyˈkurgo-n	**te-tʰavˈma-k-asi**
especially	the=lawmaker.GEN.PL	Lycurgus-ACC.SG	**PERF-marvel-PERF-3PL**

They especially admire Lycurgus the lawmaker (Josephus, Against Apion 2.225).

(4.18) **λίαν τεθαύμακεν** ὁ ἀσκητικὸς καὶ ἀνδρεῖος

ˈlian	**te-ˈtʰavma-k-en**	o=asketiˈko-s	ke=anˈdreo-s
very.much	**PERF-marvel-PERF-3SG**	the=virtuous-NOM.SG	and=courageous-NOM.SG

The virtuous and courageous [person] is greatly amazed (Philo, *Names* 214).

(4.19) **τεθαύμακα ἔτι μᾶλλον**, ἐπειδὰν κατακούων τῶν λογίων

te-ˈtʰavma-k-a	**ˈeti**	**ˈmallon**,	epeˈdan	kataˈku-on	ton=loˈgi-on
PERF-marvel-PERF-1SG	**still**	**more**,	when	listen-PART.GEN.PL	the= oracles-GEN.PL

I marvel still more when listening to the sacred oracles (Philo, *Heir of Divine Things* 203)

(4.20) ὁ λαὸς **δεδίψηκεν σφόδρα**

o=laˈo-s	**de-ˈdipse-k-en**	**ˈspʰodra**
the=people-NOM.SG	**PERF-be.thirsty-PERF-3SG**	**extremely**

The people were extremely thirsty (Judith 8:30).

These four examples all involve a different adjunct modifying clauses with perfect verbs and denote a high degree of a state denoted by the predicate. This does not definitively prove that intensification is expressed by the perfect, but the correlation is linguistically relevant, following the principle of linguistic redundancy.[106]

Another piece of evidence for this usage involves those predicates that involve an inherent intensity, particularly predicates involving strong emotion, such as *to be furious*, *to despise*, *to be terrified*. A few examples are provided here in examples (4.21) through (4.23) below and on the following page.

(4.21) **τεθύμωντο** πρὸς τὴν ὕβριν

teˈ-tʰymo-nto	pros=ten=ˈybri-n	
PERF-angry-PST.3PL	toward=the=insult-ACC.SG	

They were furious from the insult (Josephus, *Wars of the Jews* 4.284).

[106] "Texts will typically transmit less information than the sum of their linguistic parts" (Reed 1997, 101). According to Caron (1992, 5), "[Redundancy] serves to reduce the likelihood of an error in the reception of a message resulting from the loss of information during the transmission." As such, consistent correlation of linguistic elements in certain situations may imply shared semantic content.

(4.22) **ἐξουθένηκα** τὸν ἐκλεκτόν σου Ἰωσὴφ.

eksut^{h}ene-k-a	ton=eklekˈto-n=su	ioˈsef
despise-PERF-1SG	the=chosen.one-ACC.SG=GEN.2SG	Joseph

I [greatly] despised Joseph, your chosen one (Joseph and Aseneth 13.10).[107]

(4.23) ἡ δύναμις αὐτοῦ ἀπηλέγχθη πεφοβημένη

e=ˈdynami-s=afˈt-u	ap<e>ˈleŋx-t^{h}-e	**pe-p^{h}obe-ˈmen-e**
the=army-NOM.SG=3-MASC.GEN.SG	<PST>find-MID-3SG	**PERF-fear-PART-NOM.SG**

His army … was found **[completely] terrified** (Josephus, *Antiquities* 4.89).

By using the perfect, the authors of these clauses heighten the intensity of the emotion in a way that other aspects would not have been able to communicate.

Another set of state predicates allowing an intensive reading is inherently gradient verbs, like *to be drunk* or *to be tired*, as we can see in example (4.24) and example (4.25) below.[108]

(4.24) Ἰσραὴλ μεμεθυσμένος οὐχὶ νοήσει

Israˈel	**me-met^{h}ys-ˈmen-os**	uˈxi	noˈe-s-e
Israel	**PERF-be.drunk-PART-NOM.SG**	NEG	think-FUT-3SG

Israel, **completely drunk**, will have no ability to think (Sibylline Oracles 1.360)

(4.25) ἐκεκμήκει

e-ke-ˈkme-k-e
PST-PERF-be.tired-PERF-3SG

He was **exhausted** (Josephus, *Antiquities* 14.462).

Both the verbs here reflect the highest degree of the predicated state. In the case of example (4.24), it is drunkenness to the point of having no ability to think and in the case of example (4.25), it is tiredness to the point of exhaustion.[109]

An extension of this usage is seen with temporary versus permanent states, where permanence is reconceptualized as the highest degree of a state. This is exemplified in example (4.26) on the following page.

[107] This clause could be translated as 'I rejected Joseph', in which case it would instead be a causative state.

[108] In fact, in my data, inherently gradient states are more likely to form perfects that those that are not.

[109] While I have tried to use examples of the perfect from indicative clauses, the rarity of the perfect with most state predicates in general requires the recourse to perfect participles on occasion as with example (4.24).

(4.26) a. μετὰ ταῦτα πρὸς Ῥινοκουρούροις **ἀναπαύεται**.
me'ta 'taft-a 'pros Rinoku'rur-ys **ana'pave-te**
after this-.ACC.SG at Rinocolura-DAT.PL **rest.IMPFV-NPST.3SG**
After this, [Titus] **rested** at Rhinocolura (Josephus, *Wars of the Jews* 4.662).

b. **ἀναπεπαῦσθαι** τὴν Ἀσίαν ἐκ τοῦ πολέμου.
ana<pe>'pafst^{h}e ten=a'sia-n ek=tu=po'lem-u
<PERF>rest.INF the=Asia-ACC.SG from=the=war-GEN.SG
Asia **[may now be] at rest** from the war (Josephus, *Antiquities* 14.311)

In (4.26a) imperfective aspect is used. General Titus rested only for a short period of time in the region of Rhinocolura, which is near Gaza, before continuing on to another location. [110] The war is not over; this is merely a pause. But in the second sentence with the perfect, the region of Asia Minor has achieved a more permanent rest with the conclusion of this particular war. [111]

Lastly, there is some residue data involving the perfect with state predicates that is ambiguous in its motivation. In some cases, a completive sense is still conceivable, but there is no definitive way of confirming that particular interpretation in examples (4.27) through (4.29).

(4.27) οὔτε ἐπὶ Ῥωμαίων ἀποστάσει νεώτερόν τι **πεφρονήκεσαν**
'ute e'pi Ro'me-on apo'stas-e ne,ote'ro-n=ti **pe-p^{h}ro'ne-k-esan**
NEG toward Roman-GEN.PL revolt-DAT.SG revolt-ACC.SG=some **PERF-think-PERF-PST.3PL**
They **had** not **contemplated** some revolutionary activity towards defection from the Romans (Josephus, *Life* 25).

(4.28) εἰ ἐξ ἡμῶν ἦσαν, **μεμενήκεισαν** ἂν μεθ' ἡμῶν
e=ek=e'm-on 'esan, **me-me'ne-k-esan** 'an met^{h}=e'm-on
if=from=1P-GEN.PL be.PST.3PL **PERF-remain-PERF-PST.3PL** EPIST.MOD with=1-GEN.PL
If they were from among us, they would have remained with us (1 John 2:19).

(4.29) οὐ γὰρ οὗτος ὁ τόπος **ἔσχηκεν**
u='gar 'uto-s o='topo-s **'esxe-k-en**
NEG=for this-NOM.SG the=place.NOM-SG **have-PERF-1SG**
[Water is brought from far away,] for this place **has** none (Josephus, *Antiquities* 15.325).

[110] The plural marking on the proper noun is a result of the fact that Rhinocolura may refer either to the principle city of the region or the collection of cities and villages. It is the latter that is referred to by use of the plural as we find here.

[111] This "permanent" versus "temporary" distinction is what Sicking and Stork (1996) emphasize to be a primary function of the Greek perfect with state predicates.

None of these examples are clear, but an intensive sense is a reasonable possibility, especially for examples (4.27) and (4.28): *They had not contemplated at all* and *They certainly would have remained*, respectively. It is also notable that example (4.27) involves negation, where the existence of the event is being denied with greater intensity. Example (4.29) can be justifiably treated as an instance of exhaustive nuance of the completive gram as described by Bybee, Perkins and Pagliuca (1994, 57)—water, the referent of the negator, has no plural because it is a mass noun. In this case it would be translated as, *for this place has none [i.e. water] at all*. Part of the difficulty in interpreting these three perfects arises from our lack of native speakers. Alternatively, it may be possible that over time a process of semantic bleaching or analogical leveling took place and the previously intensive sense lost some or all of that intensity. Even still, the negated states, especially, cannot be discounted as still being intensive in nature.

The data for state predicates demonstrated several facts. Greek state predicates are only realized on opposite ends of Bache's (1995) typology of example sentence. The complete lack of the Greek perfect being realized with some state predicates constitutes a Type I (non-)contrast on the one hand. We then also saw Type IV sentences from the other side of the spectrum appearing on the other hand. The Greek perfect had positive results for both the resultative gram test (inchoative meaning with state predicates) and the completive gram (intensive meaning with state predicates). The possibility that the Greek perfect is an anterior gram cannot be ruled out on the basis of these tests alone, since anteriors that develop from resultatives and completives may continue these usages, particularly in their early development.

4.2.3.1.2 Semelfactive & activity predicates

The analysis of the other atelic types, semelfactives and activities, is less complicated. In my Hellenistic Greek corpus of texts and also the larger Perseus corpus, it is practically impossible

to find tokens of either class in the perfect. Because of the nature of the corpus, semelfactives—dynamic predicates lacking duration and telicity—were particularly difficult to collect for evaluation from lexicons and texts. But for those that I did find, we see that there are no instances of perfects for any of them, whether in the Koine corpus or the broader Perseus corpus. These include: *a'strapte* (ἀστράπτω) 'flash', *krota'lizo* (κροταλίζω) 'rattle', *epiplata'go* (ἐπιπλαταγῶ) 'clap', *parakro'to* (παρακροτῶ) 'pat', *pla'tasso* (πλατάσσω) 'clap together', *'stilbo* (στίλβω) 'glisten', and *suŋ'kruo* (συγκρούω) 'strike together'. This does not rule out the possibility that semelfactive predicates could take perfect morphology, but it is still useful evidence for the nature of the perfect as generally disallowing atelic dynamic predicates. The avoidance of the perfect with semelfactives coincides with those state predicates that do not allow perfect morphology, contributing more evidence against treating the Greek perfect as an anterior gram.

The situation for activity predicates is similar, though not so black and white. The vast majority of verbs that denote activities when used with the perfective or imperfective aspects only appear in the perfect as active achievements with an explicit endpoint realized either with the addition of a spatial endpoint (e.g. *I went <u>to the store</u>*) or with the addition of a referential and specific object whose existence denotes the completion of a change of state (e.g. *John baked <u>two loaves of bread</u>*). This is consistent across all eighty lexemes that I have categorized as activities that are used together several thousand times in my Hellenistic Greek corpus. As such the majority of my discussion of these lexemes appears in the following section dealing with telic predicate types.

The only major set of activity predicates that does allow the formation of a perfect are those that also involve clause-level negation, as we see in example (4.30).

(4.30) δάμαλιν ἐκ βοῶν, ἥτις **οὐκ εἴργασται**

ˈdamali-n ek=bo-ˈon, ˈetis **uk=ˈe-rgas-te**

heifer-ACC.SG from=cattle-GEN.PL REL.PRO NEG=PERF-work-3SG

A heifer from the cattle, which has not worked.

This clause involves no endpoint and thus would normally function as an activity predicate, but the appearance of the negator also affects how this clause interacts with the tests for predicate classes. I would suggest that negated activities have more in common with states. For example, a negated activity cannot be used to answer the question "What happened?" which is a basic feature of dynamic predicates. This fact is even clearer with negated activities in English since we are able to apply tests for dynamicity to them that are virtually impossible without access to native speaker intuition. Consider, for example, what happens when we add a dynamic adverb to a variation of the English translation above: *The heifer did not work vigorously all day*. Inclusion of the adverb shifts the negation from the predicate to the adverb; rather than negating the activity, it is now merely negating the manner of the event. A heifer that did not work vigorously is still a heifer that worked, albeit lazily instead. We can try to force the negation of the entire event by using the dynamic adverb by moving it to a pre-verbal position, but this makes the clause ungrammatical: **The heifer vigorously did not work all day* and **Vigorously, the heifer did not work all day*.[112] Because of this, we must conclude that negated activities (i.e. activities that do not exist) cannot be construed as being dynamic the way a regular activity is. A heifer that simply did not work one way or the other is a heifer that exists in a state of non-work. The implication of this here is that the addition of the dynamic adverb does not work with negated activities for the same reason that it does not work with states.

[112] Conversely, all syntactic positions are acceptable with a positive polarity: *The heifer worked vigorously all day*, *The heifer vigorously worked all day*, and *Vigorously, the heifer worked all day*. Thus, despite the fact that (4.30) could perhaps be used to answer, *What didn't happen?*, the syntactic restrictions involed still demonstrate a clear lack of dynamicity for these sorts of clauses. The relationship between polarity and predicate class is a topic that would merit worthwhile future study.

This nonetheless leaves an open question: Does this argument apply to negated activities generally or merely to English ones? Koine Greek does not allow the same freedom in applying the dynamic adverb test with our lack of access to native speakers. Nevertheless, the fact that negated activities are the only set of predicates in Greek to allow perfect morphology still requires an explanation and the possibility that negated activities are functional states opens the possibility that such clauses could have the inchoative semantics that arise from resultatives and state predicates or the intensive semantics that arise from completives and state predicates. Example (4.30) above could quite readily be treated as an instance of the latter.

There are still a handful of less predictable instances with positive polarity that appear to be regular activity predicates. The following are exhaustive for the activity predicates I have examined in my corpus. The first group, examples (4.31) and (4.32), is the easiest to explain.[113]

(4.31) τοῖς προστάγμασίν μου **πεπόρευται** καὶ τὰ δικαιώματά μου πεφύλακται τοῦ ποιῆσαι αὐτά
tys= pro¸stagma-ˈsin=mu pe-ˈporef-te ... t-u=pyˈe-se afˈta
the=injunction-DAT.PL=GEN.1SG PERF-live-3SG ... the-GEN.SG=do-INF this-ACC.PL
By my injunctions **he has lived** and my commands he has kept, so that he does these things (Ezekiel 18:9).

The interpretation of example (4.31) as telic or atelic depends on how one understands the function of the infinitive construction at the end of the sentence. The genitive article with the infinitive is used to mark purpose (Robertson 1923, 990; Wallace 1997, 591). If this infinitive can be viewed as an endpoint for the two coordinated clauses, this perfect fits our telic paradigm.

(4.32) ἐγὼ ἀπέστειλα ὑμᾶς θερίζειν ὃ οὐχ ὑμεῖς **κεκοπιάκατε**· ἄλλοι κεκοπιάκασιν, καὶ ὑμεῖς εἰς τὸν κόπον αὐτῶν εἰσεληλύθατε
ˈo ux=yˈm-es ke-kopiˈa-k-ate; ˈall-y ke-kopiˈa-k-asin
REL.ACC.SG NEG=2-NOM.PL PERF-work-PERF-2PL other-NOM.PL PERF-work-PERF-3PL
I sent you to reap what you have not worked for; others **have worked** and you have entered into their labor (John 4:38).

[113] In these examples I provide larger context in translation. The interlinearized portion is underlined.

Example (4.32) is slightly deceptive. While the clause in question “Others have worked” has every appearance of being atelic at first glance, this is an instance of the common phenomenon in Koine Greek to allow highly accessible activated participants to simply be dropped from the clause, regardless of grammatical relation (Danove 2009, 13-17; Dik 2003). This is particularly true of inanimate non-PSA undergoer arguments. Because of that, perhaps a more accurate understanding would either be: *Others have done the work* or *Others have worked the harvest*.

There is still one clause that cannot be easily explained in terms of its atelic nature, provided in example (4.33).

(4.33) φοβοῦμαι ὑμᾶς μή πως εἰκῇ **κεκοπίακα** εἰς ὑμᾶς

pʰoˈbu-me	yˈma-s	ˈme=pos	eˈk-e	**ke-koˈpia-k-a**	es=yˈa-s
fear-1SG	2PL-ACC NEG=how.INDEF		vain.DAT.SG	**PERF-labor-PERF-1SG**	to=2PL-ACC

I fear for you that somehow **I have labored** for you in vain (Gal 4:11).

The challenge of this clause rests with the explicit lack of an endpoint of any kind. In either the perfective aspect or imperfective aspect, these would be plain vanilla activities. As it stands, there are two possible alternatives for understanding this clause. The data from the analysis of state predicates has thus far suggested that the Greek perfect has more in common with completives and resultatives rather than anteriors. The evidence for this includes the fact that many state predicates did not form perfects at all. Moreover the few that did demonstrated either inchoative or intensive semantics as we would expect from the resultative and completive grams, respectively. Finally, we have also seen that semelfactives do not form perfects at all. On that basis, it might be justifiable to follow Bybee, Perkins and Pagliuca (1994) and assume the perfect itself creates the endpoint in these extremely rare instances with no endpoint explicitly stated—their English examples of completive semantics have inherent endpoints, e.g. *to shoot someone dead* and *to eat up*. On this understanding, the verb in example (4.33) could be glossed as, *I have*

finished/completed my labor in vain. The problem is that this explanation cannot be demonstrated without recourse to native speaker intuition. The evidence is circumstantial.

An alternative approach would be to adopt a view of grammatical change for the perfect where an older resultative or completive becomes an anterior. Bybee, Perkins and Pagliuca (1994) document paths of change to anterior semantics from both resultatives and completives. If this change is the mechanism that caused the disappearance of the Greek synthetic perfect in the Byzantine and Medieval periods, it is entirely possible that clauses such as the ones examined above represent nascent appearances of this grammatical shift. If the shift is one of completive to anterior, that would be a shift always from only telic predicates to atelic ones also. There is no way to determine which explanations should be preferred.

Nevertheless, what is clear from the analysis of the semelfactive and activity predicates on the whole is that Koine Greek speakers demonstrate a general avoidance of using perfect morphology with any of these predicates at all. We found no data at all for semelfactives with the Greek perfect and those instances of the Greek perfect with activity predicates for the most part involved clause-level negation, which gave them a non-dynamic flavor that had more in common with states. The small handful of difficult examples of activity predicates with perfect morphology were found in some cases to be better treated as active achievements or possibly the beginnings of a nascent shift in the language toward anterior semantics. It must necessarily be a nascent shift because the overwhelming evidence is that Koine Greek speakers preferred to avoid using the perfect with atelic predicates. As a whole, our set of evaluative tests appears to be functioning consistently thus far. The great majority of the data is quite clearly falling in line with understanding Greek as an aspect-prominent language and the perfect is, in turn, behaving as expect with what looks like a combination of resultative and completive semantics.

4.2.3.2 Telic predicate types

Turning to the telic predicate types, it may be worthwhile to summarize what we are anticipating to see in light of the tests for anterior, resultative, and completive gram-types. The latter two types bear a distinct relationship to the semantic feature of telicity. Telicity itself involves a change of state. Resultatives denote the state that arises from that change and thus necessarily correlate with telic verbs. Completives also require a telic predicate; however, they have telicity as a basic focal point of their semantics. This then lends itself to correlate with situations where the speaker desires to express that an event has affected a plurality of participants/entities in an exhaustive manner. Together, these are the three semantics tests left to be examined in this section as well as the next section on causative predicates.[114]

Role and Reference Grammar specifies three basic types of telic predicate classes: achievement, active achievements, and accomplishments. Because of their close relationship with activity predicates, which I have just discussed, active achievements are examined first, followed by regular achievements, and then accomplishments. The semantic differences between these are repeated from chapter one in (4.34)

(4.34) a. Activity [−static], [+dynamic], [−telic], [−punctual]
b. Achievement [−static], [−dynamic], [+telic], [+punctual]
c. Active achievement [−static], [+dynamic], [+telic], [−punctual]
d. Accomplishment [−static], [−dynamic], [+telic], [−punctual]

All these types are non-static, but only activities and active achievements are dynamic. Our three telic predicate types differ from each other in terms of dynamicity and punctuality, and while active achievements share non-punctuality with accomplishments, they gain this feature from their relationship to activities.

[114] The reader may want to refer to Table 13 on page 96 for reference to the tests laid out schematically or to the larger and more detailed discussion of the tests in chapter three at section 3.2.2.3.

4.2.3.2.1 Active achievements

For active achievements, the actual change of state has no duration and thus cannot be viewed as an accomplishment. In a sentence such as *John walked to the park*, the duration exists in the *walking* portion of the predicate, which is an activity. The change of state from not being at the park to being at the park is instantaneous like an achievement.

The Greek perfect is more likely to occur with active achievement predicates than bare activity predicates. This is an important grammatical divergence between the Greek perfect and the English perfect. Since the English perfect is an anterior gram (Bybee, Perkins and Pagliuca 1994, 12), it may be used with an activity predicate without restriction. Telicity plays no defining role for anteriors.[115] Greek prefers to express such sentences with a past perfective form instead of a perfect, as shown in example (4.35).

(4.35) a. πάντες **ἥμαρτον**
ˈpant-es **ˈe-marto-n**
all-NOM.PL PST-sin.PERFV-PST.3PL
All have sinned and fall short of the glory of God (Rom 3:23)

b. **ἡμάρτηκεν** ὁ λαὸς οὗτος ἁμαρτίαν μεγάλην
e-ˈmarte-k-en o=laˈo-s amarˈtia-n meˈgale-n
PERF-sin-PERF-3PL the=people-NOM.SG sin-ACC.SG great-ACC.SG
These people **have sinned** a great sin (LXX Ex 32:31).

In example sentence (4.35a), the perfective past ˈ*emarton* (ἥμαρτον) ‘have/did sinned’ is atelic referring to the activity of sinning generally. The perfect in (4.35b), *e*ˈ*marteken* (ἡμάρτηκεν) ‘have sinned x’, appears with a specific and referential direct object and thus denotes a completed change of state.

The perfective vs. perfect contrast here is born out especially well with activity and active achievement predicates in content questions. Consider the following examples in (4.36).

[115] See section 3.2.2.3 for discussion.

(4.36) a. τί **ἡμάρτηκεν**;
ˈti **e-ˈmarte-k-en**?
QUES.ACC.SG **PERF-sin-PERF-3SG**
What **has he done** wrong? (Philo, Sobriety 33)

b. τί **ἡμάρτηκα** ἐνώπιον τοῦ πατρός σου;
ˈti **e-ˈmarte-k-a** eˈnopion to=patˈro-s=su
QUES.ACC.SG **PERF-sin-PERF-1SG** before the=father-GEN.SG=you.GEN.SG
What **have I done wrong** before your father? (1 Kingdoms 20:1)

In both example sentences here, it is the direct object (i.e. the existence of the endpoint) that is being questioned. Across my corpus of texts this is consistent: the perfect is never used to question activity itself as denoted by the predicate, but instead to question something specific up to an endpoint.[116] In contrast, the two clauses in example (4.37) have perfective verbs. In these two clauses, the question does not pertain to a specific referential sinful act committed, but to the activity of sinning itself with reference to the actor.

(4.37) a. τίς **ἥμαρτεν**, οὗτος ἢ οἱ γονεῖς αὐτοῦ;
ˈtis **ˈe-mart-en**, ˈutos e y=goˈnes afˈt-u?
QUES.NOM.SG **PST-sin.PERFV-3SG** DEM.NOM.SG or the=parent.NOM.PL 3-MASC.GEN.SG
Rabbi, who **(has) sinned**, this man or his parents? (John 9:2)

b. τίς οὐχ **ἥμαρτεν** ἐν τῇ γλώσσῃ αὐτοῦ;
ˈtis ux=**ˈe-mart-en** en=te=ˈglosse afˈt-u?
QUES.NOM.SG NEG= **PST-sin.PERFV-3SG** in=the=tongue.DAT.SG 3-MASC.GEN.SG
Who **has** not **sinned** with his tongue? (Sirach 19:16)

Example (4.37) only has atelic perfective verbs. In both John 9:2 and Sirach 19:16, the speaker is questioning who participated in the activity denoted by ˈ*emarten* (ἥμαρτεν) '(s)he sinned', without any reference to a particular sin. In John 9:2, Jesus' disciples are asking whether it was a lame man or his parents who committed some unknown sin that caused his crippled condition. In Sirach 19:16, the author is asking a rhetorical question in order to make the point that everyone participates in the activity of sin. Using a perfect in either of these would result in ungrammatical

[116] In this context, "never" refers to my specific corpus of texts, though it is probable that this generalization would hold for the language in general.

clauses. However, the distribution between the perfective past and the perfect is asymmetrical. We saw in example (4.37) two instances of the Greek perfective aspect being used with atelic activity predicates. Similarly, instances of the perfective aspect with telic predicates, such as the one in example (4.38) below, can also be readily found.

(4.38) Τί κακὸν **ἐποίησεν**;

ˈti	kaˈko-n	**e-ˈpye-s-en**?
what.ACC.SG	evil-ACC.SG	**PST-do-PERFV-3SG**

What evil **has he done**? (Matt 27:23)

Here Pilate is asking the Jewish leaders about Jesus' *specific* crimes. Thus the clause denotes an active achievement rather than an activity. On the basis of examples (4.37) and (4.38), we can conclude that while the Ancient Greek perfective aspect is inherently bounded in its temporal structure, it is not inherently telic such that it can be said to refer to a definable endpoint. This difference between the perfective and the perfect aspects is a Type II contrast, according to our typology of example sentences and thus, should be viewed as denoting more prototypical functions of the Greek perfect and perfective than those we have seen thus far with state predicates, which either involved paradigmatic gaps or non-propositional semantic differences.

We can also observe a few patterns if we examine how active achievements interact with the perfect in relationship to the transitivity of the verb. For example, an intransitive verb, such as ˈ*erxome* (ἔρχομαι) 'I come/go', is ambiguous in the perfect with both resultative and completive readings being possible, as we can see below with example (4.39).

(4.39) λέγω ὑμῖν ὅτι καὶ Ἠλίας **ἐλήλυθεν**

ˈleg-o	yˈmin	ˈoti	kˈe	eˈlia-s	**eˈl-elytʰ-en**
say.IMPFV-1SG	2SG.DAT	that	indeed	Elijah-NOM.SG	**PERF-come-3SG**

I tell you that Elijah **has** certainly **come/is** certainly **here** (Mk 9:13).

Perfects like this one tend to involve emphatic assertion, but there is no definitive way of deciding between the resultative *Elijah is here* and the completive *Elijah has come*. One factor

that could tip the scales for the completive is that emphasis and surprise are primarily features that correlate with completives rather than resultatives (Bybee, Perkins and Pagliuca 1994, 57).

Transitive active achievements tend to allow only a completive reading, as in examples (4.40) through (4.42).

(4.40) ἀπεκρίθη ὁ Πιλᾶτος· Ὃ **γέγραφα γέγραφα**.
ap<e>ˈkri-tʰe o=Piˈlato-s ˈo **ˈge-grapʰ-a** **ˈge-grapʰ-a**.
<PST>reply-PERF.3SG the=Pilate-NOM.SG REL.PRO **PERF-write-1SG** **PERF-write-1SG**
Pilate replied, "What **I have written, I have written**" (John 19:22).

(4.41) **γέγραφεν** Ἑλλάδι φωνῇ τὴν πάτριον ἱστορίαν
ˈge-grapʰ-en elˈlad-i pʰon-e ten=ˈpario-n istoˈria-n
PERF-write-3SG Greek-DAT.SG language-DAT.SG the=nation-ACC.SG history-ACC.SG
He has written in the Greek language the history of the nation (Josephus, *Against Apion* 1.73).

(4.42) τὸ ἄριστόν μου **ἡτοίμακα**
to=ˌariˈsto-n=mu **e-ˈtyma-k-a**
the=dinner-ACC.SG=1SG.GEN **PERF-prepare-PERF-1SG**
I have prepared my dinner (Matt 22:4).

This kind of perfect (both telic and transitive) is the one with the most overlap with the English perfect (an anterior) and easily allows the standard "current relevance" pragmatic implicature.[117] Along with the possible semantic bleaching of Greek perfects with states, these sorts of clauses are probably locations where diachronic development was moving the Greek perfect toward anterior semantics and its eventual disappearance entirely.

The other element of perfect usage with active achievements that occurs in my corpus corresponds to Bybee, Perkins and Pagliuca's observations about completives being used to refer to changes of state that are exhaustive in nature (1994, 57). This is particularly evident with

[117] Haug (2004) and Rijksbaron (2007) would argue that clauses such as example (4.41) could be ambiguous between a resultative reading and a completive reading. They would suggest that a resultative translation would be along the lines of *He is the author of the history of the nation in the Greek language*, where the resultative involves the change of state from non-author to author, which then continues as an inherently persistent state. However, There is no clear way to determine if this interpretation is linguistically possible from of a native speaker.

verbs that in the perfective and imperfective aspects denote prototypical activity semantics. A few examples of this usage are provided below in (4.43) through (4.45).

(4.43) ἐπὶ τὸν Ἰωνάθην ὥρμα καὶ τοὺς σὺν αὐτῷ συμπαρόντας ὡς διαφθεροῦντες· κἂν **ἐπεπράχεισαν** τὸ ἔργον, εἰ μὴ τοὺς μὲν Γαλιλαίους ἔπαυσα τῆς ὀργῆς

k = ˈan **e-pe-ˈpraxe-san** to = ˈergo-n

and=EPIST **PST-PERF-do-PST.3SG** the=deed-ACC.SG

They rushed at Jonathan and his men to kill them and **they would have done/finished** the deed, had I not restrained the anger of the Galileans (Josephus, Life 262).

(4.44) ἀπάγγειλον αὐτοῖς ὅσα ὁ κύριός σοι **πεποίηκεν**

aˈpaŋgelo-n af't-ys ˈosa o = ˌkyriˈo-s = sy **pe-ˈpye-k-en**

tell.PERFV-IMP.2SG them-DAT.PL REL.QUANT the=lord-NOM.SG=2SG.DAT **PERF-do-PERF-3SG**

Tell them all that the Lord **has done** for you (Mk 5:19).

(4.45) ...κατὰ τὴν ἐνέργειαν τοῦ κράτους τῆς ἰσχύος αὐτοῦ ἣν **ἐνήργηκεν** ἐν τῷ Χριστῷ ἐγείρας αὐτὸν ἐκ νεκρῶν, καὶ καθίσας ἐν δεξιᾷ αὐτοῦ ἐν τοῖς ἐπουρανίοις

ˈen **en<e>rge-k-en** en = to = xriˈst-o

REL.PRO **<PERF>work-PERF-3SG** in=the=Christ-DAT.SG

according to the working of his might strength, which **he has completed** in Christ by raising him from the dead and seating him at his right hand in the heavens (Eph 1:20).

These are all active achievements because of the inclusion of a specific referential object appended to what would have been a bare activity verb. In the perfect, they all denote that the particular event is totally completed. Thus, if specific conditions had been met, the Galileans would have killed Jonathan and those with him to the last man in (4.43). Similarly, Jesus commands the formerly demon-possessed man in (4.44) to tell his family all that the Lord has done, as opposed to only some of it. The relativizing quantifier refers to both all that he will tell and all that the Lord has done since it has a syntactic function in both clauses. In example (4.45), God has not merely *done* a work in Christ, but completely finished it, as well.

The final aspect of perfect usage with active achievement predicates involves the function of the perfect in relation to Greek's voice alternation between active and middle. For the verb ˈgrapʰo (γράφω), 'I write', the middle is limited in its usage to third person, referring to the

product of writing. The middle demonstrates a clear distinction between imperfective aspect and the perfect, as demonstrated in examples (4.46) and (4.47).

(4.46) διαθῆκαι ἐπ' ὠφελείᾳ **γράφονται** τῶν δωρεᾶς ἀξίων
dia'tʰek-e ep=pʰe'le-a **'grapʰo-nte** ton=dore'a-s a'ksi-on
covenant-NOM.PL for=benefit-DAT.SG **write.IMPFV-MID.3PL** the=gift-GEN.SG worthy-GEN.PL
Covenants **are written** for the benefit of those worthy of the gift (Philo, Names 52).

(4.47) ἐν ταῖς ἀραῖς **γέγραπται** ὅτι οὐκ ἀναπαύσει σε, οὐδ' οὐ μὴ γένηται στάσις τῷ ἴχνει τοῦ ποδός σου
en=tes=a'r-es **'ge-grap-te**
in=the=curse-DAT.PL **PERF-write-MID.3SG**
In the curses, **it is written**, "You will never rest; nor will there be rest for the sole of your foot" (Philo, Posterity 24).

The two middle verbs here cannot be interchanged without making the clauses ungrammatical, thus representing a Type II grammatical contrast. Example (4.46) has imperfective aspect and presents a state-of-affairs as in process: the iterative writing of covenants in general—the change of state that produces a covenant—rather than a specific covenant that simply exists as written. On the converse, example (4.47) with the perfect verb is a completed state. It refers to curses that already exist as written. The imperfective middle cannot be used to refer to the achieved state of an active achievement. Only the perfect can take this meaning. It appears that languages with the more general imperfective aspect, rather than the more narrowly defined progressive aspect, can be influenced by the semantic constraints that prevent state predicates from coinciding with progressive.[118] When imperfective aspect is used in contexts where an event "require[s] a constant input of energy to be sustained" (Bybee, Perkins and Pagliuca 1994, 126), we should expect that such instantiations of the imperfective aspect will also disallow states.[119]

[118] I use to the phrase "more general" to mean that the imperfective takes up a larger conceptual space than the progressive does.

[119] This situation might also explain why certain verbs lexicalized their perfects into separate verbs early on in the history of the language, the perfective *'edon* (εἶδον) 'I see' and the perfect *'yda* (οἶδα) 'I know' (See BDAG, 694 for more details).

Our survey of active achievements in relationship to the Greek perfect establishes more firmly that a combination of resultative and completive semantics are dominant for this grammatical form rather than the anterior. We saw that a Type II contrast (i.e. a contrast in grammaticality) could be found when we compared the Greek perfective aspect and Greek perfect aspect, the latter being disallowed in atelic contexts. This grammatical contrast, we concluded, was a result of the fact that Greek perfective aspect is bounded, but makes no reference to internal temporal structure and could be used with both telic and atelic predicates. The Greek perfect was shown to have a definite endpoint in its internal temporal structure. Then in our examination of transitivity and the Greek perfect, we found that intransitive perfects are ambiguous as to whether they are best analyzed as resultatives or completives.[120] We also found that transitive Greek perfects consistently had a completive semantics.

4.2.3.2.2 Achievements & accomplishments

The usage of the perfect with achievement and accomplishment predicates is, for the most part, quite similar. While these two classes are not static, they do lack the additional degree of dynamicity that is characteristic of active achievements. Examples of transitive verbs that are achievements and accomplishments in the perfect are provided in example (4.48) below with the achievement *lan*ˈ*t*^{h}*ano* (λανθάνω) 'I escape [someone]' and example (4.49) on the following page with the accomplishment *man*ˈ*t*^{h}*ano* (μανθάνω) 'I learn'.

(4.48) ἡ δὲ σοφία πόθεν εὑρέθη; ποῖος δὲ τόπος ἐστὶν τῆς συνέσεως; **λέληθεν** πάντα ἄνθρωπον

ˈle-let^{h}-en	ˈpant-a	ˈant^{h}ropo-n
PERF-escape-3SG	all-ACC.SG	person-ACC.SG

And where does one find wisdom? And what is the place of understanding? **It has escaped/is hidden from** all people.
(LXX Job 28:21).

[120] That is, is the clause in example (4.39) best understood as meaning, *Elijah has certainly come* (completive) or *Elijah is certainly here* (resultative)?

(4.49) **μεμάθηκεν** ἡ γλῶσσα αὐτῶν λαλεῖν ψευδῆ

me-ˈmatʰe-k-en	e=ˈgloss-a	af't-on	la'l-en	psev'd-e
PERF-learn-PERF-3SG	the=tongue-NOM.SG	3-GEN.PL	speak-IMPFV.INF	lie-ACC.SG

Their tongue **has learned/knows** how to speak lies (LXX Jer 9:4).

Whether the clause is translated as an English stative or perfect is immaterial.[121] Example (4.48) could be paraphrased as, *Wisdom has escaped such that it is completely hidden from all people*. Likewise, example (4.49) can be paraphrased as, *Their tongue has learned such that it knows how to speak lies*. These sentences show that the perfect with achievement and accomplishment predicates are ambiguous as to completive or resultative readings. The difference is difficult to see, particularly with achievements since they lack duration and as a result inherently express an exhaustive change of state.[122] This exhaustive change of state can then be expressed with reference to the change itself or with reference to the state that is achieved.

Intransitive achievements function in the same manner, as demonstrated by the examples in (4.50) and (4.51).

(4.50) πατὴρ μοι Βαθουῆλος ἦν· ἀλλ᾽ ὁ ἤδη **τέθνηκε**

all=o=ˈede	**ˈte-tʰne-k-e**
but=the=already	**PERF-die-PERF-3SG**

My father was Bethuel, but **he has died/is dead** already (Josephs, Antiquities 1.248).

(4.51) **Βεβασίλευκεν** βασιλεὺς Αβεσσαλὼμ ἐν Χεβρών

be-baˈsilef-k-en	basiˈlef-s	abessaˈlom	en=xeˈbron.
PERF-become.king-PERF-3G	king-NOM.SG	Absalom	in=Hebron

King Absalom **has become/is king** in Hebron (LXX 2 Sam 15:10)

These two intransitive perfects demonstrate the same pattern as we saw with the transitive examples above. In both cases the completed event is identical with the resultant state.

[121] The fact that there are two alternative translations is a result of English making a grammatical distinction between its perfect and its stative construction. Ancient Greek does not have such an alternation available.

[122] A helpful illustration of this fact is the usage of completive/telic adverbs with achievement predicates in English. A person could say, *I have summited the mountain*, rather than, *I have completely summited the mountain.* The latter sentence is redundant.

But whether the clause with the perfect is transitive or intransitive, the exhaustive reading native to completive grams regularly appears. This is one of the rare occasions where I can fairly easily provide contrastive examples. Consider examples (4.52) and (4.53).

(4.52) μὴ **ἔπταισαν** ἵνα πέσωσιν; μὴ γένοιτο
me = ˈ**e-pte-s-an** ˈina ˈpe-s-osin? me = ˈgen-yto
NEG=**PST-trip-PERFV-PST.3PL** so.that fall-PERFV-EPIST.3PL NEG=become.PERFV-PST.EPIST.3SG
Did they stumble such that they fell? Absolutely not (Rom 11:11).

(4.53) **ἐπταίκασιν** ἀπὸ προσώπου Ισραηλ
e-ˈ**pte-k-asin** aˈpo proˈsop-u Israel
PERF-trip-PERF-3PL from face-GEN.SG Israel
They have fallen [such that they are destroyed] from before Israel (LXX 1 Chron. 19:19).

The perfective past verb ˈ*eptesan* (ἔπταισαν) ‘they stumbled’, in example (4.52), used here with the subordinate clause, *so that they fell*, makes explicit that this particular stumbling was not fully realized with a fall.[123] In such a context, the perfect cannot be used. Conversely, in example (4.53), the perfect obligatorily denotes that the fall experienced by the undergoer argument is total and complete. The completive nature of the perfect is also visible in example (4.54) as well.

(4.54) τοῖς δὲ ἄλλοις ἅπασιν ἠπείλησα μείζω τιμωρίαν ἐπιθήσειν μὴ κομίσασιν εἰς τοὐμφανὲς ὅσα ἡρπάκεισαν
ˈos-a **e-r**ˈ**pa-k-esan**
REL.QUANT-.ACC.PL **PST-steal-PERF-PST.3PL**
I threatened everyone else that I would inflict a greater punishment upon them, unless they produced before us everything **they had seized** (Life 335).

In this example the verb would denote an achievement in the imperfective and perfective aspects: arˈpazo (ἁρπάζω) ‘I steal, seize’. We find the perfect being used here in conjunction with an exhaustive plural denoted by the accusative relative quantifier pro-form ˈ*os-a* (ὅσα) ‘as much/many as’. The collocation between this quantifier and the perfect is quite common.

[123] The negator *me* (μὴ) is used to introduce a question when the speaker anticipates a negative answer.

As it stands then, the Greek perfect allows for both the semantics of the resultative gram and also the completive gram. However, it is not clear which usage gave rise to the other. We could imagine a plausible mechanism of semantic change going in either direction, where resultant states are conceived as exhaustively achieved or exhaustively achieved states are conceived as resultant states. The Classical tradition of grammar would suggest the former and that the Greek perfect was originally a resultative. However, considering that the category of completive was essentially an unknown option when these grammatical descriptions were written, we may not want to be too hasty in assuming one direction of change over the other. I am not confident that there is a definitive means of deciding which option should be preferred.

4.2.3.3 Causative predicate types

Causative predicate types have their own unique challenges, both generally and also in Koine Greek. For one, unlike other predicate types, there is no easy syntactic test for the causative types. Van Valin (2005, 38) suggests that attempting to paraphrase a sentence as causative is a useful means.[124] Recall from chapter 2, section 2.1.2 on semantic representations and section 2.1.3 on logical structures, that there is a causative version that relates to each of the six basic predicate types and that they involve two logical structures joined together with a CAUSE operator. Because causative predicates inherently involve a participant undergoing a change of state, all causative predicate types are also telic.

For our three gram-types, this is relevant to both resultatives and completives. Anteriors, on the other hand, are not influenced by telicity one way or the other. Like before, we are

[124] He emphasizes that there are a few rules in making such paraphrases. A causative paraphrase cannot add additional syntactic arguments to the original clause. Likewise, a causative paraphrase cannot remove existing arguments from the original clause. Thus, single argument clauses cannot be causative. Van Valin also emphasizes that the paraphrase does not imply that the original clause and its paraphrase are semantically identical. *John caused Bill to die* is a causative paraphrase of *John killed Bill*. But *cause to die* does not imply *kill*. What matters is that where *John killed Bill* is true, the causative paraphrase is also true (Van Valin 2005, 38-9).

primarily interested in the three tests directly related to telicity. Since resultative grams are formed from telic sources, we will likely see more resultative semantics as we have seen thus far for the Greek perfect. Because causatives are inherently telic, evaluating completives and resultatives in terms of the affectedness of the undergoer will be difficult, since a causative anterior would have an affected patient as well. In this context, consistent correlation with exhaustive plural usage becomes an important factor.

The third challenge before us is a result of the fact that causative predicates in Greek vary dramatically in their realization depending on the verb in question. We have a set of very old causative verbs in Greek whose semantics are inherently tied to the aspect. There are diachronic reasons for this that go far back into the history of the proto-language back when the inflectional forms that now denote aspect were derivational markers that divided verbs into an eventive class and a stative class (Clackson 2007, Janasoff 2005, Lehmann 1993). These are high frequency verbs that have retained vestiges of this older language system in the semantics of their aspect morphology.[125] Representative is the verb *ˈsten-e* (στῆν-αι) 'to cause to stand.PERFV-INF / to be standing.PERFV-INF'.[126] In the perfective aspect, as above, this verb has two senses. One is a

[125] The infinitive forms of the verb provided here for each aspect are somewhat arbitrary. These are older infinitival forms that were in the process of being adapted to the contemporary aspectual inflectional paradigm. In the older form, the root of the verb defaulted to perfective aspect, which was then changed depending on the prefix attached. This form would have been considered the more 'proper' form of the language during the Koine period. However, at this point in history the newer infinitive aspectual pattern has the aspect realized directly with the infinitival suffix was becoming more and more dominant with this verb and other similar verbs. For the Koine period, there are two possible infinitive inflectional forms for each aspect.

[126] Other verbs derived from this verb that also function in this class of Greek perfects include: *aˈpʰistemi* (ἀφίστημι) 'to cause revolt', *eˈksistemi* (ἐξίστημι) 'to cause amazement', *paˈristemi* (παρίστημι) 'to cause to be available', *meˈtʰistemi* (μεθίστημι) 'to remove', *syˈnistemi* (συνίστημι) 'to unite', *kaˈtʰistemi* (καθίστημι) 'to take someone somewhere'. All of the verbs derived from *ˈistemi* (ἵστημι) 'I cause to stand' have a derivational prefix that attaches outside the tense and aspect inflection. The verb *yˈpʰistemi* (ὑφίστημι) 'I cause to shape/become real' involves the attachment of the prefix *ypo-* (ὑπο-) 'under' to the root. Verbs from other roots that involve the same

causative sense and the other is a non-causative sense. The imperfective aspect, on the other hand only allows the causative sense: *i-sˈtan-e* (ἱστάν-αι) 'IMPFV-to cause to stand-INF'. The perfect aspect then only allows the non-causative sense: *e-sˈtan-e* (ἑστάναι) 'PERF-to be standing-INF'. We can interpret this situation in two ways, neither of which is necessarily mutually exclusive of the other. Firstly, since the perfective aspect is the only inflectional form that allows both these senses, we might view this aspect as the more basic one to which the other two (imperfective and perfect) aspects are related.[127] Secondly, we can view the alternation between imperfective and perfect as the more primary one in terms of its relationship to the structure of the proto-language. This second perspective would treat the imperfective form's causative nature, *i-sˈtan-ai* (ἱ-στάν-αι) 'IMPFV-to cause to stand-INF', as the primary historical derivative of the eventive verb class and the non-causative perfect as the derivative of the stative verb class.[128] From this perspective, the perfective aspect's ability to convey either the causative or non-causative sense of the verb implies a later historical development in the language since in the proto-language both the imperfective and the perfective aspects fell within the eventive domain (Sihler 1995, 446-9).

This class of verbs closely parallels Bybee, Perkins and Pagliuca's (1994, 63) description of resultatives as involving a state "that was brought about by some action in the past." In our Greek data, the phrase, "action in the past," does not refer to a discourse event. This is clear from the clauses provided on the following page in example (4.55) with the verb ˈ*istemi* (ἵστημι) 'I

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type of alternation include (but are not limited to): *aˈpollymi* (ἀπόλλυμι) 'to destroy', *evareˈsteo* (εὐαρεστέω) 'to please someone', and ˈ*petʰo* (πείθω) 'to persuade'.

[127] Haug (2004, 394-5) draws this same conclusion from his own examination of several others of these older verbs.

[128] The fact that the Greek perfect historically came from the stative verb class aligns with the possibility that the morpheme's resultative-like usages are historically older than its completive-like usages.

cause to stand', and in example (4.56) with the verb *yˈpʰistemi* (ὑφίστημι) 'I cause something to have shape/form'.

(4.55) Ἡ μήτηρ σου καὶ οἱ ἀδελφοί σου **ἑστήκασιν** ἔξω
e = ˈmeter = su ke = y = adelˈpʰy = su
the=mother.NOM.SG=2SG.GEN and=the=brother.NOM.PL=2SG.GEN
e-ˈste-k-asin ˈekso
PERF-cause.to.stand-PERF-3PL outside
Your mother and your brothers are standing outside (Lk 8:20).

(4.56) ὁ θεὸς μόνος ἐν τῷ εἶναι **ὑφέστηκεν**
o = tʰeˈo-s ˈmono-s en = to = ˈen-e **yˈpʰ<e>ste-k-en**
the=god-NOM.SG only-NOM.SG in=the=be-INF **<PERF>cause.to.be.shaped-PERF-3SG**
God **exists** uniquely as being itself (Philo, Worse 160).

In Luke 8:20, Jesus' mother and brothers had not been sitting and then stood up such that they are now standing. Likewise, Philo most certainly does not believe that God had previously been shaped or formed such that he now exists. Rather he uses the Greek perfect in making the opposite claim: God's existence is the very essence of being and thus eternal. In both cases the Greek perfect cannot be conceived of as implying a past action within discourse context. In fact, such an implicature is contrary to the larger context entirely.

This usage, where resultatives make no implicit or explicit reference to the change of state that brought about the persistent state, Bybee, Perkins and Pagliuca (1994, 67) refer to as a "state exists" usage. For Greek it can be defined in terms of the inflectional alternation between causative sense found with the imperfective and perfective aspects on the one hand and the non-causative perfect on the other. For the two verbs in examples (4.55) and (4.56) this inflectional alternation can be formalized in terms of the semantic representation in example (4.57).

(4.57) a. *ˈistemi* (ἵστημι) 'I cause to stand' ←→ *ˈesteka* (ἕστηκα) 'I am standing'
[**do'** (x, Ø)] CAUSE [**stand'** (y)] **stand'** (x)
b. *yˈpʰistemi* (ὑφίστημι) 'I form' ←→ *yˈpʰesteka* (ὑφέστηκα) 'I am formed'
[**do'** (x, Ø)] CAUSE [**shaped'** (y)] **shaped'** (x)

The imperfective aspect verbs on the left side are both causative states in their logical structure. The perfect aspect verbs on the right-hand side for these two verbs are regular, non-causative states. The choice of the perfect affects the argument structure of this set of old verbs. A possible template for the inflectional alternation between the imperfective/perfective and the perfect with this class of Greek verbs is provided in example (4.58).

(4.58) Causative IMPERFV/PERFV ←→ Non-causative PERFECT
[**do'** (x, ∅)] CAUSE [**pred'** (y)] **pred'** (x)

In all cases of this class of verbs, the second half of the causative structure is realized by itself when the verb forms a perfect and the undergoer becomes the privileged syntactic argument. This schema, as it stands, is only relevant to causative states, however. There are other types of causatives within this class of verbs other than causative states. The verb *aˈpʰistemi* (ἀφίστημι) 'I cause someone to go away' is a causative activity and its perfect form *aˈpʰesteka* (ἀφέστηκα) 'I am gone' has a logical structure such as the one in example (4.59).

(4.59) *aˈpʰistemi* (ἀφίστημι) 'I cause to go away' ←→ *aˈpʰesteka* (ἀφέστηκα) 'I am gone'
[**do'** (x, ∅)] CAUSE [[**do'** (y, ∅)] BECOME NOT [**be.present'** (y)])] NOT [**be.present'** (x)]

The pattern is similar to the one for causative states. The resulting perfect is a state predicate, but in this case the second logical structure is an activity. We should generalize our schema for the semantics of the Greek perfect for these older verbs a little more, as in example (4.60).

(4.60) Causative IMPFV/PERFV ←→ Non-causative PERFECT
α CAUSE β **pred'** (x)

The schematic structure is essentially the same, except now we have replaced the logical structures on the causative side with the variables α and β, which refer to logical structures of any type. This is because, for this class of causative verbs in Greek, it is their nature as *causatives* that is important, as opposed to causative *states* or causative *activities*. This class of

causative verbs in Greek with their own unique realization of the perfect is notable considering that Bybee, Perkins and Pagliuca (1994, 66-7) observe lexical restrictions in the languages they examined as well. They write, "Johnston's description of Nakanai language is quite explicit about the change in sense when what he calls the Perfective [which they define on the basis of his description as a resultative] is used with verbs of different lexical semantics" (66).[129] Likewise, this older class of Greek verbs demonstrates similar restrictions and changes of sense.

The second, far more pervasive class of Greek causative verbs diverges dramatically from the usage we saw with the old verbs above. Where the first class involves a contrastive alternation between causative and non-causative semantics represented by the schema in example (4.60) that resulted in a reduction in the number of arguments, the more common pattern maintains the number of arguments and their positions in the syntactic and semantic structure. In the perfect, this class of Greek verbs retains the causative semantics (and thus also the number of syntactic arguments) that exist in their imperfective and perfective aspects as shown in examples (4.61) and (4.62) below.

(4.61) κύριε, εἰς κρίμα **τέταχας** αὐτόν

ˈkyri-e,	es=ˈkrim-a	**ˈte-tax-as**	afˈto-n
lord-VOC.SG	to=judgment-ACC.SG	**PERF-put.in.place-2SG**	3-MASC.ACC.SG

Lord, you **have appointed** him for judgment (LXX Hab 1:12)

(4.62) τοὺς φίλους αὐτοῦ πάντας **ἀπεκτόνασιν**

tus=ˈpʰil-us	afˈt-u	ˈpant-as	**ap<e>ˈkton-asin**
the=friend-ACC.PL	3-MASC.GEN.SG	all-ACC.PL	**<PERF>kill-3PL**

They **have killed** all his friends (Josephus, Antiquities 12.391).

In example (4.61), the Lord has put the impious person in the place of judgment. The predication is a completed change of state. The perfect in example (4.62) fits the paradigm of the exhaustive

[129] For the Nakanai resultative morpheme, Bybee, Perkins and Pagliuca (1994, 66-7) note that "action verbs" take completive semantics (e.g. *ali-ti-a* 'ate it all up') and "process verbs" take resultative semantics (e.g. *peho-ti* 'dead'). The underlined suffix *–ti,* in both cases, is the resultative morpheme.

plural that correlates with completives. Both of these examples are causative achievements. Causative activities function similarly. Example (4.63) involves the verb ˈ*potizo* (ποτίζω) ‘I cause [someone] to drink’.

(4.63) ἐκ τοῦ οἴνου τοῦ θυμοῦ τῆς πορνείας αὐτῆς **πεπότικεν** πάντα τὰ ἔθνη

ek=tu=ˈyn-u	tu=tʰyˈm-u	tes=proˈnea-s	aft-es
from=the=wine-GEN.SG	the=passion-GEN.SG	the=immoral-GEN.SG	3-FEM.GEN.SG
pe-ˈpoti-k-an	ˈpant-a	ta=ˈetʰn-e	
PERF-make.drink-PERF-3PL	all-ACC.PL	the=nation-ACC.PL	

From the wine of her immoral passion she has made all the nations drink (Rev 14:8)

The perfect verb *peˈ-poti-k-en* (πεπότικεν) ‘PERF-make.drink-PERF-3PL’ denotes the completion of the event, such that the nations have drunk from her wine.[130] The plural argument, ˈ*panta ta* ˈ*etʰne* (πάντα τὰ ἔθνη) ‘all the nations’, should be viewed as an exhaustive plural. Thus on a whole, we find a pattern with our second class of Greek causative verbs that correlates with completive semantics. This is striking in terms of how we observed how the Greek perfect interacted with non-causative predicate classes. There too, we found a split in usage between resultative semantics and completive semantics. The difference for causatives here is that this same split in usage is realized along historical lines of the diachronic development of the Greek verbal system. The old verbs have resultative perfects and the new verbs have completive perfects.

Despite the consistency of this division, there is still one grammatical situation where we find resultative semantics with our second class of Greek causative verbs. In order to form a resultative perfect from these verbs, the speaker is required to use the middle voice. This is the

[130] I should note that there is one parallel instance of this clause in Revelation 18:2, where the verb is traditionally interpreted as a perfect with the activity predicate ˈ*pino* (πίνω) ‘I drink’. This would constitute another instance of a perfect with an atelic verb. However, its textual history is so problematic that it is either not the original reading of the text or that it was original, but viewed as so ungrammatical by the native Greek scribes that they were absolutely determined to correct it.

case in example (4.64) with the verb *ana'pavo* (ἀναπαύω) ‘I cause [something] to rest, make [something] stop’, which in the perfect middle is, *ana'pepavme* (ἀναπέπαυμαι) ‘I am rested’.

(4.64) τὰ σπλάγχνα τῶν ἁγίων **ἀναπέπαυται** διὰ σοῦ
ta=ˈsplaŋxn-a ton=aˈgi-on **anaˈpe-paf-te**
the=heart-ACC.PL the=saint-GEN.PL **<PERF>cause.rest-MID.3SG**
The hearts of the saints **are refreshed** because of you (Phlm 7).

(4.65) ὁ ἄνθρωπος τοῦ θεοῦ **τέθαπται** ἐν αὐτῷ
o=ˈantʰropo-s tu=tʰe-ˈu **ˈte-tʰap-te** en=afˈt-o
the=man-NOM.SG the=god-GEN.SG **PERF-cause.burial-MID.3SG** in=3-NEUT.DAT.SG
The man of god **is buried** in it [a grave] (LXX 1 Kings 13:31).

Similarly, the verb *'tʰapt-o* (θάπτω) ‘I bury’ forms a perfect middle with non-causative meaning: *'tetʰapme* (τέθαπμαι) ‘I am buried’, as we see in example (4.65). Neither of them is passive, however. Each refers to a persistent state. When either of these verbs forms a perfect, they only appear with middle morphology both in my Koine Greek corpus and also in the larger Perseus Project corpus. This development likely relates to the narrow set of older perfects above that function according to the schema example (4.60), repeated here as (4.66).

(4.66) Causative IMPFV/PERFV ←→ Non-causative PERFECT
α CAUSE β **pred'** (x)

I would posit that at the point in the history of the language when verbs like *'istemi* (ἵστημι) ‘I cause to stand’ were the only type of perfects, the middle voice had not fully developed. According to Clackson (2007) and Janasoff (2005), in the same way that the Proto-Indo-European eventive verb class eventually formed into the imperfective and perfective aspects, likewise the PIE stative verb class eventually formed into the perfect aspect and middle voice. This situation, in turn, corresponds with Bybee, Perkins and Pagliuca’s observation that

resultatives share a relationship with non-active voice.[131] As the middle system solidified its position in the language, it became the preferred mechanism for the non-causative resultative semantics that we find with the older class of verbs. This, in turn, perhaps opened up the use of the perfect to a broader set of lexemes than previously available.

4.2.3.4 Summary of gram-specific part II

What we have seen in section 4.2.3 continues in the same vein as before. Our semantically-oriented tests for anteriors, resultatives, and completives show that the Greek perfect has a split in usage between resultative semantics and completive semantics. We concluded more strongly that the Greek perfect is not an anterior gram because of its avoidance of atelic predicate types: its limited distribution with states, its lack of realization with either semelfactives or activities.

Nevertheless, in terms of evaluating the effectiveness of the first test, we may want to retrospectively reformulate it negatively from Bybee, Perkins and Pagliuca's (1994) definition in order to make a stronger claim. By rephrasing the test as: *+Avoidance of formation from atelic predicates*, we can change the anterior gram-types response to this test from *Irrelevant** to a clear negative. In a similar vein, if we make explicit in the second test (*+totally affected undergoer*) that this is a necessary condition for a positive result, we can make the same change to how anteriors respond to that test. Both these adjustments fit well with what we saw in section 4.2.3.1 for the atelic predicate types. In conjunction with the telicity of the second test, the results for the third test, correlation with exhaustive plurals, fell in line with the results of the second: the Greek perfect correlated with exhaustive plurals as expected of completive semantics.

The final two tests examined how a given perfect-like morpheme interacts with states. Here, the Greek data fell in line with the observations for resultatives and completives put

[131] Bybee, Perkins and Pagliuca (1994, 54, 63) only mention passive voice, but given that the point of their comparison is grounded in the passive as patient-oriented, their comments apply in principle to middles as well.

forward by Bybee, Perkins and Pagliuca's (1994). We saw inchoative meaning (which we would expect from resultatives), as well as the expected intensive semantics for completives. In either case, the Greek perfect was limited in its distribution with states. Not all states allowed the perfect. This is a situation predicted by Bybee, Perkins and Pagliuca (1994) and their description of how resultatives and completives interact with state predicates. In sum, we can provide an updated version of our initial battery of gram-specific tests in Table 14.

Test →	+Avoidance of atelic predicates	Necessarily totally affected undergoer	Correlates w/exhaustive plurals	Correlates w/intensive states	Inchoative with state predicate
Property tested → Gram-type ↓	[+telic source]	[+telic]	[+telic]	[+intensive]	[+inchoative]
Anterior	–	–	–*	–*	–*
Resultative	+	–*	–	–	+*
Completive	+	+	+	+*	–

Table 14. *Gram-types and their interaction with predicate type*

Lastly, while it is not in our revised table, we found evidence for another possible syntactic test for evaluating telicity in section 4.2.3.2.1 on active achievement predicates. We found that the Greek perfect with active achievements has a limited distribution with content questions, where only the affected argument of the predicate could be questioned and not the activity itself. Of course, determining whether or not this test would continue to be effective cross-linguistically would require additional research and language data before it could be definitively included.

4.3 Summary & conclusions

The purpose of chapter 4 has been to implement and evaluate a well-defined set of principles and tests for assessing the nature of tense and aspect operators with respect to a difficult question of

language description: the Greek perfect. My framework integrates Bhat's (1999) proposal for tense and aspect where individual languages are conceived as giving more prominence in their morphosyntactic systems to one category over the other, whether tense or aspect. This treatment of some tense and aspect categories as more basic than others opened up the possibility of integrating it with the typology of Dahl (1985, 2000) and Bybee, Perkins and Pagliuca (1994), specifically with reference to the latter's three perfect-like categories: the resultative, completive, and anterior. Anteriors, I suggested in section 3.2.1 could be viewed as the realization of a perfect in a tense-prominent language, such as English, while resultatives and completives should be treated as two possible realizations of the perfect in an aspect prominent language.

In section 4.2.1, we examined the distribution of morphemes in the productive verb paradigm concluding that the perfect was in complementary distribution with aspect morphemes rather than the tense morphemes. Moreover, the inflectional morpheme's position within the verb suggested that the tense morphology had scope over it in accordance with RRG's operator scope predictions. This was our first bit of evidence that Greek should be viewed as aspect-prominent. We confirmed this after examining other points of distribution. We also observed that the Greek perfect demonstrated a consistent and predictable distribution with adverbial quantifiers in a manner that would not be expected if it functioned as a tense. Furthermore, the discourse structure showed clear signs of the Greek perfect having internal temporal structure as we would expect if it was an aspect. The perfect did not function in foregrounded narrative. Instead of moving the narrative forward, like the perfective aspect, the perfect had more in common with the imperfective aspect, providing explanation and comment upon the various events of the story that were narrated with the perfective aspect. At the same time, the discourse distribution showed no clear evidence of the Greek perfect marking any kind of temporal deixis.

When we turned to gram specific tests in sections 4.2.2 and 4.2.3, the data pointed in a similar direction. With the two tests for adverbial modification, the Greek perfect demonstrated a correlation with adverbs with the meaning STILL that one would expect for resultatives. However, adverbs meaning ALREADY, which is expected to correlate with anteriors, were also found with the Greek perfect. This made for a less conclusive result; however, neither of these tests referenced the possibility of completive meaning one way or the other. Minimally at this point, it was clear that some kind of split in the usage of the perfect existed that appeared to correlate with resultative semantics on the one hand and either completive or anterior semantics on the other.

The decision between the completive gram and the anterior gram did not become clear until we examined how the perfect interacted with predicate classes in section 4.2.3, where we evaluated our other five tests. We saw that state predicates interacted with the Greek perfect in one of three ways. Some states disallowed the Greek perfect entirely (correlating with both resultatives and completives), other states developed inchoative meaning with the perfect (correlating with resultatives), and still others developed intensive meaning with the perfect (correlating with completives). Other atelic predicate types disallowed the Greek perfect entirely. In the same vein, the telic predicate types consistently demonstrated either resultative semantics or completive semantics in their usage. Since anteriors should be able to collocate with either atelic or telic predicates without discrimination, we concluded that completive semantics was the better option for understanding the non-resultative usages of the Greek perfect.

Using Bache's (1995) typology of example sentences and grammatical contrasts, I was able to determine that meanings expressed by telic predicate types were the more central or prototypical functions of the Greek perfect. I found that telic predicates tended toward more prototypical types of grammatical contrasts—those involving either grammaticality distinctions

(Type II) or propositional distinctions (Type III). Atelic predicate classes, conversely, were limited to paradigmatic gaps (Type I) or non-propositional semantic nuances (Type IV). I took this to be significant and interpreted it as signifying telicity as a primary semantic feature for the formation of perfects. This conclusion aligned with Bybee, Perkins and Pagliuca's (1994) basic definitions of resultatives and completives.

In sum, the Greek perfect is a synthetic verbal morpheme that patterns with other aspect morphemes and thus functions in the nuclear layer of the operator projection. Semantically, the morpheme conveys both resultative and completive meaning, depending on both the predicate being used and also the context of the predication. On many occasions, particularly with perfects derived from accomplishments and achievements, it is almost impossible to choose between resultative and completive readings. Taken as a whole, some of these conclusions were more surprising than others. On the one hand, the concept of the Greek perfect as a completive has not appeared in the contemporary discussion of the form (e.g. Porter 1989, Fanning 1990, McKay 1994, Gero and Stechow 2003, Haug 2004, Campbell 2007). On the other hand, the concept of completive-like semantics does appear in a number of older grammars of the language; some of the most notable examples of this are Goodwin (1897), Jelf (1866 = Kühner 1835), Wackernagel (2009).[132]

One objection to this analysis of the Greek perfect as a kind of hybrid between the resultative and the completive is that such a development, whether resultative to completive or

[132] Goodwin gives the following definition for the perfect: "As the perfect indicative represents an act as finished at the **present** time, so the perfect of any of the dependent moods properly represents an act as **finished** at the time (present, past, or future) at which the present of that mood would represent it as going on" (1897, 31-32; his empahsis). Similarly, Jelf writes, "The perfect expresses a complete action, whether it be not completed till the very moment of speaking, as γέγραφα, *I have (just)* written; or has been completed a long time before as ἡ πόλις ἔκισται, *it has been built*" (1866, 63; Jelf 1866 is the unacknowledged translation of Kühner 1835). Wackernagel links the interpretation of the perfect as completive to the ancient native Greek grammarian Apollonius Dyscolus: "Apollonius comments that the perfect … denotes a present state of completion" (2009, 193).

completive to resultative, is nowhere mentioned or discussed in Bybee, Perkins and Pagliuca (1994), whose typology of grammatical categories has been so foundational to this analysis. This objection is misguided, however. While there is no explicit discussion of such a grammatical development, in their table of languages reflecting the semantics of multiple perfect-like categories, they do list three languages that share resultative and completive semantics in the same morpheme (1994, 53, 66). The Nakanai (Austronesian, Papua New Guinea) language's perfect brings resultative, completive, and anterior semantics together. The languages Buriat (Mongolic, Russia, Mongolia, and China) and Tucano (Tucanoan, Brazil and Columbia) have perfects with resultative and completive usages, but no anterior usages. Each of these languages is only mentioned, but not discussed in terms of their grammatical development in Bybee, Perkins and Pagliuca (1994). Nevertheless, it is still quite clear that such a set of completive and resultative usages, as we have seen above in the analysis here, is attested independently of my data for Greek.[133]

Finally, in terms of the proposed tests and criteria from chapter three, the analysis of the Greek perfect has demonstrated their general effectiveness. All the tests put forward in chapter three provided consistent results with the gram-types being evaluated. In two cases, the data led us to re-evaluate how a particular test was presented. Other than that, the results were reliable in relationship to both Bhat's conception of the typological prominence of tense and aspect and also the more narrowly defined typological approach of Dahl (1985, 2000) and Bybee, Perkins and Pagliuca (1994). All of our tests for grammatical prominence, tense and aspect, and individual grams are repeated in their revised forms in tables Table 15 and Table 16.

[133] It would be a worthwhile future study to examine the diachronic development of these three languages that have both resultative and completive usages in order to discover the motivations behind their semantic developments and their paths of grammaticalization.

Prominence criteria	**Some possible realizations**
Degree of grammaticalization	Auxiliaries vs. Affixes?
	Inflectional vs. Derivational?
Degree of paradigmaticity	Extent to which a category is systematically organized
Degree of Obligatoriness	Extent to which a category is grammatically necessary
Pervasiveness	Extent to which a category exists across a given set of forms
Tense vs. aspect criteria	**Some possible realizations/implications**
Relationship to the apparent prominent category	Internal vs. External
Operator iconicity & scope	Formal location of gram in relation to other operators
Deictic/anchoredness of tense	+temporal location
Quantifiability of aspect	+temporal structure
Discourse function of aspectual grams	+foreground
	+background
Discourse function of tense grams	+narrative proper
	+non-narrative

Table 15. *Criteria for Grammatical Prominence (Bhat 1999, 96-7) & Generic tests for individual grams*

Test →	*+just, already*	*+still*	+Avoidance of atelic predicates	Necessarily totally affected undergoer	Correlates w/exhaustive plurals	Correlates w/intensive states	Inchoative with state predicate
Property tested → Gram-type ↓	[+prior situation]	[+persistent state]	[+telic source]	[+telic]	[+telic]	[+intensive]	[+inchoative]
Anterior	+	–	–	–	–*	–*	–*
Resultative	–	+	+	–*	–	–	+*
Completive	Irrelevant*	Irrelevant*	+	+	+	+*	–

Table 16. *Tests for anterior, resultative, and completive grams*

The consistency of these conclusions at the level of language description provides evidence for the proposal from the end of chapter three that it is possible to bring together a unified theory of tense and aspect that brings together these seemingly divergent typological perspectives. However, what such a theory would look like still needs to be fleshed out. That is precisely the purpose of the next chapter. There, I will make observations about the implications of the Koine Greek data for both the typological research surveyed in chapter three and also the conception of semantic operators in Role and Reference Grammar. This will result in a well-structured proposal for integrating the proposed descriptive apparatus into the current Role and Reference Grammar framework.

Chapter 5. A Cognitive & typological approach to complex categories in RRG

The past several chapters have covered a lot of ground. Chapters one and two presented the essential problem of Role and Reference Grammar's current approach to operators such as tense and aspect. Then in chapter three I presented a brief survey of a select number of important works in the typological study of tense and aspect. This allowed us to formulate a methodology for grammatical analysis, examine a few differing theoretical perspectives, and postulate a number of morphosyntactic, semantic, and discourse-based tests for evaluating grammatical morphemes. These tests were implemented in chapter four on the Koine Greek perfect. Overall, I found these tests were analytically effective. But this left us lost in the details of the tests without reference to the framework—losing sight of the forest for the trees. With that in mind and with the successful application of the analytic tests, the goal of this chapter is to return to the larger theoretical question of how to synthesize contemporary accounts of tense and aspect typology with Role and Reference Grammar. I also include a quick overview of the survey from chapter three that focused on the various theoretical frameworks proposed for the typology of tense and aspect before I attempt a synthesis of those findings with RRG.

In the typological approach of Bybee and Dahl (Bybee, Perkins and Pagliuca 1994, Bybee and Dahl 1989, Dahl 1985, Dahl 2000), I observed a few things about the nature of grammatical morphemes (grams) as involving basic core categories, like past tense and perfective aspect, as well as peripheral categories, like perfects, futuroids, and habituals. Their approach focused upon grams, how they function cross-linguistically, and develop diachronically to the detriment of those categories like tense and aspect that are prototypical metacategories. This strategy makes it possible for their approach to mitigate entirely the question of whether a given gram, such as the perfect, should be treated as a sub-type of tense or a sub-type of aspect.

The categories of tense and aspect are removed from the equation in stark contrast to Role and Reference Grammar. I stated in chapter three that Bybee and Dahl emphasize the individual grams to the neglect of metacategories and RRG focuses primarily on the metacategories and their relationship to each other to the neglect of individual grams. Nevertheless both approaches organize their frameworks around important cross-linguistic generalizations about the nature of these categories. The question is whether these opposing approaches are reconcilable.

I then suggested Bhat's (1999) proposal for viewing typology as idealized language prototypes that are tense-prominent, aspect-prominent, or mood-prominent might effectively bring together the best of RRG and Bybee-Dahl. These idealized languages are characterized by four criteria. These include the degree to which a given category is grammaticalized, the extent to which it is obligatorily marked, the extent to which it is realized systematically in a paradigm, and lastly, its pervasiveness across the verbal system compared to the other two categories (Bhat 1999, 95-7). The extension of prototype semantics from the level categorizing individual grammatical morphemes to the level of categorizing the languages themselves makes it possible to reintegrate the higher level categories of tense and aspect into our framework in a cognitively plausible way, while still respecting the peripheral nature of many grammatical categories.[134]

In chapter three, I avoided giving specific details for this synthesis. There was a need to establish an empirical foundation first. The analysis of the Greek perfect filled that role and now we return to the question of synthesis. In this respect, there are two main problems. First, at the highest level we need to reconcile the conceptual space presented by Dahl (2000) repeated from Figure 5 as Figure 7 with that of Bhat, presented in Figure 8.

[134] Since the basic claim of prototype theory is not about semantics *per se*, but about the nature of human categorization (Rosch 1975, Taylor 2003), it should naturally be relevant at all levels of linguistic theory.

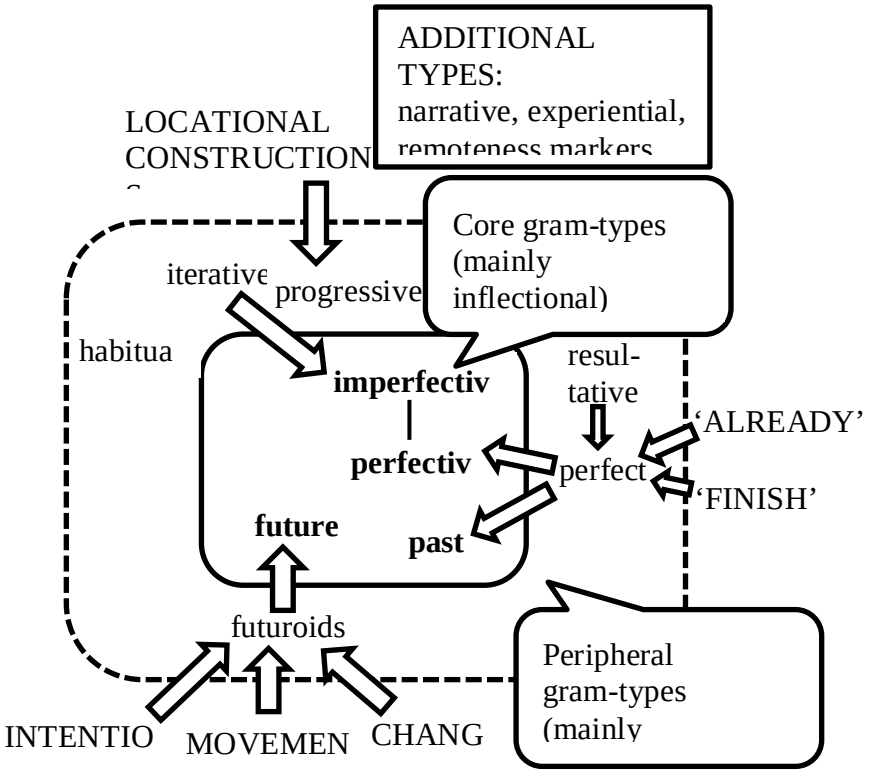

Figure 7. Dahl's cognitive space for tense and aspect grammatical morphemes

Figure 7 functions as a representation of the conceptual, typological, and diachronic space for these grammatical morphemes. It does not deal with tense, aspect and modality.

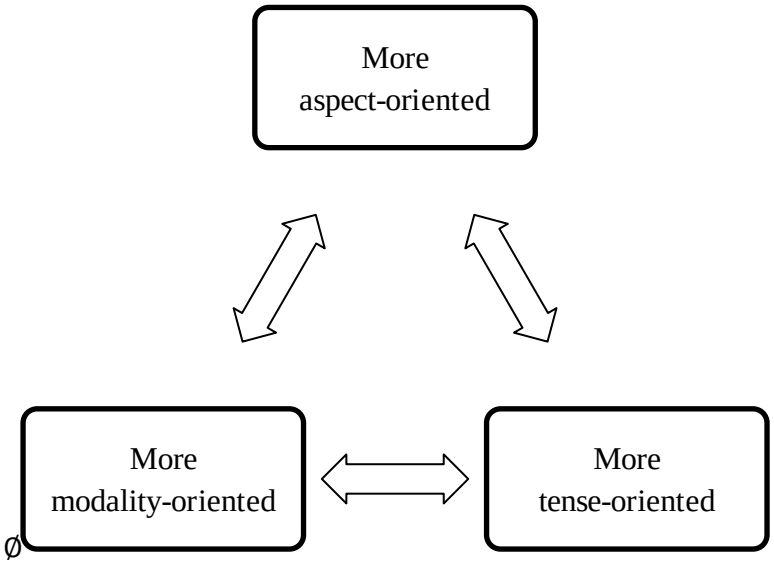

Figure 8. Interpretation of Bhat's typology of language types

For that, we need to integrate with Bybee-Dahl Bhat's (1999) conception of tense-oriented, aspect-oriented, and mood-oriented languages, provided in Figure 8.[135] A given language might exist anywhere in this schematic structure. The three poles are the idealized language types: some languages are more oriented toward tense, others aspect, and some mood/modality.

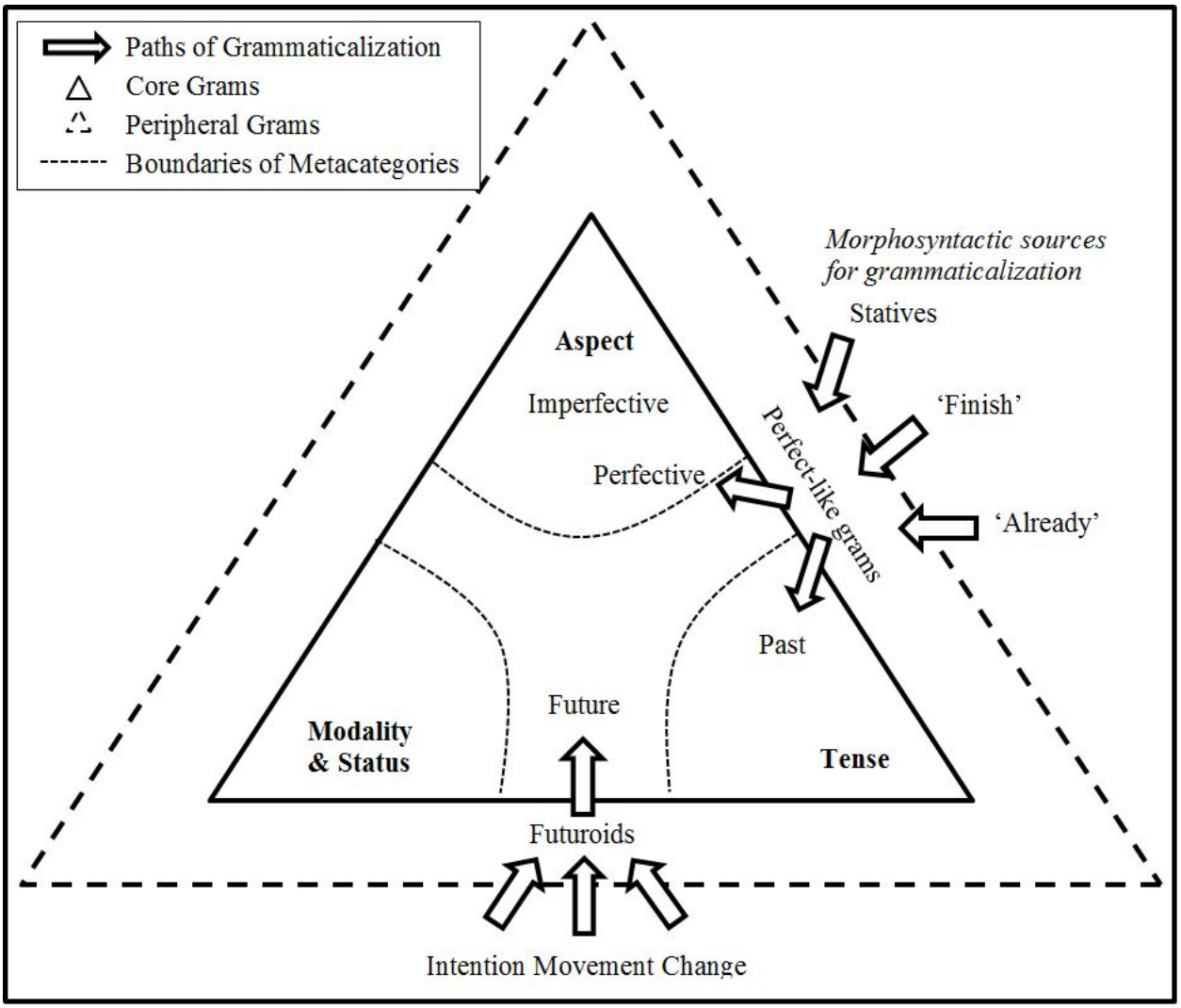

Figure 9. A proposal for merging Dahl (2000) and Bhat (1999)

[135] Unfortunately, in relating his work to that of Dahl (2000), Bhat provides no diagram for what this typology might look like, but based on his discussion, it would likely look something like Figure 8. The use of the term "oriented" rather than "prominence" is for practical space reasons in the Figure 8. They are synonymous.

Also, I must again emphasize the point here that RRG's division of mood into (deontic) modality and status is beyond the scope of this discussion. It is not clear whether modality in both the Bybee-Dahl approach as well as that of Bhat could be integrated in to RRG without dramatically altering its structure.

If we map the triangular structure onto Dahl's diagram, we end up with the diagram that we see in Figure 9 above. However, this chart is not entirely complete in terms of all the possible grammatical morpheme types presented by Dahl (2000) in Figure 7 above. It is nevertheless still useful for our purposes since it presents the perfect grams that have been the focus of this thesis, as well as the future, which functioned as an example discussed in chapter three, section 3.2.1.2 as we sought to develop a suitable methodology relevant to issues of the grammatical analysis proper. Core grams are still presented within the center with more peripheral types existing outside that central space. These peripheral grams, depending on the language, might be realized in a manner that leans toward one corner over another. These corners with their metacategories of tense, aspect, and modality have fuzzy boundaries with ambiguous space between them, a sort of grammatical no-man's land. All of this allows us to visually capture the prototypical nature of human categorization, as well as the paths by which linguistic entities become grammaticalized within the verbal system.

As it stands, we continue to have a problem. This diagram fails to capture the central point of Bhat's typology: languages tend to orient themselves toward one metacategory or another. That cannot be presented in Figure 9, since all this diagram does is present how particular grammatical morphemes function in relationship to each other. The above diagram should, for that reason, be treated as a hypothetical idealization from which natural languages diverge, in the same way that an isosceles or scalene triangle diverges from an equilateral triangle. I propose the following conceptualization for Koine Greek as an aspect-oriented language in Figure 10. When a language gives more prominence to one metacategory that portion of the conceptual space is stretched.

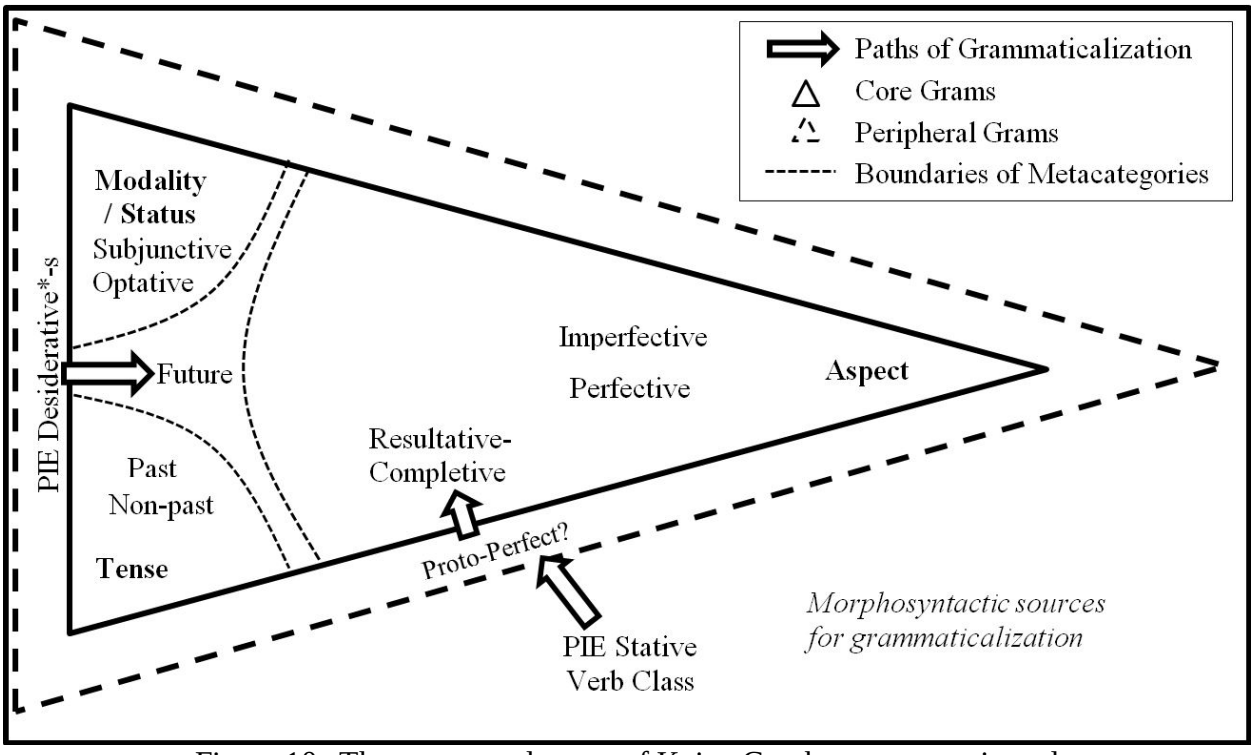

Figure 10. The conceptual space of Koine Greek as aspect-oriented

While the diagram in Figure 9 is intended to be language universal, Figure 10 is language specific for Ancient Greek, giving prominence to aspect over against other categories. Conceiving of the conceptual space as elongated toward aspect for Greek allows us to capture the fact that the perfect explicitly participates in the aspectual system of the language, both morphologically and semantically. With the space the Greek perfect is a resultative-completive gram. The label, 'anterior' is not shown because it does not exist in the language at this point in time. The expansion of the aspectual space also brings the future morpheme closer to the region of aspect. This also allows us to provide a theoretical explanation of the historical nature of the future as derived from the Proto-Indo-European desiderative suffix *-*s* as well as its eventual reanalysis as part of the aspect paradigm, essentially functioning as a non-past version of perfective aspect in the Koine period.

The second challenge in integrating these differing approaches relates to a third typological structure relevant for this typology of tense-aspect-modality systems and their grammatical categories from Role and Reference Grammar, provided in Figure 11.

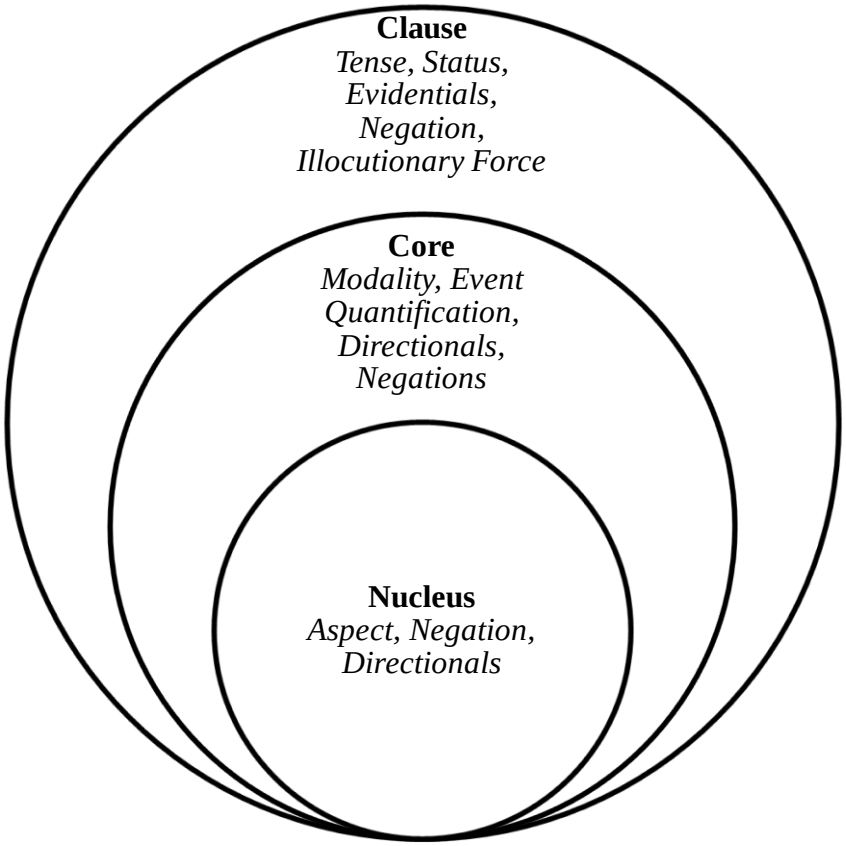

Figure 11. Scope Relations among verbal operators in Role and Reference Grammar

The diagram in Figure 11 presents RRG's conception of operators and their relationships in terms of scope. Clausal operators, such as *tense*, *status*, *evidentiality*, and *illocutionary force*, function at the clause level because they affect meaning of the clause as a whole. Core operators only affect the meaning of the core (the predicate and its arguments) and nuclear operators are limited to the predicate itself. But the question remains how all of this relates to my proposed typology. Scope has played little to no role in the typology proposed thus far.

It also is not entirely clear whether the layered structure of verbal operators can be directly incorporated into the conceptualization of these categories that I have proposed, but

perhaps we have no obligation to integrate them together. In some sense, they are independent. I suggest the conceptual space presented above in Figure 9 for languages in general and Figure 10 specifically for Greek is best treated as existing logically prior to the scope typology just as Role and Reference Grammar's inventory of syntactic templates is logically prior to the syntactic representation. Both exist independent of the syntactic representation while also feeding into it. In a sense Figure 9 and Figure 10 are related to the lexicon, providing the conceptual structure for how closed classes like operators are related. But while this is a useful perspective for operators in the larger picture, it does not answer questions as to how this conceptual structure relates to operator scope, particularly in terms of core and peripheral categories, when cross-linguistically peripheral categories fluctuate as to tense, aspect, and modality.

From this perspective, I propose that operator scope should be defined primarily by Bybee-Dahl's core grammatical categories. Dahl (2000, 14) defines these as those grammatical morphemes that are most commonly expressed by "morphological (mainly inflectional) modes of expression, and which are also in general characterized by being more or less obligatory in their central uses." Cross-linguistically, these are past, future, imperfective, and perfective.[136] It is virtually impossible to find an inflectional tense-aspect system that lacks all four of these categories (Dahl 2000, 14). Even still, he also notes that the *future* is rather debatable as a core gram.[137] Thus for tense and aspect, the two operator domains of interest here, we observe three primary core categories: *imperfective*, *perfective*, and *past*. The relationship between scope and

[136] I refrain from speculating as to what the core grams are for modality, both because Dahl (2000) fails to discuss them and, more importantly, modality is beyond the scope of my thesis. With that said, I refer readers to Bybee, Perkins and Pagliuca (1994) and Bhat (1999) and their respective discussions of modality, though neither discussed categories subsumed under modality in terms of their cross-linguistic tendency toward inflectional marking over against periphrasis.

[137] This perspective also fits well with the consensus regarding the Greek future where, despite being inflectional, does not participate in the tense-aspect system in the same definitive manner as other categories. It also coincides well with Bhat's (1999) typology, which treats the category of *future* as a peripheral one.

operator layer is grounded in these core categories. Peripheral categories, following Bhat's proposal, will have the tendency to align themselves according to the prominent category of the language. Thus, in some sense we might say that peripheral categories such as perfects, futuroids, and others are not inherently tense or aspect. They contain the potential for either, depending on the individual language in question. As operators, they do not have scope at all if we are referring to them as theoretical constructs. Their scope is only realized in terms of the prominence a specific language gives either to tense, aspect, or modality.

We see this rather clearly in Greek and English with their respective perfects. The Greek perfect aligns itself according to the aspectual system, morphologically and semantically, but the English perfect functions as part of the tense system. As such, this correctly predicts in English that the perfect has scope over the progressive aspect, which is then reflected in their syntactic ordering relative to the predicate in sentences such as the one in example (5.1).

(5.1) Rachel has been watching *Hogan's Heroes* episodes over dinner.

Here the perfect *has* is further from the predicate than the progressive auxiliary *been* and, as such, has scope over it. However in Greek the perfect functions in contrastive distribution with other aspect markers and all such morphemes function within the scope of tense morphology, as shown in example (5.2).

(5.2) Ἡρώδης τόν Ματθίαν ἐπεπαύκει τῆς ἀρχιερωσύνης.
e'rode-s ton=mat't^hia-n **e-pe-'paf-k-e**
Herod-NOM.SG the=Matthias-ACC.SG **PST-PERF-stop-PERF-PST.3SG**
tes=arxiero'sune-s
the=high.priesthood-GEN.SG
Herod **had deprived** Matthias of the high priesthood (Josephus, *Antiquities* 17.167).

Here, the past tense realized by the *e-* prefix and the past tense agreement suffix appears outside the morphology marking the perfect, the circumfix *[C]e- -k*. With examples (5.1) and (5.2), we see that the morphosyntactic positioning of the perfect operator participates in two separate

distributions in terms of operator scope. The English perfect functions as a tense operator and has scope over aspect, while the Ancient Greek perfect functions as an aspect operator with scope only over the nucleus. The tense operator has scope over it.

On the basis of this distribution in conjunction with the broader theoretical conception I have proposed, we might further hypothesize that apparent failures for individual languages to adhere to Role and Reference Grammar's predictions for operator scope as reflected in morphosyntactic ordering could very well be simply a result of a peripheral gram aligning itself with the prominent category of that language and then being misanalysed. This is something that would require the examination of a much larger set of languages. The results from Ancient Greek in comparison to English are notable and potentially significant, but they can only be viewed as an initial step toward a comprehensive framework for the analysis, conceptualization, and representation of verbal operators in Role and Reference Grammar.

All of this, I hope, provides a useful framework for moving forward in developing a more rigorous concept of verbal operators for Role and Reference Grammar, while maintaining the integrity of its original conception of operators and the iconic relationship between their scope and their realization in morphosyntax. To the extent that this synthesis is successful, we can say that this chapter functions as the culmination of the aims of chapters three and four, which provided the theoretical background and foundation and then the evidence of its descriptive and analytic effectiveness. In chapter six, I attempt to tie all of this together and make a number of observations regarding particular challenges, residue, implications, and various issues that would motivate future research.

Chapter 6. Epilogue

6.1 Summary & conclusions

The goal of this thesis was not so much to solve a problem, but to fill in a gap. Role and Reference Grammar aims at being a theory of language that is both empirically plausible and descriptively useful. In many areas of grammar, Role and Reference Grammar is exemplary in both these respects. Its approach to predicate types and complex constructions are two notable instances of this. Yet beyond the basic proposal for morphosyntactic ordering and its iconic relationship with scope, verbal operators like tense and aspect do not receive the same attention in the current RRG literature. Instead, RRG provides a number of quite traditional categories and provides a framework for relating them to the operator projection and complex constructions. This hinders Role and Reference Grammar's usefulness for language description. Questions regarding the nature of a given tense operator in a particular language cannot be answered within RRG's current approach. Nor is there any mechanism available for understanding how a tense operator in one language might be similar or different to a tense operator in another language.

With these issues in mind, I have sought to make a small contribution toward filling in this theoretical and descriptive gap while maintaining the integrity of Role and Reference Grammar's approach to operators, as laid out in chapter two. Then in chapter three, I surveyed the typology of tense and aspect, I adopted the definitions of grammatical categories and formulated criterial tests for individual grammatical categories as described by Bybee, Perkins and Pagliuca (1994) and others. The primary descriptive apparatus used for evaluating these criteria has been the typology of example sentences put forward by Bache (1995), which gave us a rigorous mechanism for evaluating the semantics of individual grammatical morphemes.

This foundation was then tested on a language-specific case study in chapter four, where the relevant tests were applied to the Koine Greek perfect. This grammatical analysis functioned as a test case for the veracity of my proposal for dealing with real-world language data and language description. The result provided a compelling analysis of the perfect that correlated with a number of observations in standard grammatical descriptions while also providing correction to some recent trends in its analysis. The conclusion was that the Koine Greek perfect morpheme functioned morphologically and syntactically within the aspectual system of the language. The perfect involves resultative-completive usages in its semantic and morphosyntactic distribution. We saw that, with the exception of a very small handful of ambiguous or residual cases, the perfect is consistently telic, preferring to be formed from telic predicate classes, rather than atelic ones. Lexemes with default activity interpretations preferred to only form perfects as active achievements, while semelfactives disallow perfects entirely.

States are the only atelic class that allows the realization of perfects consistently though with a few constraints. First, not all states form perfects. It is not clear what kinds of states allow it and what kinds do not. Cognitive and perception states are one clear class that does allow perfects. State predicates that inherently denote degree are another. These were only passing observations, however. Determining the precise semantic requirements for perfects with state predicates would require more analysis. State predicates correlated with the semantic predictions of Bybee, Perkins and Pagliuca (1994) for resultatives and completives. These correlations between the perfect and resultatives and completives continued through all of the telic predicate classes as well: accomplishments, achievements, active achievements, and all the causative predicates and led us to the conclusion that the Greek perfect is best treated as a resultative-completive grammatical morpheme, functioning within the aspectual system of the language.

The weakness of the analysis of the Greek perfect presented in chapter four is the narrow focus. Presenting only an analysis of the perfect rather than the entirety of the verbal system limited the number of tests that could be evaluated. While I attempted to include as many tests as possible, the constraint of a single grammatical category has caused a fairly narrow set of results in terms of what morphosyntactic and semantic tests are useful for language description. More analysis is necessary on the complete verbal system, preferably across multiple languages before we could confidently say that a thorough collection of analytic tools is available in Role and Reference Grammar for grammatical analysis of verbal operators. Chapter four can only be viewed as a useful start for resolving this methodological and descriptive deficiency of RRG.

The main body of my analysis then came to a conclusion in chapter five, where I suggested a synthesis of the competing theoretical approaches to tense-aspect typology discussed in chapters two and three. The main problem was the opposition between Role and Reference Grammar's approach and the Bybee-Dahl approach. The former places its emphasis almost entirely upon the classes of verbal operators (tense, aspect, etc.) and how they interact with each other with little to no reference to their internal make up, while the latter essentially ignored the higher level categories of tense and aspect and focused entirely upon the nature of the individual grammatical categories (past, perfective, imperfective, etc.). I used Bhat's (1999) conception of languages as giving prominence in their grammatical system to tense, aspect, or mood as a mechanism for bringing together these two perspectives. This approach allowed me to reconceive Dahl's (2000) conceptual space in a way that brought back the use of the categories of tense, aspect, and modality, as shown in Figure 12 below.[138]

[138] This and the following figure are repeated from chapter 5, figures 9 & 10.

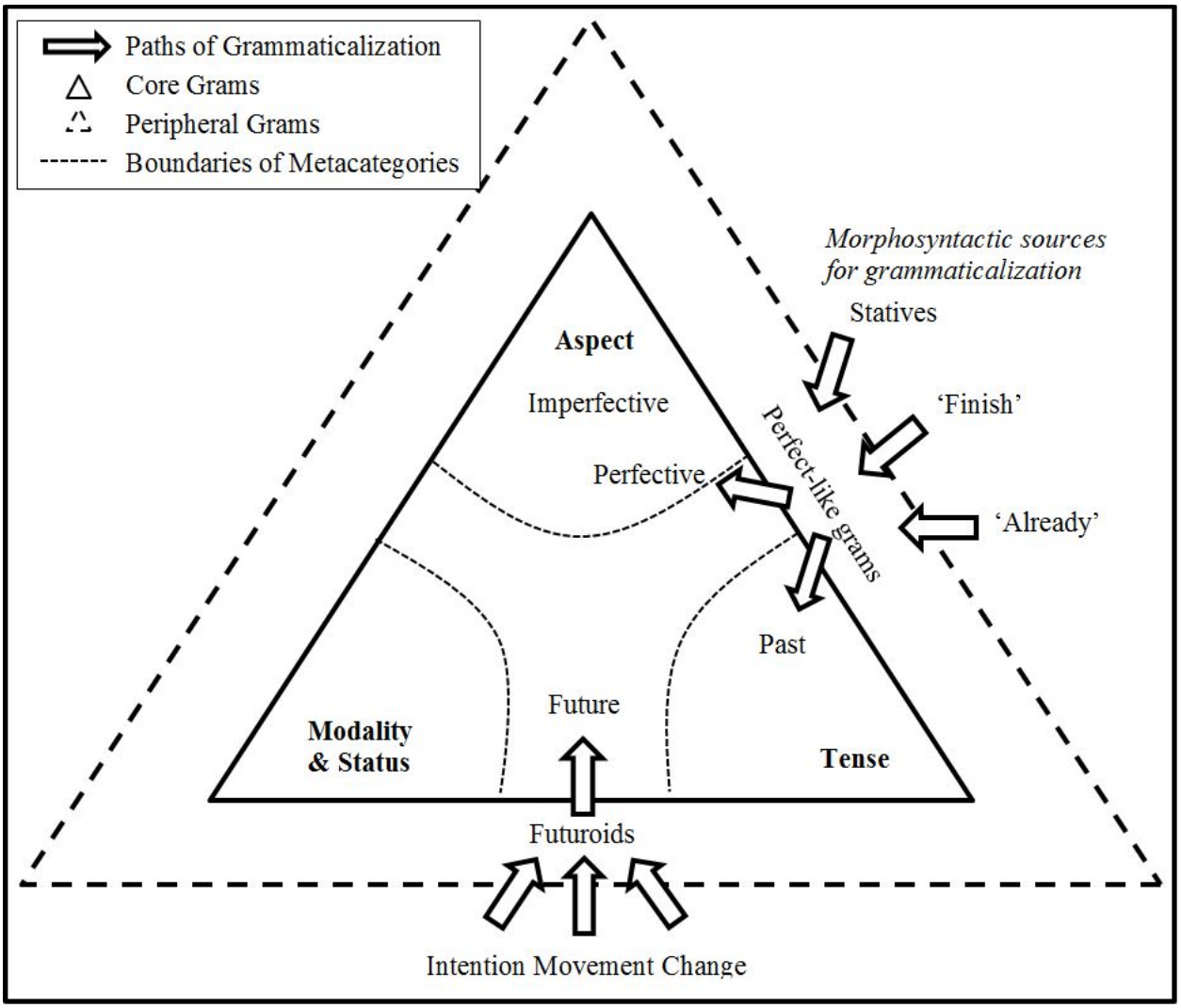

Figure 12. An attempt at merging Dahl (2000) and Bhat (1999)

This model emphasizes both of the relationships between the metacategories, while preventing an unnecessarily simplistic approach that would treat semantic categories as discrete containers of meaning. However, Figure 12 is only an idealization, representing no actual language, but only the potential semantic space of language in general and at this point scope plays no role. Individual languages realize variations upon this model on the basis of the prominence they give to tense, aspect, or modality, following Bhat (1999). I used the verbal system of Koine Greek as an example of how this idealized space changes when it is realized in natural language, as we see below in Figure 13.

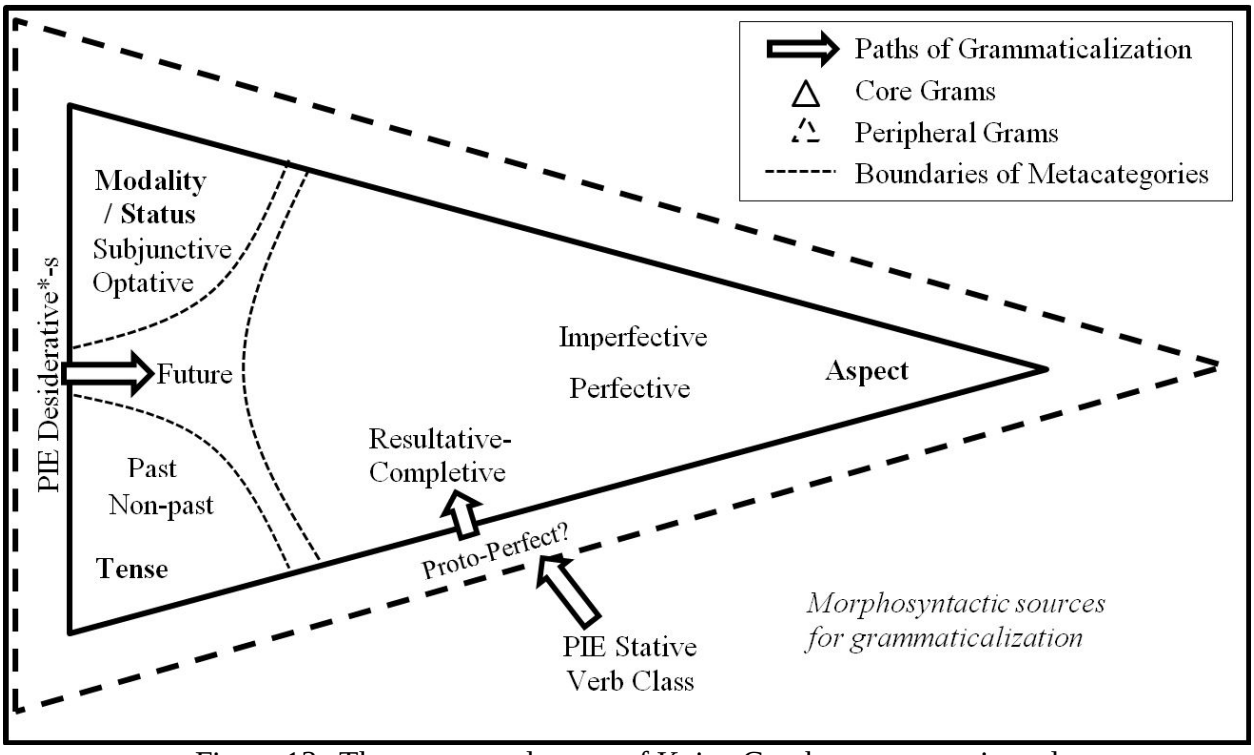

Figure 13. The conceptual space of Koine Greek as aspect-oriented

Peripheral categories such as perfects, futuroids, and others are organized according to the prominent category and function in terms of scope in light of the higher operator category. For example, perfect, as an abstract language independent category has no scope one way or the other. It only gains scope over other operators in its realization as a tense morpheme (clausal scope) in a tense prominent language or its realization as an aspect morpheme (nuclear scope) in an aspect prominent language. The conceptual space of these grammatical categories, then, functions in a manner similar to that of the lexicon and the inventory of syntactic templates in the structure of Role and Reference Grammar. We also saw that this approach to scope helped clarify ordering differences between the English perfect and the Koine Greek perfect. Overall the proposed framework appears to be quite effective for my dataset and appears to mesh well within the current approach to Role and Reference Grammar and provides a useful foundation for its continuing development as a tool for language description.

6.2 Possibilities for future research

Despite these achievements, there is still significant space for development, both in terms of developing the descriptive and theoretical apparatus of Role and Reference Grammar for verbal operators and in the Koine Greek verbal system for future research. As for the latter, the state of the Koine Greek verbal system is less relevant to the primary aims of this thesis (the continued theoretical development of Role and Reference Grammar), but nevertheless rather central to my own broader interests and goals. The state of Koine Greek grammar is unusual in that the majority of grammatical description was performed before the theoretical developments in linguistics of the twentieth century and since that time the interest in linguistics by grammarians of Koine Greek has waned. If we evaluate the grammars of the past century in terms of Chomsky's types of linguistic adequacy, they fail to even meet the standard of *descriptive* adequacy, much less explanatory adequacy.[139] Most do little more than list and label patterns in the data without expressed motivations for the listed patterns. In that vein, the methodology for grammatical analysis presented here has the potential to function as a useful starting point for a contemporary, linguistically conceived grammar of Koine Greek that has linguists and translators as its audience rather than bible students, historians and theologians.[140]

The area for future research more directly related to the goals of this thesis involves Role and Reference Grammar itself. As I have noted a few times now, the limits of this study to a single grammatical category in a single language hinder just how much can be extrapolated from

[139] Chomsky (1965, 24) defines descriptive adequacy in the following way: "A grammar can be regarded as a theory of a language; it is *descriptively adequate* to the extent that it correctly describes the intrinsic competence of the idealized native speaker." Aside from the question of the usefulness of such a concept as an "idealized native speaker," the conception of a grammar describing the intrinsic competence demonstrated in ancient texts might end up being of more practical use than the approach of traditional grammars.

[140] Such a project would take seriously the observation of Thomas Payne (2007, 127) that a grammar is, itself, a communicative act with a specific context and audience and current grammars fail to effectively service an audience of translators and linguists.

my conclusions toward theory and typology more generally. My synthesis of the typologies of Bhat (1999), Dahl (2000) and Role and Reference Grammar needs to be tested on a much larger sample of languages before any firm conclusions about its efficacy can be drawn. Even assuming the model's effectiveness cross-linguistically, there are other hurdles as well, including, but not limited to, the need to examine how other verbal operators such as negation, illocutionary force, and directions relate to my proposal. Each of these introduces its own set of problems, but a comprehensive framework would require an analysis of all verbal operators. My model would likely require some change in relationship to such an analysis. This could either validate my proposals or suggest a completely different approach.

Nevertheless, there are other descriptive and theoretical tools and concepts that could be carried over successfully even should that synthesis prove faulty. At the very least, many of the principles used for developing morphosyntactic tests and the criteria for evaluating them adapted from Bache (1995) could readily be extended to other domains, such as reference phrase operators, even if the tests themselves are limited to the narrow domain of this thesis.

Appendix A. Verbs and their predicate classes

Appendix A consists of all the verb lexemes examined comprehensively for this thesis classified by predicate type. Those verbs that may be realized as multiple types are repeated for each class and are marked in bold. In total, there are just over 400 lexemes here. Another 300 or so lexemes that were examined unsystematically are not listed. The first group of verbs was collected from lexicons, grammars, and other word lists. Some were gathered from Josephus's polemic treatise, *Against Apion*. The second group not listed here involved verbs in the perfect that were encountered serendipitously as I worked through the tokens of the first group. The data is organized into the same groups as the descriptive section in chapter four. Here, however, the lexemes are listed, along with English glosses, and whether the verb in question is realized in the perfect. Secondary senses are provided following a semi-colon. Glosses are taken from standard lexicons, BDAG (Danker et al. 2000), Louw & Nida (1989), and LSJ (Liddell et al. 1996). I also provide footnotes with comments on notable distribution where relevant. Much of the classification is tentative simply because of the limited nature of the data and because features such as telicity are not determined solely by lexical semantics. As such, the classification of lexemes and their predicate types is and will continue to be, an ongoing process. Instead the primary function of this appendix is as a record of the sources of my data.

A.1 Atelic Predicate Types

The three atelic predicate types are states, activities, and semelfactives. We saw in chapter four that the perfect allows for limited distribution with state predicates in a manner that involves metaphoric extensions from the basic completive-resultative semantics. With the exception of a handful of residue data, the Greek perfect does not appear with activity predicates and does not

appear at all with semelfactives, though we must note that semelfactives constitute the smallest set of verbs in the data. As such the conclusion for semelfactives is a tentative one.

A.1.1 State Predicates

Lexemes denoting states fall into three types. Those lexemes that disallow perfects are left unmarked.[141] Those whose perfects implicitly refer to the entrance into a state are marked with an asterisk. Lastly, those lexemes that realized intensive perfects are marked in bold.

ἀγαλλιάω	'to be joyful'
ἀγαπάω*	'to love; to demonstrate love'
ἀγρυπνέω	'to lie awake'
ἀκούω*	'to hear; to understand'
ἄπειμι	'be absent'
ἀρκέομαι	'be sufficient (active); be content (middle)'
ἀσθενέω*	'be sick'
ἀτενίζω	'to look intently'
βασιλεύω	'be king; to become king; to reign'[142]
βδελύσσομαι	'to loath'
βλέπω	'to see'
γέμω	'to be full'
γινώσκω	'to learn; to know'[143]

[141] There are a few that still have perfects. These are unique cases and I provide discussion and explanation in the lexeme's footnote.

[142] The first of these is the state predicate. See also activities and accomplishments as well.

γρηγορέω	‘to be alert; be alive’
δεῖ	‘to be necessary’
δείδω	‘to be alarmed; to fear’[144]
διαφωνέω	‘to disagree; to be missing’
διψάω*	‘to be thirsty’
δοκέω	‘to suppose; to be disposed to; to choose’[145]
δουλεύω	‘to be a slave; to serve’[146]
εἰμί	‘to be’
εἰρηνεύω	‘to be at peace’
ἐλπίζω*	‘to hope’
ἔξεστιν	‘to permit; to be right’
ἐξουθενέω	‘to reject; to despise’[147]
ἔοικα	‘to be like’[148]

[143] The perfect of this verb is semantically analogous to the stative secondary sense of the verb. However, it shares its semantic relationship with the primary accomplishment sense, where the endpoint of learning is the state of knowing. This verb is listed below with accomplishments as well.

[144] Δείδω ‘to be alarmed’ is an old verb; it only appears with the imperfective aspect in the oldest literary Greek texts: Homer’s Iliad and Odyssey. Otherwise, there is no imperfective aspect for which the perfect can alternate. This lexeme is best viewed as an archaic verb whose stative meaning has been fossilized. The stative perfect expressed here, then finds its semantic origin in the more basic Proto-Indo-European verbal system which had an eventive aspect and a stative aspect. The eventive gave rise to the Greek perfective and imperfective aspects and the stative gave rise to the Greek perfect and middle voice paradigms (see Clackson 2007).

[145] The perfect of δοκέω refers to conclusion and result of a thought. The verb means, ‘to decide, to conclude’ in the perfect. For example, it is regularly used to refer to public or royal decrees (e.g. 3 Macc.5:40). See also achievements for the sense, ‘to choose’.

[146] See also activity predicates.

[147] For ἐξουθενέω, it is not clear whether ‘to reject’, a causative state or ‘to despise’, a state is the primary sense. The causative state sense allows the perfect, but it is not clear whether the state sense does.

ἐπιθυμέω	‘to desire’
ἐπίσταμαι	‘to know; be acquainted with’
εὐαρεστέω	‘to cause to be pleased; to be pleased with’[149]
εὐδοκέω	‘to approve of [something]; to be content’
ἔχω*	‘to have (i.e. possess)’
ζάω	‘to live’
ἡγέομαι*	‘to consider’[150]
θαυμάζω	‘to be amazed’
θεάομαι*	‘to see, look at’
θέλω	‘to want, wish’
θεωρέω	‘to observe, look at’
θυμόομαι	‘to be angry’[151]
ἰσχύω	‘to be powerful’
καθέζομαι	‘to sit; to be in a seated position’
καθεύδω	‘to sleep; to be dead’
καθῆκει	‘to be fitting’
κάθημαι	‘to take a seat, sit down; to be in a seated position’[152]

[148] This is another old, fossilized perfect (like those in fn115 above). In fact, its lexical form is a perfect, where normally lexical forms are imperfective non-pasts. It normally occurs in the perfect with a handful of imperfective past forms and perfective non-past forms, both of which are rare and quite unusual.

[149]See also causative states for the sense, ‘to cause to be pleased ‘.

[150] This is a ditransitive verb (e.g. ‘I consider you an enemy’) with inchoative resultative semantics in Bybee, Perkins and Pagliuca’s (1994) sense. This is not to be confused with resultative secondary predication.

[151] The active form is θυμόω ‘to make angry’. The perfect occurs as a middle, referring to the resultant state of the active (e.g. ‘to be angry’) or to the entrance into the state as an accomplishment (e.g. ‘to become angry’).

κάμνω	‘to be tired’[153]
καταφρονέω*	‘to despise; to disregard’[154]
κεῖμαι	‘to be in a reclining position’[155]
κοιμάομαι	‘to be asleep; to be dead’
μαίωομαι	‘to testify; to be a witness’[156]
μεθύω	‘to drink [alcohol]; to be drunk; to become drunk’[157]
μένω	‘to remain’[158]
μεριμνάω	‘to be anxious; to care for [someone]’
μιμνήσκομαι*	‘to remember’
μισέω	‘to hate’
μνημονεύω	‘to remember; to mention’[159]
νομίζω*	‘to do customarily; to suppose, consider’[160]
οἶδα	‘to know’[161]

[152] The perfect more likely denotes the stative endpoint of the achievement ‘to sit down’ rather than the stative sense ‘to be in a seated position’. It is listed again below with the achievements.

[153] The perfect means ‘to be exhausted’.

[154] The perfect only occurs in the middle voice.

[155] The perfect refers to a permanent rather than a temporary state.

[156] In Christian literature the perfect means ‘to be a martyr’. The semantic relationship is that a martyr is the result of testifying. The stative sense, ‘be a witness’ does not form a perfect.

[157] See also this verb in the section on activity predicates for the sense, ‘to drink’ and accomplishments for the sense, ‘to become drunk’.

[158] The perfect of μένω ‘to remain’ refers to the permanence of the state.

[159] Only the secondary sense, ‘to mention’, allows a perfect. See also under achievements.

[160] See also in the section for activity predicates and active achievements.

οἰκεω	‘to live [somewhere], to dwell’
ὁράω	‘to see’[162]
ὀργίζομαι	‘to be very angry’[163]
ὀρέγομαι	‘to strive for [something]; to desire [something]’
πάρειμι	‘to be present’
πάσχω*	‘to suffer; to experience’
πιστεύω*	‘to believe’
πλανάομαι	‘to be lead astray; to go astray’[164]
πλεονάζω	‘to become abundant; to become great; to have too much’[165]
πλουτέω*	‘to be rich’
πολιτεύω	‘to be a citizen; to live in a free state’[166]
πρέπει	‘to be appropriate’

[161] An archaic perfect that has been fossilized as its own lexical form. This perfect-only verb is historically derived from ὁράω ‘to see’.

[162] This verb is the most prominent example of movement toward anterior semantics. Most of the time, intensive and inchoative semantics are clear, but anterior semantics where purely atelic meaning that cannot be motivated metaphorically from the normal completive-resultative source can be found. This is, for example, the case in Luke 1:22: “they realized that he had seen (ἑώρακεν) a vision in the sanctuary.” In examples like this, we see diachronic shift from completive-resultative to anterior, which eventually results in the disappearance of the Greek perfect from the language entirely. It makes sense that this shift began with state predicates, since they already allowed the perfect. We do not see this sort of shift with the other atelic predicate types, activities and semelfactives.

[163] We might expect this verb to allow intensive semantics, since it is a verb of emotion. However, this is apparently not the case in the available data.

[164] The perfect is only allowed with the non-stative, ‘to go astray’ sense and refers to resultant state, where a person has gone astray such that he or she is astray.

[165] See also accomplishments for the senses, ‘to become abundant; to become great’.

[166] The perfect of this verb refers to the totally completed life lived. The Letter of Aristeas 31 provides a useful contrastive example: “Men who have lived (perfect) and men who are living (imperfective) in accordance with [the Law].” The perfect refers to the completed and ended life while the imperfective refers to the life that is currently ongoing.

προσδοκάω ‘to expect; to wait’

ῥώννυμι ‘to strengthen; to be healthy’[167]

σιωπάω ‘to be silent; to grow quiet’.[168]

σκηνόω ‘to live in a tent; to pitch a tent [somewhere]’[169]

σπεύδω ‘to make happen quickly; to be in a hurry’[170]

στήκω ‘to be in a standing position’

στρατεύομαι ‘to participate in war; to be a soldier[171]

στρηνιάω ‘to live luxuriously’

στυγνάζω ‘to be shocked, appalled’

συζάω ‘to live with [someone]’

συλλυπέω ‘to grieve with [someone]’

συμμορφίζω ‘to have the same likeness’

συμπαθέω ‘to have sympathy with[someone]’

συμπαρακαλέω ‘to be encouraged together’

συμπάρειμι ‘to be with’

συμπάσχω ‘to suffer together’

συμφέρω ‘to bring together; to be useful/advantageous’[172]

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[167] See also causative states for the sense, ‘to strengthen’.

[168] See also accomplishments for the sense, ‘to grow quiet’.

[169] The stative sense does not form a perfect. The dynamic sense is unique in the perfect. It only appears as a participle and means something along the lines of ‘the pitched tent’ (e.g. Josephus, *Ant.* 3.293, “The people with pitched tents (ἐσκηνωκότες) on the east quarter prepared to move”).

[170] See also causative achievements for the sense, ‘to make happen quickly’.

[171] See also in the section for activities for the sense, ‘to participate in war’.

σύνοιδα ‘to know; to be conscious of [something]’[173]

ταλαιπωρέω* ‘to be sorrowful’

τυφόω ‘to be conceited; to be mentally ill’

ὑστερέω ‘to be in need; to be inferior; to fail to attain’[174]

φαίνω ‘to shine; to make visible (active); to become visible (middle)[175]

φοβέω* ‘to be afraid’

φρονέω* ‘to have an opinion toward [something/someone]; to honor’[176]

φυγαδεύω ‘to banish; to be a fugitive’[177]

χαίρω ‘to rejoice; to be glad; to greet’[178]

χωρέω ‘to make room for; to be friendly’

A.1.2 Activity Predicates

With the exception of the handful of debatable examples discussed in section 4.2.3.1.2, activity predicates do not appear in the perfect. Because so often the difference between activity and active achievement is simply the expression of a specific and referential object or endpoint, activities are not cross-referenced with active achievements.

ἄγω ‘to bring; to carry; to lead’

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[172] See also in the sections for activity and active achievement predicates for the sense, ‘to bring together’.

[173] An archaic compound verb based on οἶδα, ‘to know’.

[174] See also achievements for the sense, ‘to fail to attain’.

[175] See also accomplishments for the sense, ‘to become visible’, and causative accomplishments for the sense, ‘to make visible’.

[176] The verb φρονέω ‘to have an opinion about’ in the perfect conveys the meaning, ‘to come to an opinion’ (Josephus, *Against Apion* 2.169).

[177] See also causative states for the sense, ‘to banish’.

[178] See also under activities and active achievements for the senses, ‘to rejoice’ and ‘to greet’.

ἀγωνίζομαι	‘to fight; to compete’
ἀκολουθέω	‘to follow; to go/come behind’
ἀλείφω	‘to anoint’
ἀναγινώσκω	‘to read’
ἀναγράφω	‘to write, record’
ἀροτριάω	‘to plow’
βασιλεύω	‘to be king, to become king, to reign’[179]
γεωργέω	‘to cultivate’
γογγύζω	‘to complain’
γράφω	‘to write’
δακρύω	‘to weep’
διακονέω	‘to serve; to care for’
διαλογίζομαι	‘to converse; to argue’
διαφοιτάω	‘to wander throughout a place; to permeate’[180]
διδάσκω	‘to teach’
διέρχομαι	‘to travel through; to cross-over; to penetrate’
διώκω	‘to persecute; to pursue’
δουλεύω	‘to be a slave; to serve’[181]
εἰσακούω	‘to obey’
ἐνεργέω	‘to function; to make function’[182]

[179] See also in the sections for states and accomplishments.

[180] See also accomplishments for the sense, ‘to permeate’.

[181] See also in the section for state predicates above.

ἐνωτίζω	‘to pay attention to’
ἐπακούω	‘to heed and obey’
ἐπακροάομαι	‘to listen’
ἐπιχειρέω	‘to try’
ἐποικοδομέω	‘to build; to edify’
ἐργάζομαι	‘to work; to do business’
ἔρχομαι	‘to go/come’
ἐσθίω	‘to eat’
ἑτοιμάζω	‘to prepare’
εὐαγγελίζομαι	‘to make a proclamation, to announce’
εὐφραίνω	‘to make merry; to cause to be glad’[183]
ζητέω	‘to inquire; to search after’
θησαυρίζω	‘to store; to hoard’
κατεργάζομαι	‘to achieve; to do’[184]
κατέχω	‘to hinder; to arrest’[185]
κηρύσσω	‘to proclaim aloud; to make an announcement’
κλαίω	‘to cry, weep’
κλάω	‘to break; to have a meal [i.e. break bread]’[186]

[182] See also causative activities for the sense, ‘to make function’.

[183] See also the causative states below.

[184] See also achievements for the sense, ‘to achieve’.

[185] See also achievements for the sense, ‘to arrest’.

[186] See also achievements for the sense, ‘to break’.

κοπιάω	‘to become tired; to work hard, labor’[187]
κοσμέω	‘to create; to adorn’
κράζω	‘to shout’
κυλίομαι	‘to roll [something]’
λαλέω	‘to speak’
λατρεύω	‘to worship’
λέγω	‘to speak; to call [i.e. to name]’[188]
λειτουργέω	‘to serve; to perform religious duties’
λογίζομαι	‘to calculate; to reason about [something]’
λωβάομαι	‘to mutilate’
μαρτυρέω	‘to be a witness; to testify’[189]
μετέχω	‘to share; to participate’
νηστεύω	‘to fast’
νομίζω*	‘to do customarily; to suppose, consider’[190]
παραλαμβάνω	‘to bring along; to take over’[191]
πατάσσω	‘to hit’
περιάγω	‘travel about; take along’
περιπατέω	‘to walk’

[187] See also accomplishments for the sense, ‘to become tired’. Louw & Nida (1989) list ‘to work hard, labor’ as the primary sense, but BDAG lists ‘become tired’ as the primary sense. It is not clear which is more basic.

[188] See also achievements for the sense, ‘to call [i.e. to name]’

[189] See also in the section for state predicates above.

[190] See also in the section for state predicates and active achievements.

[191] See also achievements for the sense, ‘take over’.

πίνω	‘to drink’
ποιέω	‘to do; to work; to produce’[192]
πορεύομαι	‘to go; to travel’
ποτίζω	‘to give to drink; to irrigate’
πράσσω	‘to do; to act’
σκάπτω	‘to dig; to cultivate’
σπείρω	‘to sow’
στρατεύομαι	‘to participate in war; to be a soldier’[193]
συγγράφω	‘to compose’
συκοφαντέω	‘to extort; to harass’
συλάω	‘to rob; to sack’
συλλέγω	‘to gather produce’
συμβαίνω	‘to go along with; to happen’[194]
συμφέρω	‘to bring together; to be useful/advantageous’[195]
συντίθημι	‘to put [something] beside [something]; to come to a decision’[196]
τάσσω	‘to arrange’
τεκνογονέω	‘to bear children’[197]

[192] See also achievements for the sense, ‘to produce’.

[193] See also in the section for states for the sense, ‘to be a soldier’.

[194] See also in the section for achievements for the sense, ‘to happen’.

[195] See also in the section for state predicates for the sense, ‘to be useful/advantageous’.

[196] See also in the section for achievements for the sense, ‘to come to a decision’.

τεκνοποιέω ‘to produce children’

τεκνοτροφέω ‘to raise children’

τηρέω ‘to keep watch; to obey’

τίλλω ‘to pick [something]’

τολμάω ‘to dare; to bring oneself to do [something]’

τρέφω ‘to rear/raise; to provide for’

τρέχω ‘to run; to rush’

ὑπολαμβάνω ‘to cause to ascend; to help; to reply’[198]

φέρω ‘to carry; to bring; to cause to move (i.e. to drive)’[199]

φεύγω ‘to flee’

φυλάσσω ‘to guard’

χαίρω ‘to rejoice; to be glad; to greet’[200]

χράομαι ‘to use; to act; to behave toward’

A.1.3 Semelfactive Predicates

ἀστράπτω ‘to flash; to gleam’

κροταλίζω ‘to rattle; to applaud’

παρακροτέω ‘to clap; to encourage’[201]

ἐπιπλαταγέω ‘to applaud’

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[197] This compound verb is an instance of noun incorporation. Since there is no object to be specific, it is inherently atelic; see also τεκνοποιέω ‘to produce children’ and τεκνοτροφέω ‘to raise children’.

[198] See also under causative states for the sense, ‘to cause to ascend’.

[199] See also under causative activities and causative active achievements for the sense, ‘to cause to move’.

[200] See also under states for the sense, ‘to be glad’.

[201] See also causative states for the sense, ‘to encourage’.

κολαφίζω	‘to strike; to cause harm’[202]
πλατάσσω	‘to slap; to clap to flat objects together’
προσκόπτω	‘to strike against; to stumble’[203]
πταίω	‘to stumble; to trip’[204]
ῥίπτω	‘to throw; to put down; to wave’[205]
στίλβω	‘to glitter’
συγκρούω	‘to strike’

A.2 Non-Causative Telic Predicate Types

The telic predicate types are the ones that are pervasive in the formation of the Greek perfect. They are generally ambiguous between resultative and completive semantics. Generally, intransitive perfects tend more toward resultative semantics, whereas transitive perfects tend toward completive semantics. These, however, are only tendencies.

A.2.1 Active Achievements

ἄγω	‘to bring; to carry; to lead’
ἀγωνίζομαι	‘to fight; to compete’
ἀκολουθέω	‘to follow; to go/come behind’
ἀλείφω	‘to anoint’
ἀναβαίνω	‘to go up; to ascend; to grow up’
ἀναγινώσκω	‘to read’

[202] When the proposition has an endpoint, the sense, ‘to strike’, is an achievement. See under causative states for the sense, ‘to cause harm’.

[203] See also achievements for the sense, ‘to strike against’.

[204] Whether the verb is a semelfactive or an achievement is determined by the existence of an endpoint.

[205] See also achievements for the sense, ‘to throw’, and see causative states for the sense, ‘to put down’.

ἀναγράφω	‘to write, record; to register’[206]
ἀναπαύω	‘to cause to rest (active); to take a rest, relax (middle)’[207]
ἀροτριάω	‘to plow’
γεωργέω	‘to cultivate’
γράφω	‘to write’
διδάσκω	‘to teach’
διέρχομαι	‘to travel through; to cross-over; to penetrate’
διώκω	‘to persecute; to pursue’
ἐκπορεύομαι	‘to depart’
εἴσειμι	‘to enter; to go into’[208]
εἰσέρχομαι	‘to enter; to go into’[209]
εἰσπορεύομαι	‘to move into; to enter’[210]
ἐκφέρω	‘to bring [something] out; to cause to grow’
ἐκχέω	‘to pour out; to cause to experience’[211]
ἐξάγω	‘to lead out’
ἐξαποστέλλω	‘to send out’
ἔξειμι	‘to go out’

[206] See also achievements for the sense, ‘to register’.

[207] The middle sense is an active achievement in its usage. See also causative states for the active sense.

[208] See also achievements for the sense, ‘to enter’.

[209] See also achievements for the sense, ‘to enter’.

[210] See also active achievements for the sense, ‘to move into’.

[211] See also causative states for the sense, ‘to cause to experience’.

ἐξέρχομαι	‘to go/come out’
ἐπακροάομαι	‘to listen’
ἐποικοδομέω	‘to build; to edify’
ἔρχομαι	‘to go/come’
ἐσθίω	‘to eat’
ἑτοιμάζω	‘to prepare’
εὐαγγελίζομαι	‘to make a proclamation, to announce’
ἱστορέω	‘to visit and get information’
κατεργάζομαι	‘to achieve; to do’[212]
κατεσθίω	‘to eat up; to devour’
κηρύσσω	‘to proclaim aloud; to make an announcement’
κοσμέω	‘to create; to adorn’
κράζω	‘to shout’
κυλίομαι	‘to roll [something]’
λαλέω	‘to speak’
λαμβάνω	‘to take; to receive’
λατρεύω	‘to worship’
λέγω	‘to speak; to call’
λειτουργέω	‘to serve; to perform religious duties’
λωβάομαι	‘to mutilate’
μαρτυρέω	‘to be a witness; to testify’[213]

[212] See also achievements for the sense, ‘to achieve’.

παραλαμβάνω ‘to bring along; to take over’[214]

πατάσσω ‘to hit’

περιπατέω ‘to walk’

πίνω ‘to drink’

ποιέω ‘to do; to work; to produce’[215]

πορεύομαι ‘to go; to travel’

ποτίζω ‘to give to drink; to irrigate’

πράσσω ‘to do; to act’

προσέρχομαι ‘to move toward’

προστρέχω ‘to run up to’

σκάπτω ‘to dig; to cultivate’

σπείρω ‘to sow’

συγγράφω ‘to compose’

συκοφαντέω ‘to extort; to harass’

συλάω ‘to rob; to sack’

συλλέγω ‘to gather produce’

συμπεριλαμβάνω ‘to hug, embrace’

συμβαίνω ‘to go along with; to happen’[216]

συμφέρω ‘to bring together; to be useful/advantageous’[217]

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[213] See also in the section for state predicates above.

[214] See also achievements for the sense, ‘to take over’.

[215] See also achievements for the sense, ‘to produce’.

[216] See also in the section for achievements for the sense, ‘to happen’.

συντίθημι	‘to put [something] beside [something]; to come to a decision’[218]
τάσσω	‘to arrange’
τίλλω	‘to pick [something]’
τολμάω	‘to dare; to bring oneself to do [something]’
τρέφω	‘to rear/raise; to provide for’
τρέχω	‘to run; to rush’
χράομαι	‘to use; to act; to behave toward’
φεύγω	‘to flee’
φυλάσσω	‘to guard’
ὑπολαμβάνω	‘to cause to ascend; to help; to reply’[219]

A.2.2 Achievements

ἀγοράζω	‘to purchase’
ἀθετέω	‘to reject’
ἀναγράφω	‘to write, record; to register’[220]
ἀνακλίνω	‘to cause to recline or lie down (active); to lie down (middle)’[221]
ἀνίστημι	‘to cause to rise; to stand up’[222]

[217] See also in the section for state predicates for the sense, ‘to be useful/advantageous’.

[218] See also in the section for achievements for the sense, ‘to come to a decision’.

[219] See also under causative states for the sense, ‘to cause to ascend’.

[220] See also active achievements for the sense, ‘to write, record’.

[221] See also causative achievements for the sense, ‘to cause to recline or lie down’.

[222] The various verbs derived from ἵστημι, ‘to cause to stand, to stand’ only allow the causative sense in the imperfective aspect. The perfective aspect allows both senses, and the perfect has the meaning, ‘to be standing’. See section 4.2.2.3.

ἀπέρχομαι ‘to depart; to pass away’

ἀποθνῄσκω ‘to die’

ἀπολέγω ‘to decline’

ἁρπάζω ‘to snatch; to plunder; to seize’

γίνομαι ‘to become; to come into existence; to happen’[223]

διαγινώσκω ‘to examine thoroughly; to decide a case’[224]

δοκέω ‘to suppose; to be disposed to; to choose’[225]

ἐγείρω ‘to cause to rise; to cause to live; to rise’[226]

εἴσειμι ‘to enter; to go into’[227]

εἰσέρχομαι ‘to enter; to go into’[228]

εἰσπορεύομαι ‘to move into; to enter’[229]

ἐκφεύγω ‘to escape’

ἐκψύχω ‘to breathe one’s last’

ἐμποιέω ‘to make in; to foist in’

ἐνδύνω ‘to enter secretly; to become introspective’[230]

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[223] For the senses, ‘to become; to come to exist’, see accomplishments.

[224] See also accomplishments for the sense, ‘to examine thoroughly’

[225] See also states for the senses, ‘to suppose; to be disposed to’

[226] See also causative achievements for the sense, ‘to cause to rise’ and causative states for the sense, ‘to cause to live’.

[227] See also active achievements for the sense, ‘to go into’.

[228] See also active achievements for the sense, ‘to go into’.

[229] See also active achievements for the sense, ‘to move into’.

[230] See also accomplishments for the sense, ‘to become introspective’.

ἐπιγινώσκω	‘to recognize; to learn’[231]
θνήσκω	‘to die’
καθῆμαι*	‘to sit’
κατακρίνω	‘to condemn’
καταλείπω	‘to leave behind’
καταπλήσσω	‘to strike down; to astound [i.e. to strike with amazement]’[232]
κατεργάζομαι	‘to achieve; to do’[233]
κατέχω	‘to hinder; to arrest’[234]
κερδαίνω	‘to make a profit’
κηρύσσω	‘to proclaim aloud; to make an announcement’
κλάω	‘to break; to have a meal [i.e. break bread]’[235]
κολαφίζω	‘to strike; to cause harm’[236]
κόπτω	‘to smite’
κρατέω	‘to attain; to arrest’
κρίνω	‘to decide; to make a judgment about [something]’
λανθάνω	‘to escape notice’
λέγω	‘to speak; to call [i.e. to name]’[237]

[231] See also accomplishments for the sense, ‘to learn’.

[232] See also causative states for the sense, ‘to astound [i.e. to strike with amazement]’

[233] See also activities and active achievements for the sense, ‘to do’.

[234] See also achievements for the sense, ‘to arrest’.

[235] See also activities for the sense, ‘to have a meal’.

[236] See also semelfactives for the sense, ‘to strike’ for when the proposition lacks an endpoint; see causative states for the sense, ‘to cause harm’.

μνημονεύω ‘to remember; to mention’[238]

ὄμνυμι/ὀμνύω ‘to swear an oath’

ὁμολογέω ‘to profess; to agree’

ὀνομάζω ‘to call by name; to give a name’

παραλαμβάνω ‘to bring along; to take over’[239]

παύω ‘to cause to cease; to cease’[240]

πέμπω ‘to send’

πίπτω ‘to fall’

ποιέω ‘to do; to work; to produce’[241]

προερέω ‘to preface [i.e. to say something by way of a preface]’

προκαταλαμβάνω ‘to occupy beforehand’

προλέγω ‘to warn; to predict’

προσκόπτω ‘to strike against; to stumble’[242]

πταίω ‘to stumble; to trip’[243]

πτύω ‘to spit’

πυνθάνομαι ‘to inquire; to learn’[244]

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[237] See also activities for the sense, ‘to speak’.

[238] Only the secondary sense, ‘to mention’, allows a perfect. See also states for the primary sense, ‘to remember’.

[239] See also activities and active achievements for the sense, ‘to bring along’.

[240] See also causative achievements for the sense, ‘to cause to cease’.

[241] See also activities and active achievements for the senses, ‘to do; to work’.

[242] See also semelfactives for the sense, ‘to stumble’.

[243] Whether the verb is a semelfactive or an achievement is determined whether the proposition includes an endpoint.

ῥίπτω ‘to throw; to put down; to wave’[245]

στρέφω ‘to turn around; to change’[246]

συγκαλέω ‘to summon’

συμβαίνω ‘to come above, happen’

συμπίπτω ‘to collapse’

συνόμνυμι ‘to promise’

τελευτάω ‘to die’

ὑπισχνέομαι ‘to promise’

ὑστερέω ‘to be in need; to be inferior; to fail to attain’[247]

A.2.3 Accomplishments

ἀθυμέω ‘to become discouraged’[248]

βασιλεύω ‘be king; to become king; to reign’[249]

γίνομαι ‘to become; to come into existence; to happen’[250]

γινώσκω ‘to come to know; to learn’

διαγινώσκω ‘to examine thoroughly; to decide a case’[251]

διαφοιτάω ‘to wander throughout a place; to permeate’[252]

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[244] See also accomplishments for the sense, ‘to learn’.

[245] See also semelfactives for, ‘to wave’, and see causative states for the sense, ‘to put down’.

[246] See causative achievements for the sense, ‘to change’.

[247] See also states for the sense, ‘to be in need; to be inferior’.

[248] Most lexicons also provide a stative gloss. This is not entirely evident from usage, however.

[249] See also activities for the sense, ‘to reign’, and states as well for the sense, ‘to be king’.

[250] For the senses, ‘to happen’, see under accomplishments.

[251] See also achievements for the sense, ‘to decide a case’.

ἐθίζω	‘to cause to conform; to become accustomed’[253]
ἐλαττόω	‘to make small (active); to become small (middle)’[254]
ἐμπλέκω	‘to weave (active); to become entangled (middle)’[255]
ἐνδυναμόω	‘to make strong (active); to become strong (middle)’[256]
ἐνδύνω	‘to enter secretly; to become introspective’[257]
ἐπανίστημι	‘to cause to revolt against; to revolt against; to swell’[258]
ἐπιγαμβρεύω	‘to become an in-law’
ἐπιγινώσκω	‘to recognize; to learn’[259]
κοπιάω	‘to become tired; to work hard, labor’[260]
μανθάνω	‘to learn’
μεθύω	‘to drink [alcohol]; to be drunk; to become drunk’[261]
ξηραίνω	‘to cause to become dry (active); to become dry (middle)’[262]

[252] See also activities for the sense, ‘to wander throughout a place’.

[253] See also causative accomplishments for the sense, ‘to cause to conform’.

[254] See also causative accomplishments for the sense, ‘to make small’.

[255] See also causative accomplishments for the sense, ‘to weave’.

[256] See also causative accomplishments for the sense, ‘to make strong’.

[257] See also achievements for the sense, ‘to enter secretly’.

[258] See also causative accomplishments for the sense. ‘to cause to revolt against’. The accomplishment sense, ‘to swell’, is limited to medical texts (cf. LSJ, 609)

[259] See also achievements for the sense, ‘to recognize’.

[260] See also activities for the sense, ‘to work hard, labor’. Louw & Nida (1989) list ‘to work hard, labor’ as the primary sense, but BDAG (Danker et al. 2000) lists become tired’ as the primary sense. It is not clear which is the preferred order.

[261] See also this verb in the section on activity predicates for the sense, ‘to drink’ and states for the sense, ‘to be drunk’.

πυνθάνομαι ‘to inquire; to learn’.[263]

πλεονάζω ‘to become abundant; to become great; to have too much’[264]

σιωπάω ‘to be silent; to grow quiet’.[265]

συλλαμβάνω ‘to seize; to become pregnant’[266]

συμπληρόω ‘to fill (active); to become full (middle)’[267]

συμφύω ‘to unite (active); to become united (middle)’[268]

τήκω ‘to cause to melt (active); to melt (middle)’[269]

τίκτω ‘to produce offspring; to grow’[270]

ὑφίστημι ‘to give structure to (active); to become structured (middle)’[271]

φαίνω ‘to shine; to make visible (active); to become visible (middle)’[272]

A.3 Causative Predicates

Like the non-causative telic predicate types, the formation of the Greek perfect is also pervasive with causative predicate types. Causatives also tend to be ambiguous as to their semantics

[262] See also causative accomplishments for the sense, ‘to cause to become dry’.

[263] See also accomplishments for the sense, ‘to learn’.

[264] See also states for the sense, ‘to have too much’.

[265] See also states for the sense, ‘to be silent’.

[266] See also causative states for the sense, ‘to seize’.

[267] For the active sense, ‘to fill’, see the section for causative accomplishments below.

[268] For the active sense, ‘to unite’, see the section for causative accomplishments below.

[269] For the active sense, ‘to cause to melt’, see the section for causative accomplishments.

[270] See also causative accomplishments for the sense ‘to produce offspring’.

[271] See also causative accomplishments for the sense ‘to give structure to’.

[272] See also states for the sense, to shine;’ see causative accomplishments for the sense, ‘to make visible’.

between resultative and completive usages. In the case of causatives, it is the non-PSA argument that is the affected argument in terms of the resultant stated or completed event. The exception to this are those old perfects such as ἵστημι, 'I cause to stand', which PSA argument is reconceptualized in the perfect as the participant experiencing or affected by the resultant state. However, even with normal verbs, perfects have a broad tendency be realized in the middle voice, which invariably has resultant state semantics.[273] Verbs with perfects that only occur in the middle in our corpus are marked with an asterisk (*).

A.3.1 Causative States

ἁγιάζω	'to make holy'
ἁγνίζω	'to make clean'
ἀναγκάζω	'to compel, cause to be constrained'
ἀναμιμνῄσκω	'to remind'
ἀναπαύω	'to cause to rest'
ἀνασείω	'to make upset'
ἀνασκευάζω	'to make distressed'
ἀνατρέπω	'to cause to overturn; to cause to fall'
ἀποδιορίζω	'to cause division'
ἀποκρύπτω	'to make hidden'
ἀποκυέω	'to cause to exist'
ἀπόλλυμι	'to destroy'
ἀποπλανάω	'to lead astray'

[273] For causative predicates, the Greek middle normally functions as a non-causative marker. However, middle voice cannot be reduced to being a non-causative marker. See Allan (2003) and Aubrey (forthcoming).

ἀτιμάζω	‘to cause to be dishonored’
ἀφανίζω	‘to destroy; to make ugly’
ἀφίστημι	‘to cause to rebel’
βάλλω	‘to throw’
βεβαιόω	‘to cause to believe’
βρέχω	‘to make wet’
γεμίζω	‘to cause to be full’
δέω	‘to imprison’
διανοίγω	‘to make open’
διαφθείρω	‘to destroy; to make corrupt’
δίδωμι	‘to give’
δολόω	‘to make false’
ἐγείρω	‘to cause to rise; to cause to live; to rise’[274]
ἐγκαινίζω	‘to cause to exist’
εἰσάγω	‘to carry in’
εἰσφέρω	‘to bring in; to cause’
ἐκχέω	‘to pour out; to cause to experience’[275]
ἐξίστημι	‘to cause astonishment’
ἐξουθενέω	‘to reject; to despise’[276]

[274] See achievements for the sense, ‘to rise’ and causative achievements for the sense, ‘to cause to rise’.

[275] See also active achievements for the sense, ‘to pour out’.

[276] For ἐξουθενέω, it is not clear whether the causative state ‘to reject’ or the state ‘to despise’ is the primary sense. The causative state sense allows the perfect, but it is not clear whether the state sense does.

ἐπιφέρω	‘to cause to experience’
ἐρεθίζω	‘to cause resentment’
εὐαρεστέω	‘to cause to be pleased; to be pleased with’[277]
εὐφραίνω	‘to make merry; to cause to be glad’[278]
ἐφίστημι	‘to set; to cause to stand’
θάπτω	‘to bury’
θησαυρίζω	‘to cause to be preserved; to cause to happen’[279]
θλίβω	‘to cause to be compressed’
ἵστημι	‘to cause to stand’
καθαιρέω	‘to take down’
καθαίρω	‘to make clean’
καθίστημι	‘to appoint; to cause to be’
κακόω	‘to injure; to cause dislike’
καρποφορέω	‘to produce’
καταβαρέω	‘to cause hardship’
καταπαύω	‘to make stop’
κατασκευάζω	‘to make ready’
καταφέρω	‘to bring down; to cause to happen’[280]
κατοικίζω	‘to cause to dwell in a location’

[277]See also states for the sense, ‘to be pleased with’

[278] See also activities for the sense, ‘to make merry’.

[279] See also causative achievements for the sense, ‘to cause to happen’.

[280] See also causative achievements for the sense, ‘to cause to happen’.

κενόω	‘cause to lose power’
κολαφίζω	‘to strike; to cause harm’[281]
κομίζω	‘to carry to a specific destination’
κρεμάννυμι	‘to crucify’
κτίζω	‘to create’
κωλύω	‘to prevent’
μεσιτεύω	‘to cause to agree’
μολύνω	‘to make dirty; to defile’
ὀλεθρεύω	‘to slay’
ὀχλέω	‘to cause trouble’
παλαιόω	‘to make old’
παραδίδωμι	‘to hand over; to betray’
παρασκευάζω	‘to make something ready’
παρενοχλέω	‘to cause annoyance’
παρέχω	‘to make available; to cause to experience’
παρίστημι	‘to cause to be located; to cause to exist’
πείθω	‘to convince; to make confident’
πικραίνω	‘to make bitter’
πληρόω	‘to make full’
πλουτίζω	‘to make rich’
πόρω	‘to give, provide’

[281] See also semelfactives and achievements for the sense, ‘to strike’.

προίστημι ‘to set before’

προστάσσω ‘to put in a place’

προστίθημι ‘to put to’

προσφέρω ‘to bring something to someone’

ῥώννυμι ‘to strengthen; to be healthy’[282]

σείω ‘make to shake; to make anxious’[283]

σκανδαλίζω ‘to cause to stumble; to cause offense’[284]

σκληρύνω ‘to make stubborn’

στερεόω ‘to make strong; to make firm’[285]

στηρίζω ‘to cause to be established, firm’

συγκαλύπτω ‘to conceal’

συγχέω ‘to cause consternation’

συλλαμβάνω ‘to seize; to become pregnant’[286]

συνθρύπτω ‘to crush’

συντελέω ‘to make complete’

σωρεύω ‘to cause be to be ashamed’

ταράσσω ‘to cause distress; to cause a riot’[287]

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[282] See also states for the sense, ‘to be healthy’.

[283] See also causative semelfactives for the sense, ‘to make shake’,

[284] See also causative semelfactives for the sense, ‘to cause to stumble’.

[285] See also causative accomplishments.

[286] See also accomplishments for the sense, ‘to become pregnant’.

[287] See also causative activities for the sense, to cause a riot’.

τάσσω	‘to put in place’
τεύχω	‘to prepare; to bring to pass’[288]
τυφλόω	‘to make blind’
ὑφίστημι	‘to form something into a shape’
φανερόω	‘to make visible; to make known’
φυγαδεύω	‘to banish; to be a fugitive’
φυσιόω	‘to make proud’
συγκινέω	‘to stir up someone’s emotions’
συγκλείω	‘to confine, imprison’
συγχέω	‘to cause consternation’
συζωοποιέω	‘to raise to life’
συλλαμβάνω	‘to seize; to become pregnant’[289]
τίκτω	‘to give birth; to cause to come into being’

A.3.2 Causative Activities

ἀναστατόω	‘to cause to revolt’
ἐμβιβάζω	‘to cause to embark’
ἐνεργέω	‘to function; to make function’[290]
κινέω	‘to cause to move’
μεθίστημι	‘to cause to move; to cause to change’.[291]

[288] See also causative achievements for the sense, ‘to bring to pass’.

[289] See also accomplishments for the sense, ‘to become pregnant’.

[290] See also activities for the sense, ‘to function’.

πέμπω ‘to send’

σαλεύω ‘to cause to shake; to cause to riot’[292]

ταράσσω ‘to cause distress; to cause to riot’[293]

φορτίζω ‘to cause to carry’

A.3.3 Causative Semelfactives

σείω ‘to cause to shake; to make anxious’[294]

σαλεύω ‘to cause to shake; to cause to riot’[295]

σκανδαλίζω ‘to cause to stumble; to cause offense’[296]

ἐπαφρίζω ‘to cause to splash’

A.3.4 Causative Active Achievements

ἀφίστημι ‘to cause to move away’

πέμπω ‘to send’

φορτίζω ‘to cause to carry’

A.3.5 Causative Achievements

ἀνακλίνω ‘to cause to recline or lie down (active); to lie down (middle)’[297]

ἀνατρέπω ‘to cause to fall’

ἀποκτείνω ‘to kill’

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[291] See also causative achievements for the sense, ‘to cause to change’.

[292] See also causative semelfactives for the sense, to cause to shake’.

[293] See also causative activities for the sense, to cause a riot’.

[294] See also causative semelfactives for the sense, ‘to make shake’,

[295] See also causative activities for the sense, to cause to riot’.

[296] See also causative states for the sense, ‘to cause offense’.

[297] See also causative achievements for the sense, ‘to cause to recline or lie down’.

ἀποπνίγω	‘to choke [someone]; to drown [someone]’
διεγείρω	‘to cause to arouse’
διχάζω	‘to cause to divide’
ἐγείρω	‘to cause to rise; to cause to live; to rise’[298]
ἐλαττόω	‘to make small (active); to become small (middle)’[299]
ἐμπλέκω	‘to weave (active); to become entangled (middle)’[300]
ἐνδυναμόω	‘to make strong (active); to become strong (middle)’[301]
ἐξυπνίζω	‘to cause to wake’
ἐπιβιβάζω	‘to cause to mount’
θησαυρίζω	‘to cause to be preserved; to cause to happen’[302]
θριαμβεύω	‘to cause to triumph’
κατακλίνω	‘to cause to recline’
καταφέρω	‘to bring down; to cause to happen’[303]
μεθίστημι	‘to cause to move; to cause to change’.[304]
μετακινέω	‘to make cease’
παρεισάγω	‘to make happen’

[298] See also achievements for the sense, ‘to rise’ and causative states for the sense, ‘to cause to live’.

[299] See also accomplishments for the sense, ‘to become small’.

[300] See also accomplishments for the sense, ‘to become entangled’.

[301] See also accomplishments for the sense, ‘to become strong’.

[302] See also causative states for the sense, ‘to cause to be preserved’.

[303] See also causative states for the sense, ‘to bring down’.

[304] See also causative activities for the sense, ‘to cause to move’.

παύω ‘to cause to cease; to cease’[305]

σπεύδω ‘to make happen quickly; to be in a hurry’[306]

στρέφω ‘to turn around; to change’[307]

συγκαθίζω ‘to cause to sit down’

τεύχω ‘to prepare; to bring to pass’[308]

A.3.6 Causative Accomplishments

αἰχμαλωτίζω ‘to take captive’

ἀκρωτηριάζω ‘to mutilate’

ἀλλάσσω ‘to make different, change’

ἀναγεννάω ‘to cause to be born again’

ἀνορθόω ‘to rebuild’

αὐξάνω/αὔξω ‘to cause to increase’

βεβηλόω ‘to cause to become defiled’

βρύω ‘to cause to swell’

βυθίζω ‘to cause to sink’

γαμίζω ‘to cause to become married’

γνωρίζω ‘to cause to reveal’

δηλόω ‘to make clear’

διανέμω ‘to cause to spread’

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[305] See also achievements for the sense, ‘to cease’.

[306] See also states for the sense, ‘to be in a hurry’.

[307] See causative achievements for the sense, ‘to change’.

[308] See also causative states for the sense, ‘to prepare’.

ἐθίζω	‘to cause to conform; to become accustomed’[309]
ἐκβάλλω	‘to cause to leave’
ἐκδιώκω	‘to persecute’
ἐκκόπτω	‘to cause to become cut’
ἐκμάσσω	‘to wipe dry; to mold [e.g. in wax or clay]’
ἐκριζόω	‘to uproot’
ἐνδείκνυμι	‘to cause to become known’
ἐπιστηρίζω	‘to strengthen’
ἐπισυνάγω	‘to cause to gather’
ἱματίζω	‘to clothe [someone]’
καταπλήσσω	‘cause to become terrified’
καταποντίζω	‘to cause to sink’
κολλάω	‘to join closely together’
κτίζω	‘to create’
μεστόω	‘to fill’
μωραίνω	‘to cause to become nonsense’
ξηραίνω	‘to cause to become dry (active); to become dry (middle)’[310]
ὁρίζω	‘to set limits’
πληθύνω	‘to cause to increase’
πορίζω	‘to cause to become available’

[309] See also accomplishments for the sense, ‘to become accustomed’.

[310] See also causative accomplishments for the sense, ‘to cause to become dry’.

στερεόω	‘to make strong; to make firm’[311]
συμπληρόω	‘to fill (active); to become full (middle)’[312]
συμφύω	‘to unite (active); to become united (middle)’ [313]
συγκεράννυμι	‘to cause to become joined’
συναθροίζω	‘to cause to gather together’
συνίστημι	‘to bring together’
τήκω	‘to cause to melt (active); to melt (middle)’[314]
τίκτω	‘to produce offspring; to grow’[315]
τρέφω	‘to rear [e.g. children]’
ὑφίστημι	‘to give structure to (active); to become structured (middle)’[316]
φαίνω	‘to shine; to make visible (active); to become visible (middle)’[317]
φανερόω	‘to cause to be seen; to make known’
φθείρω	‘to cause to become corrupt’
χορτάζω	‘to fill [someone] with food’

[311] See also causative accomplishments.

[312] For the middle sense, ‘to become full’, see the section for accomplishments above.

[313] For the middle sense, ‘to become united’, see the section for accomplishments above.

[314] For the middle sense, ‘to melt’, see the section for accomplishments.

[315] See also accomplishments for the sense ‘to produce offspring’.

[316] See also accomplishments for the sense ‘to become structured’.

[317] See also states for the sense, ‘to shine’, and causative accomplishments for the sense, ‘to make visible’.

Appendix B. Overview of the Greek verbal system.

The purpose of this appendix is to present a brief summary of the morphology and semantics of the Koine Greek verbal system. While I do comment on syntactic issues where relevant, the purpose of this appendix is to provide some additional orientation to the Greek verb as a reference for readers whose knowledge of Ancient Greek is limited. Those who are familiar with the standard presentations of the grammar of the Ancient Greek verb should be aware ahead of time that the analysis summarized here is independent of the traditional grammatical tradition in terms of categories and terminology. It is, instead, a fresh description of the Koine Greek verbal system grounded in my own analysis of the data. The discussions here are brief and focus on the basic schematic meaning rather than on specific usages subsumed by that schema.[318] On occasion, I refer the reader to standard grammatical works and specialized studies for more specific details on usage. I have structured this survey in a manner similar to how the Greek verb's morphology is built up from the root. We begin with describing the semantics of those morphemes that attach closest to the verbal root or stem and then proceed outward from there. The order of the discussion begins with aspect, then moves to tense, then voice, modality, and non-finite forms. Person and number do not receive a separate discussion. However for reference we can say the following: they agree with the privileged syntactic argument. There are two numbers: singular and plural and there are three persons.[319] These forms vary on the basis of the aspect, tense, voice, modality, and illocutionary force of a given verb. In the non-finite forms, the infinitive and participle, the verb is not marked for either person or number.

[318] Thus, for example, in the discussion of imperfective aspect, I summarize and demonstrate its basic nature as incomplete and unbounded without going into details regarding specific usages such as iterative, habitual, gnomic, and the complex challenges of the historical present and its discourse and contextual motivations.

[319] There is an archaic dual form as well. It is however quite rare in this historical period and only appears in a handful of authors and even then only occasionally. There are no instances of the dual in the New Testament.

B.1 General Comments on Morphological Structure

The Koine Greek verbal system can be divided into two major inflectional classes. The more productive one is the focus of the analysis here. It consists of two lexical subclasses: imperfective-base verbs and perfective-base verbs. Imperfective-base verbs default to the imperfective aspect with no aspect morpheme attached to the verb stem. Likewise, perfective-base verbs default to the perfective aspect in the same manner. In both classes, the morphological structure involves a high degree of synthetic morphology and cumulative exponence. Cumulative exponence involves a particular formative or morpheme expressing multiple semantic features or exponents (Matthews 1991, 8-9). Cumulative exponence may be either fusional where the two features are expressed by a single morpheme or it may be overlapping, where the semantics of one morpheme pour over into the next. The Ancient Greek verb involves the latter type and is realized specifically in the subject agreement. An imperfective verb root, such as *ly (λυ) 'release' might select an aspectual suffix, such as the suffix morpheme *-s* 'PERFECTIVE'. That same root could then also select *e-*, the past tense prefix. Both these choices would then have a cumulative effect upon the form of the suffix morpheme denoting modality, transitivity/diathesis, person, and number. For this reason, traditionally the Greek verb has been viewed as having tense/aspect "stems" which are then inflected for the other categories. Because of this complicated situation, the multiplicity of grammatical categories realized on the verb, and the nature of this discussion as a survey, I do not intent to provide paradigms or tables for all possible forms, for reasons of practicality.[320] Instead, I provide a few representative paradigms and focus on those forms that are most relevant for the task at hand. Our focus is first and

[320] Two tenses multiplied by three aspects, four moods (illocutionary force, status & modality), three persons, two numbers, and two voices (which may realize two separate forms in certain aspects), means that for any given verb there are at least two hundred eighty-eight potential forms for given verb.

foremost upon the forms and semantics for tense and aspect. The unfortunate fact of the matter is that there are simply too many different grammatical forms in Koine Greek to present anything that could be even remotely considered comprehensive.[321]

B.2 Tense & Aspect

B.2.1 Morphology

If we momentarily look beyond the cumulative exponence morphology of modality, voice, person, and number, the organization of verb morphology into a position class chart becomes a little straighter forward, at least for the most productive class of verbs: those that default to an imperfective aspect in their interpretation. Table 17 shows the distribution of tense and aspect morphemes and their positions with respect to the verbal root for Imperfective-base verbs. For the moment, I do not provide the final position in the chart, since its formation varies on the basis of the tense and aspect choices.

-2 'TENSE'	**-1 'ASPECT'**	**Root/Stem**	**+1 'ASPECT'**	**+2 'MODALITY, TENSE, ASPECT, VOICE, PERSON & NUMBER AGREEMENT'**
Ø 'NPST'	Ø	ly 'destroy'	Ø 'IMPERFECTIVE'	
e- 'PST'	Ø		-s 'PERFECTIVE'[322]	
	[C]e- 'PERFECT'		-k 'PERFECT'	

Table 17. *Tense and aspect morphology for imperfective-base verbs*

There are three basic aspectual choices for a given verb root or stem in this paradigm: imperfective, perfective and perfect. The imperfective aspect is the default aspectual interpretation of the bare root, represented as Ø in position +1 of the morpheme chart. Each of the aspectual formatives becomes increasingly complex in its morphological formation as we

[321] For those interested in Greek morphology, I would refer you to Mussies (1971), which is the best and most theoretically up to date description of Koine Greek morphology.

[322] The perfective aspect actually has two separate forms used for middle voice marking, *-t^{h}e* 'PERFECTIVE MIDDLE' which appears in place of the normal -s 'PERFECTIVE' morpheme. In the Classical period, it was used with privileged syntactic arguments that were low in volitionality and high in affectedness. This situation had changed by the Koine period. See below in section B.3 on grammatical voice.

move away from the imperfective default. The perfective aspect is realized solely as a -s suffix and the perfect, the most complex, is realized as a circumfix with syllabic reduplication of the root-initial consonant along with the vowel phoneme /e/. When the root or stem begins with a vowel, there is no consonant to reduplicate and the initial [C] goes unrealized. The root-initial portion of the perfect circumfix is realized with the form *e-*.[323] Following after aspect morphemes and tense morphemes, the agreement morphology is realized in the final suffix position.

Perfective-base verbs are identical in their tense morphology to Imperfective-base verbs. They are also extremely similar in terms of their agreement endings. However, there is a fundamental difference in the manner that they realize the category of aspect. This is shown below in Table 18.

<table>
<tr><th>-2 ‘TENSE’</th><th>-1 ‘ASPECT’</th><th>Root/Stem</th><th>+1 ‘ASPECT’</th><th rowspan="4">+2
‘MODALITY, TENSE, ASPECT, VOICE, PERSON & NUMBER AGREEMENT’</th></tr>
<tr><td rowspan="2">Ø ‘NPST’
e- ‘PST’</td><td rowspan="2">Ø</td><td>bal ‘throw.PERFECTIVE’</td><td rowspan="2">Ø</td></tr>
<tr><td>ball ‘throw.IMPERFECTIVE’</td></tr>
<tr><td>[C]e- ‘PERFECT’</td><td>ble ‘throw.PERFECT’</td><td>-k ‘PERFECT’</td></tr>
</table>

Table 18. *Tense and aspect morphology for perfective-base verbs*

Perfective-base verbs are difficult to represent in a position class chart because the morphological differences for aspect involve stem modification, traditionally called ‘ablaut’. For the perfect, there is a change in the structure of the stem in conjunction with the normal affixation pattern. Once an aspect is selected, the rest of the agreement markers attach in the same manner as above.

[323] This is the residue of an older phonological change. The Greek orthography has retained an earlier morphophonological pattern that involves the lengthening of the perfect’s /ɛ/ (the earlier phoneme) to /e/ after the assimilation of the root-initial vowel. When /ɛ/ and /e/ merged a few centuries later, only the /e/ was left and as such the morphophonological process resulting from a perfect with a root-initial vowel became one of elision instead.

Lastly, observe that regardless of whether or not a given verb is a member of the imperfective-base verb class or the perfective-base verb class, the affixation of tense morphology remains identical. Greek has a single past tense morpheme, *e-* 'PAST', which appears in the -2 position in both Table 17 and Table 18 above. In conjunction with aspect morphology, particularly in the perfective and perfect aspects, the appearance of the past tense morpheme may also affect the morphological realization of voice, person, number, and mood in position +2.

These are the most relevant portions of morphological structure for the purposes of this thesis. On the rare occasion where another morphological category is relevant to the analysis, it is explicitly marked in the glosses.

B.2.2 Morphophonological issues

The aspect suffixes also undergo morphophonological processes depending on the phoneme at the end of the stem as well. These deserve at least brief mention in order to help alleviate any confusion about glosses in conjunction with morphological structure. These morphophonological changes are regular and predictable in nature. They are presented below in Table 19.

Stems ending in consonants

	[Labial] + [C]	**[Dental] + [C]**	**[Velar] + [C]**	**[Approximate] + [C]**	**[Nasal] + [C]**
[C] + [m]	mm	sm	ŋm	--	mm
[C] + [s]	ps	s	ks	l/r	n/m
[C] + [t]	pt	st	kt	--	--
[C] + [st^h]	pt^h	st^h	kt^h	lt^h/rt^h	nt^h/mt^h

Table 19. *Phonological changes for roots ending in consonants*

The consonants listed in the first column, [m], [s], and [t], are those from inflectional suffixes that induce changes in the phonological structure of the word. The consonant cluster [st^h] must also be included because it forces the root consonant to undergo a phonological change distinct from the phone [s]. While we will not be developing formalized morphophonological rules here,

we can nevertheless make a few generalizations here. Firstly, as we already noted, all consonants except dentals undergo nasalization and voicing when they appear before the nasal [m]. For most other stem-suffix interactions, the opposite is true for voicing. Consonants, with the exception of nasals and approximates become unvoiced before [s], [t], and [st^h]. Dental consonants are assimilated to [s]. The sound [s] is elided when it follows an approximate. Consonants, except fricatives, approximates, and nasals, become unvoiced stops before [s] or [t]. The final change involves the elision of [s] between a consonant and the aspirated dental stop [t^h]. These changes constitute the most regular portion of the morphophonology for the Greek verb.[324]

B.2.3 Aspect: Imperfective, perfective & perfect

The Greek perfective and imperfective aspects fall in line with standard cross-linguistic descriptions of their meaning. The perfective aspect is used to present a situation, event, or state without reference to any internal temporal structure (Comrie 1976, 3). The imperfective aspect is used to present a situation, event or state as having an internal temporal structure that is in progress or otherwise somehow incomplete. To put it another way, the perfective aspect is bounded and the imperfective aspect is unbounded in its semantics.

One practical result of these definitions is the observation by Amstrong (1981) that the perfective aspect will be used in conjunction with cardinal count adverbs, while the imperfective aspect will be used with frequency count adverbs. Consider the following examples.

(B.1) (εἰ μὴ γὰρ ἐβραδύναμεν) ἤδη ἂν **ὑπεστρέψαμεν** δίς.
ˈede an=**yp-e-ˈstrep-s-amen** ˈ**dis**
already would=**back-PST-turn-PERFV-PST.1PL** **twice**
(For if we had not delayed,) **we would have already returned twice** (LXXGen 43:10).

[324] More could be said here in terms of motivations for these changes. Many of them relate to the sonority of the sounds in conjunction with the structure of the Greek syllable. However, since a survey of Ancient Greek syllable structure takes us far from the subject at hand, the discussion above must suffice. For more detail in terms of Greek phonological and prosodic structure, see Allen (1973), Allen (1987), and Devine & Stephens (1994).

(B.2) δὶς γοῦν ἐπὶ Καίσαρος κατηγορηθεὶς ἐπὶ τῷ στάσεως ἐμπλῆσαι τὴν Ἀχαΐαν.
ˈdis ˈgun eˈpi ˈkesar-os **kat-e-gore-th-is** eˈpi
twice then before Caesar-GEN.SG **against-PST-speak-MID.PERFV-PST.3SG** for
to=stares-os emple-se ten=Axaia-n
the=sedition-GEN.SG fill-PERFV.INF the=Achaia-ACC.SG
Thus, he was **twice accused** before Caesar for filling Achaia with sedition (Josephus, *Wars* 1.531).

Greek perfective verbs present a situation as an indistinguishable whole which can then be counted in its individual occurrences. This is what we see in the examples. In example (B.1), Judah speaks to his father Israel (Jacob), saying that if it had not been for their delay, they would have not only been able to return once, but also make another trip and return a second time. Similarly, Josephus informs his audience in example (B.2) that Herod experienced a particular event twice. He was accused as a traitor before Caesar on two distinct and separate occasions.

On the converse, because the Greek imperfective aspect is unbounded in nature, it cannot be treated as a single totality in its interaction with clausal syntax. As a result, when count adverbs are used with an imperfective verb, we do not find cardinal count semantics, but rather frequency count semantics, as we see below in example (B.3) and example (B.4).

(B.3) δὶς ἑκάστης ἡμέρας τοῦτο ποιεῖ
ˈdis eˈkaste-s eˈmera-s ˈtut-o **py-ˈe**
two each-**GEN.SG** day-**GEN.SG** this-ACC.SG do.**IMPFV-NPST.3SG**
He does this [i.e. offer sacrifice] twice each day (Josephus, *Antiquities* 3.256).

(B.4) νηστεύω δὶς τοῦ σαββάτου
neˈtev-o ˈdis tu=sabˈbat-u
fast.IMPFV-NPST.1SG two the=seventh.day-GEN.SG
I **fast twice a week** (literally: twice per seventh day') (Luke 18:12).

In these two examples, we also find the same count adverbs, ˈ*dis* 'two', as the perfective examples above. However, in these cases, the adverb only correlates with imperfective aspect when it appears within a larger phrase denoting frequency. In example (B.3) that phrase is ˈ*dis eˈkastes eˈmeras* 'two each day', and in example (B.4) it is ˈ*dis tu=sabˈbat-u* 'twice a week'. These

clauses with imperfective verbs and count adverb specify the frequency that an ongoing event takes places. This basic distinction drives all usage of perfective and imperfective aspects both at the level of the clause as well as the larger discourse. This results in a variety of contexts where more specific interpretations than merely bounded or unbounded are available. The imperfective subsumes such usages as habitual, iterative, progressive, and so forth.[325]

The perfect aspect stands in opposition to both the perfective and imperfective aspects. Semantically, it is either resultative or completive in meaning, depending on the predicate involved. Perfects that lean more toward the completive usage generally contrast more with the perfective aspect. The difference between perfectives and completive perfects is somewhat subtle and was likely part of the disappearance of the synthetic (i.e. non-periphrastic) perfect from the Greek verbal system during the Byzantine era (post-300 CE). The difference may be stated in this way. The perfective aspect is bounded in nature, but it is not inherently telic. Conversely, the perfect aspect is both bounded and telic. The difference between telicity and boundedness is grounded in their entailments. Consider the two pairs of clauses in example (B.5) below.

(B.5) a. John was walking in the park ENTAILS John walked in the park.
b. John was walking to the park DOES NOT ENTAIL John walked to the park.

The imperfective verb in entence (B.5a) entails the perfective verb. The fact that John was walking (progressive aspect) in the park also means that he walked (perfective aspect) in the park. The past event conveyed by the perfective verb is bounded, but despite its perfective aspect, it cannot be treated as telic. As such, in (B.5b) the progressive clause cannot entail the perfective clause. John may have been walking to the park, but without additional information we have no way of knowing whether he arrived. In Greek the situation is similar. Greek

[325] See especially, Rijksbaron (2007).

imperfective verbs have the same properties of entailment as the English ones above in relationship to the perfective aspect. Below, the imperfective clause in example (B.6a) entails the perfective in example (B.6b).[326]

(B.6) a. δόξα θεοῦ Ισραηλ **ἤρχετο** κατὰ τὴν ὁδὸν
ˈdoks-a tʰe-ˈu Israel **ˈe-rxe-to** kaˈta ten=o ˈdo-n
glory-NOM.SG god-GEN.SG Israel **PST-go.IMPFV-PST.3SG** along the=road-ACC.SG
The glory of the God of Israel **was coming** along the road (Ezekiel 43:2).

b. δόξα θεοῦ Ισραηλ **ἦλθεν** κατὰ τὴν ὁδὸν
ˈdoks-a tʰe-ˈu Israel **ˈe-elt^{h}e-n** kaˈta ten=o ˈdo-n
glory-NOM.SG god-GEN.SG Israel **PST-go.PERFV-PST.3SG** along the=road-ACC.SG
The glory of the God of Israel **came** along the road.

c. ??δόξα θεοῦ Ισραηλ **ἐλήλυθεν** κατὰ τὴν ὁδὸν
ˈdoks-a tʰe-ˈu Israel **el-ˈelyt^{h}e-n** kaˈta ten=o ˈdo-n
glory-NOM.SG god-GEN.SG Israel **PERF-go.PERF-3SG** along the=road-ACC.SG
??The glory of the God of Israel **arrived** from along the road.

The situation is more complicated for the last clause with the perfect aspect verb example (B.6c). At best, this perfect (*elˈelytʰen* [ἐλήλυθεν], 'he/she/it has come/has gone') could be understood as providing its own inherent endpoint. In that case, the meaning of the clause would be something along the lines of the the translation. However, it is also quite possible (probable?) that the kind of usage presented here is simply ungrammatical. Nowhere in our corpus do we find an instance of this particular verb used with the perfect aspect in conjunction with a prepositoinal phrase that denotes a path unless there is also a second prepositional phrase included denoting a goal.

We see the same lack of entailment from example (B.5b) in English also below in example (B.7) from Greek.

[326] Note that the verb in question has separate roots for both the imperfective (*erx) and perfective (*eltʰ) aspects. The perfect form of this verb is based on the perfective root. While the sentences in (B.6b-c) are contrived for the purpose of illustration, the distinction is nevertheless accurate. Clauses comparable to example (B.6b) could be provided, as in Numbers 21:1: **ἦλθεν (ˈeltʰe-n, go.PERFV-3SG)** γὰρ Ισραηλ ὁδὸν Αθαριν 'For Israel **came** by way of Atharin'. The situation is the same in Matt 15:29: ὁ Ἰησοῦς **ἦλθεν (ˈeltʰe-n, go.PERFV-3SG)** παρὰ τὴν θάλασσαν τῆς Γαλιλαίας, 'Jesus **went** along the sea of Galilee'.

(B.7) a. **ἤρχοντο** εἰς τὸ μνημεῖον
ˈe-erxo-nto es=to=mneme-on
PST-go.IMPFV-PST.3PL to=the=tomb-ACC.SG
They **were going** to the tomb (John 20:3).

b. **ἦλθον** εἰς τὸ μνημεῖον[327]
ˈe-eltʰo-n es=to=mneme-on
PST-go.PERFV-PST.3PL to=the=tomb-ACC.SG
They **went** to the tomb.

c. **ἐληλύθασιν** εἰς τὸ μνημεῖον[328]
el-ˈelytʰ-asin es=to=mneme-on
PERF-go.PERF-3PL to=the=tomb-ACC.SG
They **have gone** to the tomb / They **have arrived** at the tomb.

Like the English examples in (B.5), neither the perfective aspect (B.7b) nor the perfect aspect (B.7c) can be viewed as entailed by the clause with the imperfective verb in example (B.7a). There is nothing inherent in example (B.7a) that implies that they ever arrived at their goal at the tomb, whereas this is the only interpretation available for examples (B.7b-c). In summary, then, we can see from this contrast between example (B.6) and example (B.7) that the essential difference between the perfective aspect and the perfect aspect in Greek is grounded in how they interact with telicity and boundedness. The perfective aspect is inherently bounded, but it is not inherently telic. The perfect, on the other hand, requires a telic interpretation by definition. The perfective aspect does not.[329]

Perfects that are more resultative-like in their usage, particularly those in the middle voice, demonstrate a comparable subtle contrast with the imperfective aspect. Perfects with

[327] Like above, this clause is contrived; however, there are numerous comparable instances of a perfective verb with a prepositional phrase denoting an endpoint. For example, Matt 21:1 has the same structure: ἦλθον (ˈeltʰo-n, go.PERFV-3PL) εἰς Βηθφαγὴ εἰς τὸ Ὄρος τῶν Ἐλαιῶν, ‘they came to Bethpage at the Mount of Olives’.

[328] A comparable example of the perfect can be found in John 3:19: τὸ φῶς ἐλήλυθεν (el-ˈelytʰ-asin, PERF-go.PERF-3PL) εἰς τὸν κόσμον, ‘the light has come into the world’.

[329] For more discussion of the difference between the perfective and perfect aspects, see chapter 4, section 4.2.3.1 on atelic predicates.

explicit (i.e. unambiguous) resultative semantics tend to fall into two classes: old perfects that have an alternation in lexical senses on the basis of aspect between a causative imperfective and a non-causative perfect, such as ˈ*istemi* (ἵστημι) ‘I cause to stand’, shown in example (B.8).[330]

(B.8) ˈ*istemi* (ἵστημι) ‘I cause to stand’ ←→ ˈ*esteka* (ἕστηκα) ‘I am standing’
[**do'** (x, ∅)] CAUSE [**stand'** (y)] **stand'** (y)

The other class involves those where the perfect active form has completive semantics, but the perfect middle form has resultative semantics. A good example of this involves the verb: ˈ*grafo* (γράφω) ‘I write’, shown in example (B.9).[331]

(B.9) a. ὁ βασιλεὺς Ἀγρίππας ἑξηκονταδύο **γέγραφεν** ἐπιστολὰς
o=basiˈlef-s AˈgrippaNOM.SG-s eksekontaˈdyo **ˈge-grafe-n** epistoˈlaACC.PL-s
the=kingNOM.SG-NOM.SG AgrippaNOM.SG-NOM.SG sixty-two **PERF-write-3SG** letter-ACC.PL-s
King Agrippa **wrote** sixty-two letters (Josephus, *Life* 364).
b. ἐν τοῖς Οὐεσπασιανοῦ ὑπομνήμασιν οὕτω **γέγραπται**
en=tys=Uespasiaˈn-u ypoˈmnema-sin ˈuto **ˈge-grap-te**
in=the=Vespasian-GEN.SG commentary-DAT.PL so **PERF-write-MID.3SG**
It is so **written** in the Commentaries of Vespasian, “…” (Josephus, *Life* 342).

The middle form in example (B.9b) simply presents the resultant state of the completed active achievement. Thus, whereas an active transitive perfect conveys that someone has written something specific,[332] the middle conveys intransitively that something specific exists as written. As such, perfect middles like the one above in example (B.9b) are regularly used in information structure contexts that are presentational. In this particular example, Josephus is presenting the content of Vespasian’s commentaries as evidence of the historical events he is describing.

[330] See chapter four, section 4.2.3.3 for more discussion of this class of verbs.

[331] Normally, I have not been glossing voice, whether middle or active for reasons of space. I do so here, however, as well as in the following examples and the section on voice below.

[332] I explicitly say, “specific,” because the transitive clause must be telic. In this case, *to write* must be an active achievement rather than simply an activity. See chapter four, sections 4.2.3.1-2.

This resultant state/presentational usage of perfect middles is helpful in recognizing how resultant perfects differ from the imperfective aspect. It also demonstrates that the Greek perfect, contrary to some (Campbell 2007, T. V. Evans 2001), cannot be construed as being merely an additional imperfective aspect. Consider the perfect middle sentence from example (B.9b) repeated below with a contrastive imperfective middle below in example (B.10).

(B.10) a. ἐν τοῖς Οὐεσπασιανοῦ ὑπομνήμασιν οὕτω **γέγραπται**
en = tys = Uespasia'n-u ypo'mnema-sin 'uto **'ge-grap-te**
in=the= Vespasian-GEN.SG commentary-DAT.PL so **PERF-write-.MID.NPST.3SG**
It is so **written** in the Commentaries of Vespasian, "…" (Josephus, *Life* 342).

b. διαθῆκαι ἐπ᾽ ὠφελείᾳ **γράφονται** τῶν δωρεᾶς ἀξίων
dia't^{h}ek-e ep = op^{h}e'le-a **'grap^{h}o-nte**
covenants-NOM.PL for=advantage-DAT.SG **write.IMPFV-MID.NPST.3PL**
ton = dore'a-s a'ksi-on
the=gift-GEN.PL worthy-GEN.PL
Covenants **are written** for the benefit of those worthy of the gift (Philo, *Names* 52).

Note first, that the perfect in (B.10a) refers to a state that arose from a specific completed event. Vespasian's commentaries exist as written works. This can be contrasted with the example of the imperfective verb, '*grap^{h}onte* (γράφονται), 'are being written', from Philo. The imperfective verb in example (B.10b) presents a state-of-affairs in process: the iterative or habitual writing of covenants in general—the change of state that produces a covenant—rather than a specific convent that simply exists as written. The imperfective cannot be used to refer to the sort of achieved or resultant state that the perfect middle does. In the case of the verb '*grafo* (γράφω) 'I write', the perfect middle refers to a stative situation that is the result of a dynamic event. We could paraphrase it as, "it exists as written in the commentaries of Vespasian'. Conversely, the imperfective middle refers to the dynamic event itself and could be paraphrased as, 'Covenants undergo the process of being written'.

The Koine Greek verbal system has three aspects: perfective, imperfective, and perfect. The perfective aspect makes no reference to internal temporal structure and is contextually bounded in its interpretation. The imperfective refers to temporal internal structure that is incomplete. It is contextually unbounded. If it appears in a clause with a goal periphery, there is nothing to suggest the goal was achieved. Lastly the perfect aspect refers to internal temporal structure that is either completed (completive) or exists as achieved state (resultative). It is inherently telic and will either assign an endpoint to a situation or event or denote the resultant state of that situation or event. As such, the perfect is both telic and bounded.

B.2.4 Tense: Past & non-past

The basic tense distinction in Koine Greek exists between past and non-past tenses. Recall from section B.2.1 that only past tense is marked morphologically on the verb with a prefix *e-*, 'PAST'. This past tense prefix can appear in conjunction with all three aspects: perfective, imperfective, and perfect. Beyond that, semantically, tense in Greek is primarily deictic in nature in that it marks the temporal position of a proposition in reference to the speech event.[333] We examine this semantic contrast between past and non-past tenses in example (B.11) below with the verb *ˈkrino* (κρίνω), 'I judge'.

(B.11) a. τὴν τῶν χρημάτων κτῆσιν ὁ φαῦλος τελειότατον ἀγαθὸν **κρίνει**.

ten=ton=xre.ˈmat-on	ˈktesi-n	o=ˈpʰavlo-s
the=the=riches-GEN.PL	aquisition-ACC.SG	the =wicked-NOM.SG
teleˈotato-n	agaˈtʰo-n	**ˈkrin-e**
perfect-ACC.SG	good-ACC.SG	**judge.IMPFV-NPST.3SG**

The wicked person **judges** the aquisition of riches as being a perfect good (Philo, *Alleg. Interp*. II 17).

[333] I say, "primarily deictic," because the tense used in direct speech is non-deictic. Its reference point is not the speech event, but the tense of the matrix verb. There are also certain pragmatic contexts where a non-past imperfective is preferred in place of a past perfective verb. This usage is traditionally known as the 'historical present' (see, especially Runge 2011). However, the vast majority of apparent mismatches in tense usage arise from semantic differences in English and Greek aspect.

b. οἱ ἡγούμενοι αὐτῆς μετὰ δώρων **ἔκρινον**.
y=eˈgumen-yaufte-s meˈta ˈdor-on **ˈe-krin-on**
the=ruler-NOM.PL her-GEN.SG with gift-GEN.PL **PST-judge.IMPRFV-3PL**
Her [Israel] rulers **regularly judged** with gifts [i.e. took bribes] (Micah 3:11).

Here, we see two imperfective aspect verbs. In example (B.11a), we have the unmarked non-past imperfective form, ˈ*krinei* (κρίνει), 'he judges (gnomic or habitual)'. In this clause we have the non-past imperfective being used to refer to an event that is universally true. The non-past tense corresponds to the true value of the statement at the time of speech—only the non-past imperfective occurs with gnomic/universal meaning. The use of the past tense would constrain its interpretation to prevent such a usage. In example (B.11b), we see that the verb, ˈ*ekrinon* (ἔκρινον) 'they judge (habitually)', is marked with the past tense prefix *e-* referring to the ongoing and thus imperfective corruption that existed among the rulers of Israel at some point in the past in relation to the speech event.[334]

The situation between past and non-past tenses with the perfective aspect is slightly more complicated. Unlike English, where the simple present is used for habitual situations, as in *I eat broccoli regularly*, the Greek non-past imperfective fills that role already. As such, the perfective non-past effectively fills the role of a future tense in its usage, despite the fact that its tense morphology is no different from that of the imperfective non-past.[335] We see this in example (B.12) below. The past perfective verb in the first example sentence has past time reference, but the verb in the second example sentence, which is perfective in aspect, lacks the past tense prefix, *e-*.

[334] Contextually, this instance could also be interpreted as iterative. As an aspect, the imperfective is *undermarked* for habituality and iterativity.

[335] This situation is not unusual. Russian also has a perfective non-past for future time (Comrie 2009, 283).

(B.12) a. διὰ τῆς ὑπηρεσίας αὐτοῦ **ἔκρινεν** ὁ θεὸς Αἴγυπτον

di'a=tes=ypere'sia-s	af't-u	**'e-krin-(s)-en**[336]	o=t^{h}e'o-s
by=the=service-GEN.SG	he-GEN.SG	**PST-judge-PERFV-PST.3SG**	the=god-NOM.SG

'egypto-n
Egypt-ACC.SG
By his [Moses's] service, God judged Egypt (1 Clement 17.5).

b. ὁ κύριος ἀπροσωπολήμπτως **κρινεῖ** τὸν κόσμον

o='kyrio-s	aprosopo'lemptos	**kri'n-(s)-e**	ton='kosmo-n
the=lord-NOM.SG	impartially	**judge.PERFV-NPST.3SG**	the=world-ACC.SG

The Lord will impartially judge the world (Barnabas 4.12)

In addition to the lack of the past tense marker, note also that the non-past perfective shares agreement morphology with the non-past imperfective in example (B.11). Because of the nasal assimilation of the perfective suffix *-s* in (B.12b), there is no formal way to distinguish the non-past perfective *kri'ne* (κρινεῖ), 'he will judge', from the non-past imperfective *kri'ne* (κρινεῖ), 'he is judging/judges (regularly, iteratively, etc.)'. As such, the only way to distinguish between these two forms is the context. The context of Barnabas 4.12 is already future referring. This is a non-past perfective among other non-past perfectives. Likewise, the non-past imperfective from (B.11a) cannot be construed in its context as having future time reference.

In sum, Koine Greek has two formally distinct tenses: past and non-past. The former is realized by the prefix *e-*, 'PAST', in conjunction with a specific set of person number agreement endings. The non-past tense is realized solely in the agreement morphology. Future time reference is realized in Koine Greek through the combination of non-past together with the perfective aspect suffix. The past and non-past tenses are more constricted in their distribution than aspect and only occur in the indicative mood. The situation with the future time reference and its perfective origin is more complicated (cf. Sihler 1994). In Koine the future referring non-

[336] Note the morphophonological change here, where /n/ of the verb stem encounters the /s/ of the perfective suffix and the /s/ is assimated to the nasal. This is also the case in example (B.12b).

past perfective has limited distribution in other moods/modalities, as well as the non-finite participle and infinitive.[337]

B.3 Grammatical voice

Shibatani (2004, 1145) makes the observation about voice in terms of cross-linguistic analysis, "Voice, among morphological categories, is perhaps the most elusive." And on that front, the Greek voice system does not fail. Complex and polysemous in nature, Greek voice has no adequate position within the current Role and Reference Grammar framework.[338] Its analysis among grammarians of Ancient Greek has only recently begun to come into its own in terms of descriptive and theoretical adequacy (e.g. Allan 2003).[339]

B.3.1 Morphology

I do not survey all voice affixes. Even in the indicative there are a few dozen distinct morphemes, since voice is realized by the same morphological formatives as person and number and these are all conditioned by the tense or aspect used. Because of this we will only look at the 1SG forms of the active and the middle voices. These are presented below in Table20.

Tense and aspect	**Active 1SG**	**Middle 1SG**
Non-past (perfective & imperfective)	-o (-ω)	-ome (-ομαι)
Past imperfective	-on (-ον)	-omen (-όμην)
Past perfective	-a (-α)	-amen (-άμην)
Non-past perfect	-a (-α)	-me (-μαι)
Past perfect	-en (-ειν)	-men (-μην)

Table 20. *Active and Middle Voice Markers*

If it was not for the alternation between the /a/ in the past perfective and non-past perfect, the /o/

[337] More detailed discussions of both tense and aspect generally and the future in particular may be found in Rijksbaron (2007), Mussies (1971), and Fanning (1990).

[338] There has been extensive work done in RRG on active/middle voice systems (Cf. Van Valin and La Polla 1997). However, active/middle voice systems such as what we find in Greek have received very little attention.

[339] Allan's (2003) work is grounded in Kemmer's (1993) typological study of middle voice systems.

in the non-past forms, and the /e/ in the past perfect, the paradigm could be much simpler. Traditional grammatical descriptions have taken a pass on this issue, simply calling the /o/, /a/, and /e/ "connecting vowels," attribute no actual semantic content to them and proceed to disregard them entirely. The situation is more complicated than that because of a variety of historical issues.[340] As it stands, these vowels probably should not be connected back to the aspect suffix that appears before them since the perfective aspect does not consistently realize either an /o/ or an /a/ and the perfect alternates between the /a/ and the /e/.[341]

In addition to the forms above, the perfective aspect has a second set of morphemes for marking middle voice that involve more complicated morphological realization. This is provided with the normal perfective forms below in Table21. The most regular middle voice morphology is labeled: *1st perfective middle* and the other middle voice morphology is labeled: *2nd perfective middle*. As above in Table20, I only show the 1st singular agreement ending.

	-2 'TENSE'	**-1** 'ASPECT'	**Root/Stem**	**+1** 'ASPECT'	**+2** 'VOICE, PERSON, NUMBER, etc.'.
1st perfective middle	Ø 'NPST'	Ø	ly 'destroy'	-s 'PERFECTIVE'	-ome 'NPST.MID.IND.1SG'
	e- 'PST'				-amen 'PST.MID.IND.1SG'
2nd perfective middle	Ø 'NPST'			-t^hes 'PERFV.MID'	-ome 'NPST.MID.IND.1SG'
	e- 'PST'			-t^he 'PERFV.MID'	-n 'PST.MID.IND.1SG'

Table 21. *Middle Voice Morphology for the Perfective Aspect*

We see here that middle voice morphology may also appear as a portmanteau morpheme with aspect. In the case of the non-past perfective, the form *-t^he* simply merges with the normal

[340] In the Classical period when Ancient Greek had a more complex vowel system, mood/modality was marked by the lengthening of this vowel. This lengthening is still visible in the orthography, but no longer exists in the sound system (cf. Gignac 1976). In the Koine period, the vowel position appears to have chosen to associate itself with the subject agreement morphology as I have presented it above. Without access to actual phonological data from native speakers, it is unlikely that firm conclusions could be drawn. In Proto-Indo-European, the variation in vowel quality is attributed to now lost allomorphic variation (Randal Smith, p.c.).

[341] Despite many of the ambiguities here, confusion is generally not a problem since other affixes contribute to clarifying which form is intended.

perfective *-s* suffix to form the suffix *-t^hes* and then still takes its regular middle agreement suffix.[342] On the other hand, with the past perfective, the *-s* suffix is replaced entirely by the suffix *-t^he* 'PERFV.MID' and then it takes its own unique set of agreement suffixes: *-n* 'PST.MID.IND.1SG'. Traditionally the *-t^he* suffix is analyzed as a passive marker and traditional grammars talk of Greek as having three voices: active, middle, and passive. However, there is a growing consensus that this interpretation of the *-t^he* suffix is an English-centric one, influenced by the English voice system (Aubrey forthcoming, Allan 2003). Historically, the *-t^he* suffix was an intransitivizer rather than a passive marker in the earliest periods of the language and proto-language (Sihler 1995, 563-4, Chantraine 1961, 165-70). Moreover, its syntax and semantics have never been truly passive, as we shall see below in the following section.

B.3.2 Voice semantics[343]

The semantics of the Greek voice system are asymmetrical. The active voice is merely a default form. It contributes nothing semantically to a given predicate. The middle voice on the other hand constrains the interpretation of the clause as involving an affected relationship between the privileged syntactic argument and the verb.[344] This definition, however, is a generic schema. The

[342] The reason for the difference between the non-past and past perfective forms can be attributed to the fact that the non-past perfective's suffix *-s* did not originate as a perfective affix, but is derived from the Proto-Indo-European desiderative suffix (Sihler 1995, 556ff.), which was also formed with *-s*. Because there was a gap in the tense and aspect paradigm for a perfective non-past, over the course of the following thousand years or so, this suffix was then reanalyzed as the same perfective suffix *-s* that we see with the past perfective verb.

[343] This section could not have been written without the immense help of my wife and her expertise on the Greek voice system. Parts of it were also adapted from a lecture I gave on the typology of voice systems during the spring semester of 2013 at the Canada Institute of Linguistics.

[344] This semantic relationship between the verb and the PSA is a probable iconic motivation for voice morphology being realized together in the same morphemes as person and number.

functions of the middle that fall under its umbrella have the appearance of being fairly broad in nature. This is the result of translational mismatches between English and Greek. English marks a number of semantic distinctions that Greek treats as the same. This is quite clear in example (B.13) which follows below. The verb used in this example is an imperfective-base verb: *ˈlu-en* (λού-ειν), 'to wash [someone/something]-ACT.INF'. This verb would, in the middle voice, take the infinitive form: *ˈlu-estˆhe* (λού-εσθαι). However, in the middle, the verb is far more difficult to gloss. As an illustration consider the 3sg middle indicative form of the verb and its possible meanings in example (B.13) below.

(B.13) ταῖς καλάνδαις αἱ γυναῖκες ἐστεφανωμέναι μυρσίνῃ **λούονται**
tes=kaˈland-es e=gyˈneke-s estepʰano-ˈmen-e
the=first.day.of the month-DAT.PL the=woman-NOM.PL wear.as.a.crown-PART.MID-NOM.PL
myrˈsin-e **ˈlu-onte**
myrtle.wreath-DAT.SG **wash.IMPFV-IND.MID.3PL**
On the first day of the month with myrtle wreaths on their heads, the women ...
a. wash themselves (reflexive).
b. wash each other (reciprocal).
c. are spontaneously cleansed (spontaneous process).
d. are washed [by someone else] (passive).
(Plutarchus, *Numa* 19.2) [345]

As you can see, even for a single verb, we have several different options for interpreting the middle voice. Without a context we would not be able to choose between them. Indeed, even with access to the context, there are still some challenges.[346] In fact, while it is not allowed by

[345] Shibatani (2004, 1149) provides a similar example from Homer. However, since Homer was written nearly a millennium before the Koine period, I have adopted an example from Plutarch instead, who lived within a couple decades of the New Testament. Shibatani should be recognized as the source of this approach to presenting the challenge of the Greek middle voice and it semantics, though for his purposes, he is presenting the challenge of middle voice systems in general.

[346] In fact, an entire article entitled, "Did Paul baptize himself?" (Porter 2003) has a lengthy discussion of the interpretation of the *bapˈtizein* (βαπτίζειν, 'to wash ritually') in the middle voice and its theological significance.

this context, the middle form of this verb could even take another macro role argument, if that argument were a body part (e.g. '*wash your face*').[347]

All the functions of the Greek middle with example verbs are provided in Table22 below. The set of categories here are derived from Kemmer (1993), along side various lexemes that have middle voice forms representative for the category.

Middle type	**Lexeme**
Spontaneous process	*afˈksanome* (αὐξάνομαι) 'grow (intr.)'
Cognition	*eˈsxynome* (αἰσχύνομαι) 'be ashamed'
Emotion	*ˈdexome* (δέχομαι) 'receive [something]'
Passive middle	*ˈkrinome* (κρίνομαι) 'be judged [by someone]'
Change in body posture	*kaˈtʰizome* (καθίζομαι) 'take one's seat, sit'
Non-translational motion	*ˈstrepʰome* (στρέφομαι) 'stretch'
Translational motion	*ˈerxome* (ἔρχομαι) 'go/come'
Grooming	*ˈennyme* (ἔννυμαι) 'get dressed'
Reciprocal	*agoˈnizome* (ἀγωνίζομαι) 'fight [someone]'
Speech act middle	*keˈlevome* (κελεύομαι) 'command [someone]'
Indirect middle	*oˈneome* (ὀνέομαι) 'buy [something]'
Direct middle	*ˈtyptome* (τύπτomai) 'beat oneself'

Table 22. *Kemmer's (1993) Middle types as realized in Koine Greek*

Many of these functions are contrained by the lexical semantics of a given verb. Cognitive middles and speech act middles do not appear with verbs of motion or grooming, for example. However, a verb of grooming, can has a passive even reciprocal function, as in example (B.13).

At this point, it is necessary to return to the question of middle voice and the perfective aspect, where there are the two distinct middle voice forms available—often even for the same lexeme—one taking the normal *-s* perfective suffix followed by the middle voice agreement suffixes (e.g. *eˈlysamen*, [ἐλύσαμην] 'we destroyed') versus the perfective middle that takes the

[347] Cf. Matt 6:17, which uses a different verb of washing, though still in the middle voice.

form *-tʰe* (e.g. *eˈlytʰen*, [ἐλύθην] ‘we destroyed’). We noted above, that traditional grammar has held that the former is used to mark middle functions, while the latter is used to mark the passive. But this does not fit with the language data. If anything, the distribution is the exact opposite. According to Allan (2003), in Classical Greek the *-tʰe* suffix is used for all middle functions except for reciprocal middles, direct middles, indirect middles and grooming verbs. By the Koine period, that distribution had extended to all middle. Consider examples in (B.14-15) below.

(B.14) Direct Middle
ἐκολλήθη ἑνὶ τῶν πολιτῶν τῆς χώρας ἐκείνης
e-kolˈle-tʰe eˈni ton=poliˈt-on tes=ˈxora-s eˈkene-s
PST-attach-PERFV.MID.3SG onethe=citizen-GEN.PL the=country-GEN.SG that-GEN.SG
He attached himself [i.e. hired himself out] to one of the citizens of that country (Luke 15:15).

(B.15) Indirect Middle
κρίθητι ἐναντίον αὐτοῦ
ˈkri-tʰe-ti enanˈtion afˈt-u
judge-PERFV.MID-IMP.2SG before 3-MASC.GEN.SG
Can you judge for yourself before him [i.e. God] (LXX Job 35:14)?

The direct and the indirect middle functions are the ones that have the least in common with the passive function. Yet here we have the *-tʰe* perfective middle suffix appearing in both of them.

The middle in (B.14) implies an additional object argument (the traditional *direct* object). If this verb were active, that argument would be visible. In the context of example (B.15), we have one of Job’s friends, Elihu, rebuking Job. Elihu views Job as presumptuous and questions Job’s claim of blamelessness: Can you judge for yourself before God? The answer to this rhetorical question is, of course, “No.” This function of the middle is called “indirect” because argument implied by the middle voice would be in the Greek equivalent to the traditional indirect object.[348]

[348] It might be more accurate to call these ‘dative-like’ middles instead since the dative case fills the role that the traditional indirect object does in English. ‘Direct’ and ‘indirect’ are the standard terms in the literature.

Conversely, the perfective middle marker that patterns more with the regular paradigm (i.e. the perfective *-s* suffix and the standard middle agreement suffix *-ome*) has the more limited distribution. Allan (2003) claims that it cannot be used grammatically with passive meaning (*the door was closed by John*) or spontaneous process meaning (e.g. *the door closed*). As a negative claim, this is difficult to confirm for a language that only exists in written form. Nevertheless, Aubrey (forthcoming) argues this is also the case for the Hellenistic and Roman Koine periods.

The Greek voice system, then, as a whole, has two alternating types. The active voice is the default and marks no semantic relationship between the PSA and the predicate. The middle voice is marked for the semantic feature of subject-affectedness. It cannot be construed as merely passive or as some kind of anti-causative or general intransitivizer, though it does function in both those manner for many lexemes.

B.4 The Greek Moods: Modality and Status

The example data in this thesis has been almost entirely drawn from verbs in the indicative mood in order to maintain a degree of consistency in the data and focus in specifically on the question of tense and aspect. For that reason, I refrain from providing much more than a brief summary of the morphology and semantics of modality and illocutionary force in Koine Greek. Traditionally called "moods," most of these morphological forms express some form of modality in their semantics. They are realized as portmanteau morphemes together with person and number agreement endings. Like with the voice agreement suffixes above, I only provide the 1SG form, except for the imperative where the 2SG is used instead. Aspect morphology appears in the non-indicative moods, though tense does not. This is show in Table 23 below.

Tense and aspect		**Active 1SG**	**Middle 1SG**
Imperfective	Subjunctive	-o (-ω)	-ome (-ωμαι)
	Optative	-ymi (-οιμι)	-ʿymen (-οίμην)
	Imperative	-e (-ε)	-est^{h}e (-εσθε)
Perfective	Subjunctive	-o (-ω)	-ome (-ωμαι)
	Optative	-emi (-αιμι)	-ʿemen (-αίμην)
	Imperative	-on (-ον)	-e (-αι)
Perfect	Subjunctive	*non-existent*	*non-existent*
	Optative	*not extant*	*not extant*
	Imperative	-e (-ε)	-so (-σο)

Table 23. *Mood agreement morphology*

One thing of note here is that because there is no tense in the non-indicative moods, there is less divergence between the imperfective and perfective aspects in the agreement morphology. The subjunctive mood is essentially identical between these two aspects. Similarly, the difference between the imperfective and perfective aspects is quite minimal for the optative as well. It is only in the imperative that we find aspect influencing the form of the agreement suffix.

Secondly, we must comment on the state of the perfect aspect in the non-indicative. In the subjunctive, it is listed as non-existent. This is because the perfect subjunctive is not realized by means of inflectional morphology. Rather when a speaker desires to use both the perfect aspect and subjunctive mood, they will use a subjunctive auxiliary verb together with a perfect participle form.[349] Finally, the perfect optative does exist, but it is not extant in my corpus. Its existence is clear in earlier eras of the language, but whether it existed in the Hellenistic and Early Roman periods is an open question.

In terms of semantics of these moods, I make only brief comments. The unmarked, non-modal "mood" is the indicative which has been used for the bulk of examples in this thesis. The indicative makes no claims about either realis or irrealis one way or the other. The subjunctive mood conveys primarily status (epistemic modality), though it occasionally seems to incline

[349] See below in section B.5 for participles.

itself toward deontic meaning as well depending on the context. The optative mood is purely epistemic in nature. It functions as a more remote version of the subjunctive.[350] It had already nearly completely disappeared from the Greek language by the first century CE. The imperative mood is a deontic modality in nature (Fantin 2010, 74), expressing obligation and necessity. It functions more than merely to give commands, but also for making exhortations and petitions.

Lastly, that the Greek imperative mood takes both 2nd person and 3rd person subjects deserves comment. Both persons in the imperative involve deontic modality. Whereas 2nd person imperatives refer to the obligations of that interlocutor, the 3rd person imperative is used to refer to the obligations of a non-interlocutor participant.[351] The 3rd person imperative in example (B.16) is used by the speaker to convey the obligations of a third party to his audience.

(B.16) σοῦ δὲ ποιοῦντος ἐλεημοσύνην μὴ **γνώτω** ἡ ἀριστερά σου τί ποιεῖ ἡ δεξιά σου
su=de py'-unt-os eleemo'sune-n 'me **'gno-to**
2SG.GEN=but do.IMPFV-ACT.PART-GEN.SG charity-ACC.SG NEG **know.PERFV-IMP.ACT.3SG**
e=ariste'r-a=su 'ti py'-e e=de'ksj-a=su
the=left-NOM.SG=2SG.GEN what do.IMPFV-ACT.3SG the=right-NOM.SG=2SG.GEN
When practicing charity, **do** not **allow** your left hand **to know** what your right hand is doing.
OR
When practicing charity, your left hand **must** not **know** what your right hand is doing. (Matthew 6:3).

Here, Jesus is speaking to his audience about the obligations their hands (3rd person) in the context of charitably giving in order to make the point that charity is something that should be done discreetly with humility. There is often a degree of pragmatic implicature, where the speaker implies some degree of responsibility to the audience (2nd person) for the obligations of

[350] This is, if a given subjunctive in a text was used to refer to a situation as probable, the use of the optative in that same context would convey that it was merely probable. In turn, the negation of the optative is often used to convey that something is absolutely certain. Paul uses it to great effect in his letter to the Romans. For example in Romans 11:1, he writes: *I say, then, has God rejected his people?* **Absolutely not!** (*'me 'gen-yto* [μὴ γένοιτο] NEG become.PERFV-OPT.MID.3SG).

[351] For the distinction between interlocutors and non-interlocutors, see Bhat (2004).

the third party. This is the motivation between the two possible renderings of the 3rd person imperative into English in the example sentence above. The best contemporary discussion of the Greek imperative is Fantin (2010). Recent linguistically informed discussions of other moods are rarer; Willmott (2008) on Homeric Greek is excellent, as is Lightfoot (1975) on Classical Greek.

B.5 Non-finite verb-forms

Like the non-indicative moods, the Greek infinitive and participle forms are inflected for aspect, but not tense. While both may allow a verb to function as an argument or an adjunct, infinitives tend to more prototypically be arguments and participles tend to more prototypically be modifiers. The primary function of the infinitive is as a complement to verbs of cognition, perception, and speech. The infinitive suffixes are provided below in Table 24.

Tense and aspect	**Active 1SG**	**Middle 1SG**
Imperfective	-en (-ειν)	-est^{h}e (-εσθαι)
Perfective	-e/en (-αι/-ειν)	-ast^{h}e/-est^{h}e (-ασθαι/-εσθαι)
Perfect	-ne (-ναι)	-st^{h}e (-σθαι)

Table 24. *Infinitives*

There are two variants of the perfective infinitive. The first is the normal perfective infinitive form, common for the vast majority of Greek verbs of the imperfective-base verb class. The second form functions as the infinitive ending for the perfective-base verb class. Note that this perfective-base infinitive suffix *-en* (-ειν) is identical to the imperfective infinitive suffix. There is also some pressure to regularize the perfective infinitive across both inflectional classes. In traditional grammars when this regularization appears in texts and the *-en* (-ειν) suffix is used with perfective verbs of the imperfective-base verb class, it is referred to as a future infinitive.[352]

[352] The future infinitive had actually been a common form in earlier eras of the language. Because of the complex situation of the development of the non-past perfective indicative into a true future tense in Classical Greek, this form began developing its own paradigm with a future infinitive, future participle, and even the rare

The best reference for the syntax and semantics of the Greek infinitive is (Stork 1982). Quite unfortunately, he only covers Classical Greek and not the Koine.

The paradigm for the participle is also marked for aspect and voice in terms of its verbal semantics. It also is marked for case, gender, and number agreement for cross-referencing with another noun. Participles prototypically function as adjectives to nouns, in which case their agreement morphology aligns with the head noun of the NP. When they function as adjuncts at the clause level, the agreement morphology provides a cross-reference between an event or situation and a particular participant.[353] In Table 25 below, I provide the nominative, masculine, singular form for each of the aspects and voices.

Tense and aspect		**Participle**
Imperfective	Active	ˈly-on (λύ-ων) destroy.IMPFV-ACT.NOM.MASC.SG
	Middle	lyˈ-omen-os (λυ-όμεν-ος) destroy.IMPFV-MID-NOM.MASC.SG
Perfective	Active	ˈly-s-as (λύ-σ-ας) destroy-PERFV-ACT.NOM.MASC.SG
	Middle	ly-s-ˈamen-os (λυ-σ-άμεν-ος) destroy-PERFV-MID-NOM.MASC.SG
Perfect	Active	le-ly-ˈk-os (λε-λυ-κ-ώς) PERF-destroy-PERF-ACT.NOM.MASC.SG
	Middle	le-ly-ˈmen-os (λε-λυ-μέν-ος) PERF-destroy-PERF.MID-NOM.MASC.SG

Table 25. *Participle morphology: Nominative, masculine, singular*

future subjunctive and future perfect. However, following the beginning of the Hellenistic period initiated by Alexander the Great, the simplifying process of koineization brought the future's development to an end and it returned to merely being a non-past perfective. By the time of the 1st century CE, its previous non-indicative forms were little more than an alternative form for the standard perfective infinitive and participle. It is not clear how much future time reference, whether deictic or non-deictic, was still there (Moulton 1908, 204n2).

[353] Thus, for example, an adjunct (usually a periphery) participle with dative, masculine singular agreement would cross-reference with a participant elsewhere in the clause that is also marked as dative, masculine singular. When the participle is used without a cross-reference as a clausal adjunct, then it will appear in the genitive case. Traditionally this is referred to as the genitive absolute.

The final agreement suffixes for the participles are all derived from different adjective case-gender-number agreement paradigms.[354] For full paradigms and a large discussion of functions of the Greek participle, see especially (Mussies 1971, Robertson 1923). There are no contemporary descriptions of the syntax of the Ancient Greek participle for any era of the language. The observations about cross-referencing are my own.

B.6 Conclusion

While this survey of the Greek verb has been rather brief in nature, I hope that it at least provides a useful starting point for understanding the basic structure and function of the Greek verb during the Koine period. Because of the goals of this thesis, my focus in this survey has been primarily on tense and aspect in the indicative mood. Throughout, I have attempted to provide references to works that provide discussion of the points at hand. In the majority of cases, I have endeavored to refer to recent works that are reasonably up to date in terms of contemporary linguistics. Some might note that some contemporary works are conspiciously absent. This is a judgment on my part as to their practical and descriptive value. The majority of quality linguistic work on Ancient Greek is focused on either the Classical era or on larger diachornic issues. Christidis (2007) is an especially good survey of the entire history of the language. Lastly, older reference grammars, such as Curtius (1883) Moulton (1908), Robertson (1923), continue to be invaluable simply because of their intimate knowledge of the language resulting from decades of reading and research. Blass, Debrunner, and Funk (1961) is essential for its collection of data, though its language description is always terse and often unhelpful.

[354] There are actually seven adjective classes with distinct paradigms (Mussies 1971). Which paradigm is used varies on the basis of the aspect of the participle in question.

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