

On the Rise of Periphrasis in the Greek Perfect Medio-Passive:

A phonological trigger for syntactic change

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Abstract:

The phonology-syntax interface is a poorly understood area of linguistics, particularly the degree of influence that phonology may have on syntax. The development of periphrasis in the Greek perfect medio-passive seems to provide evidence that phonology may have an active role in initiating the process of change, and in regulating a synchronic alternation, without being a factor in the spread of that change. This paper will examine the evidence surrounding the development of perfect passive periphrasis in Greek, including the phonological environments that do and do not effect that change. I will also compare this data to some previous accounts of phonological effects on syntax, and discuss what effect this data will have on theory concerning the phonology-syntax interface.

1. Introduction

The aim of this paper is to discuss the development of periphrasis in the Greek perfect medio-passive. The earliest Greek texts had begun to develop periphrasis in perfect subjunctive and perfect optative constructions with alternation between morphological expressions of these verb forms. However, the perfect medio-passive remained entirely morphological, though there was some alternation between morphemes. Roughly two centuries later, the morphological alternations had disappeared, and been replaced by a syntactic alternation between a morphological form and a periphrastic form. I will show that this alternation between periphrasis and morphology was phonologically triggered, and occurred only where conditioned in this fashion. In time, the periphrasis spread throughout the paradigm, but the condition on the spread of periphrasis cannot be explained in phonological terms.

The rise of periphrasis in the Greek medio-passive is interesting because it allows us to shed some light on a debate that has been going on in the linguistic literature regarding the relationship of phonology and syntax in the grammar. Stein (1986) tried to argue that the rise of periphrastic *do* in Middle English was phonologically triggered because phonologically complex environments favoured the use of the periphrastic to avoid the marked consonant clusters generated by the non-periphrastic morphology. However, as Kroch (1989) pointed out, periphrastic *do* occurred in the entire paradigm, even where such clusters were not generated. Kroch argued against the phonological trigger in the case of periphrastic *do* in Middle English, in part because the form occurred in all contexts; but also because he also rejected Stein's claim that the phonology may have initiated the alternation, and that analogy then drove the change to completion. However, Kroch and Stein were both arguing from the standpoint of a change already in progress, attempting to reconstruct the factors that may have initiated it from the manner in which the change progressed. The Greek data that I will deal with in this paper shows that phonology may indeed initiate change in the syntax, but that conditions on the initiation of the change need not be responsible for its spread through the grammar.

1.1. Background

Greek texts go back more than a millennium before the Common Era, but the first texts that are of any real syntactic use are the texts from the seventh century before the Common Era. These texts are written in a dialect commonly known as Epic or Homeric. The principle example of this dialect is the poems said to be written by Homer. These poems, while probably composed around the eleventh century before the Common Era, were first put into print around the seventh century, and are similar in language to those texts known to be written at that time. These poems were designed to be recited aloud to an audience, and while the metaphors employed were tied to the oral poetic style, Golston (1995) argues that there are no syntactic structures in Homer that cannot be found in other Greek texts. It is for this reason that I have chosen the *Odyssey* to represent this earliest period.

After the Homeric period, there are three principle dialects of Greek: Ionic, closest to the Epic dialect; Attic, the dialect of Athens; and Doric, spoken in Sparta. All these dialects were mutually intelligible, but Ionic was considered the literary dialect of Greece. That is, until the Golden Age of Athens becomes the dominating influence on Greek culture, including the written word, beginning in the fifth century before the Common Era. Such giants as Plato and Sophocles broaden the influence of the Attic dialect, until Alexander the Great conquers half the known world and spreads Koine, an amalgam of all three dialects, throughout the Mediterranean at the end of the fourth century. Greek texts after this time all reflect the same literary Koine style well into the sixth century of the Common Era. The Late Koine texts reflect some of the changes taking place in the language, particularly the confusion between the perfect and the past, the marking of instrumental, and lexical changes. Deviations from this literary language occur, but are difficult to find. One such example, however, is the New Testament, written in the first century of the Common Era. It is not a text written particularly for the educated elite, but rather for the common Greek speaker of that day, and it deviates greatly from the literary language of the other texts from that period.

In the pages to follow, I will discuss the changes that took place between these forms of the language, and their relationship to the process of change I am attempting to follow. I will also show how these changes relate to the Modern Greek language, and the perfect passive system currently in use.

2. Homeric Greek

As I mentioned above, Homeric Greek is the dialect used in the earliest Greek texts of substantial length. For the discussion below, I have chosen the first twelve books of the *Odyssey*. These twelve books comprise one Loeb Library edition book, and half the epic. A large text is necessary because of the relative infrequency of perfect medio-passives. However, with a text of this length, perfect medio-passives abound compared with perfect subjunctives, for instance, and should be sufficient for our purposes here.

The perfect in Homeric Greek is formed with three possible markers of the perfect: reduplication, ablaut, and person/number endings. From these, two or three are generally used redundantly. Verb roots reduplicate in the perfect by taking the first consonant plus epsilon as a prefix. Verbs that begin with vowels, or some consonant clusters, add only the epsilon. Examples of reduplication are given in (1).

(1) Reduplication

Cε + CVC-

ε + VC-

ex. base: λοιπ- [loip-] 'leave', perfect is **λελοιπα** [leloipa]

base: αγ- [ag-] 'lead', perfect is **εαγμα** [eaɣmai] or **ηγμα** [e:ɣmai] with vowel coalescence

Ablaut only occurs in some verbs. When it does occur, it occurs more often in the perfect active, and not the perfect passive. Examples of ablaut are shown in (2). Ablaut in Greek takes three forms: present ablaut in ε, perfect ablaut in ο, and aorist ablaut in ∅. When perfect ablaut is not used in the passive, the present ablaut vowel is used instead.

(2) Ablaut

Root/Aorist: ex. λιπ- 'leave'

Present: add ε → **λειπ-**

Perfect: add ο → **λοιπ-**

ex. present: **λειπω** [leipo:] 'I leave'

aorist/past: **ελιπον** [elipon] 'I left'

perfect active: **λελοιπα** [leloipa] 'I have left';

perfect passive: **λελειμμα** [leleimmai] 'I have been left'

The person/number endings of the perfect are endings that are used in other tenses as well, but are modified slightly for use in the perfect. In other tenses in which these endings are used, they are attached to the verb stem with an intervening vowel. This may be epsilon or omicron in the present or future, but will be alpha in the aorist. In the perfect, these endings are attached directly to the verb stem without an intervening vowel. This allows them to maintain parallelism and minimize the morphology without losing their usefulness as perfect markers. In the passive, the endings are consonant initial, often creating consonant clusters. Examples are shown in (3).

(3) Perfect Passive Endings:

a. Perfect

'I' -μαι [-mai]

'we' -μεθα [-met^ha]

'you' -σαι [-sai]

'you' -σθε [-st^he]

'he' -ται [-tai]

'they' -νται [-ntai]

b. Pluperfect

'I'	-μην [-me:n]	'we'	-μεθα [-met ^h a]
'you'	-σο [-so]	'you'	-σθε [-st ^h e]
'he'	-το [-to]	'they'	-ντο [-nto]

ex. λελειμμαί [leleimmai] 'I have been left'; ελελειμμήν [eleleimme:n] 'I had been left'

Note in the example given the outcome of the verb λειπ- [leip-] 'leave' when the suffix -μαί [-mai] or -μην [-me:n] is added, assimilation takes place. The nasal feature is spread creating a geminate nasal. Nasal spreading also occurs with velar creating a nasal-nasal cluster. This is an unusual assimilatory behaviour in that it creates a violation of the root features of the stem-final consonant, making a [-son] consonant [+son].

In addition to the present perfect passive, I will also be considering the pluperfect passive in this discussion. The pluperfect forms similarly to the perfect with two differences: it adds an additional initial epsilon to mark it as past tense as shown in the example above; and it uses a different class of person and number endings as given in (3). These endings create identical phonological environments as the present perfect passive and thus behave similarly.

Both sets of person and number endings are capable of attaching to the root without difficulty or opacity if the root ends in a vowel. However, if the root ends in a consonant, certain forms create phonological opacity. In (4) I have given a paradigm of a vowel-final root verb and a consonant-final root verb. The singular forms and the first person plural form begin in a single consonant. When attached to a verb stem they produce consonant clusters and trigger assimilation, but do not create a sequence of unpronounceable consonants. The second plural form will delete the *s* and trigger assimilation, to resolve the sonority violation. This does not seem to create any pressure on the paradigm. However, the third plural form cannot delete the nasal, because this would create a form identical to the third person singular form. Instead, Homeric Greek allowed the nasal to alternate with a vowel between consonants. This is the expected historical outcome of syllabic nasals in Greek, so from a historical standpoint, this is quite regular.

From a phonological standpoint, these two morphemes can be reduced to one with the alternation of a single feature: the root feature consonantal. As we saw before with the stops alternating with a nasal in front of another nasal forcing a violation of the input root feature, these forms force a violation of a different root feature. The morphology, when brought together, generate an input form of /leleiptai/. While I will not go on at length about the phonological analysis of these alternation pattern, without syllabic nasals, this form is clearly unpronounceable. Three constraints are basically needed to account for this form in Optimality Theory. A constraint against syllabic nasals must be very high ranked. And if a constraint to preserve distinctions between singular is ranked above a faithfulness constraint to the consonantal feature, this would generate the alternation rather than deletion. We need not assume that there are two distinct morphemes independent of each other. However, this alternation, like the one with [±son] violations, is very marked phonologically, and it is not surprising that this would create phonological pressures on the speakers to reanalyze or to find another solution.

(4) Vowel-final vs. Consonant-final Verbs

- a. 'I have been loosed' λελυμαι [lelu:mai] 'we have been loosed' λελυμεθα [lelu:met^ha]
 'you have been loosed' λελυσαι [lelu:sai] 'you have been loosed' λελυσθε [lelu:st^he]
 'he has been loosed' λελυται [lelu:tai] **'they have been loosed'** **λελυνται [lelu:ntai]**
- b. 'I have been left' λελειμμαι [leleimmai] 'we have been left' λελειμμαεθα [leleimmet^ha]
 'you have been left' λελειψαι [leleipsai] 'you have been left' λελειφθε [leleip^ht^he]
 'he has been left' λελειπται [leleiptai] **'they have been left'** **λελειφαται [leleip^hatai]**

This alternation of a nasal with a vowel does create paradigmatic pressures. Grammars of the Homeric dialect describe a morphological reanalysis underway, replacing [-ntai] in the perfect with [-atai] throughout, even with vowel-final verb stems. This morphological alternation, while historically initiated by phonology is spreading by analogy with the overwhelming number of consonant-final verbs to the vowel-final verbs, and is shown in (5) below. The forms in (5a) and (5b) are expected, but the form used in (5c) is unexpected, with the [-atai] form used with a vowel-final verb stem. This pattern is repeated elsewhere in the texts. Consonant-final roots in Greek may only take the [-atai] form, while vowel-final verb stems generally take the [-ntai] form, but *may* take the [-atai] form. This morphological reanalysis is one way to avoid the phonological alternation described above.

(5) Third Person Plural Morphological Alternation

- a. ἡ μὲν μοι φίλα γυῖα λελυμένασιν ἔσονται.
 to:i moi p^hila gyia lelu:ntai
 the-dat to-me dear limb-pl.n. loosen-pf.-3pl.-pass.
 my dear limbs have been loosened (Odyssey 8:233)
- b. οἱ μὲν ἡμῖν θεῶν ὁσὶν εἰσοροῦντες δεῖδεκ^hαται μὴ τοῖσιν
 oi min r^ha t^heon o:s eisoroo:ntes deidek^hatai myt^hoisin
 who-pl. her-acc. and-so god-acc. as behold-pres.part. show-pf.mid.3pl. utterance-dat.pl.
 and who honor her with words, looking upon her as a goddess,... (Odyssey 7:71-2)
- c. Αἰθίοπας τοὶ δὶκ^hεῖς διδαίεται.
 ait^hiopas toi dik^ht^ha dedaiatai
 Ethiopians who into-two divide-3pl-pf-pass.
 The Ethiopians, who (as a people) were divided in two,... (Odyssey 1:23)

There was soon to be another player in this game of brinkmanship between the phonology and morphology of Greek: vowel coalescence. Vowel coalescence in Ancient Greek is a well-studied phenomenon. But this phenomenon, too, would have served to obliterate the distinction between the [-tai] form of the third person singular, and the [-atai] form when spread to verb roots that ended in vowels. This may have been one more reason to prevent the reanalysis from going to conclusion, as a similar reanalysis did in the perfect active. Some other solution to avoid the phonologically marked alternation and preserve the distinction between singular and plural had to be found.

2.1. Perfect Passive Participle in Homeric Greek

Of all the perfect medio-passive forms, the most common one is yet to be mentioned: the perfect passive participle. The morphology making up this form is given in (6). This form is ubiquitous at all stages of Greek literature. It is most commonly used in modifying phrases, as embedded sentence or as adjective or noun. Like the person/number suffixes, there is no intervening vowel between the root and the suffix, and so some consonant clusters are formed. These are the same consonant sequences that are generated with the first person suffixes.

(6) Perfect Passive Participle

Reduplication + perfect root + [-men-] + number/case marking

Some perfect participles have added idiomatic meanings that cause them to appear commonly as adjective-like entities. Perfect passive participles also participate in the periphrasis of the perfect subjunctive and perfect optative, which are formed with the subjunctive or optative form of 'be' and the perfect passive participle. These forms are extremely rare, and while some common verbs show morphological paradigms in this usage in Homer. However, unlike the periphrasis that occurs in the perfect subjunctive and optative, adjectival usage of the perfect passive participle with an indicative form of 'be' can only be interpreted as adjectival and not part of a verbal periphrastic construction. An example of this is given in (7). Notice how the meaning of the participle does not approach the idiomatic meaning of the sentence. If we take these kinds of sentences into account, there are no cases of periphrasis in the perfect medio-passive in the twelve books of Homer which I considered.

(7) Perfect Passive Participle As Adjective

...μάλα γὰρ πεπνυμένος ἴστί."

mala gar pepnymenos esti

very for breathe-ppp. is

For he is very wise indeed.

In (8) I have given a table of the occurring perfect medio-passive forms in the twelve books of Homer I looked at. The nine periphrastic forms belong to those perfect subjunctive and other such forms that already had periphrastic alternations and are not forms under consideration in this paper. Notice the high rate of perfect passive participles in this text, most of which do not participate in

periphrastic constructions of any kind. This is a common feature of Greek texts. This table will serve as a baseline for the changes to come.

(8) Perfect Medio-Passives in Homer

Homer	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	3	0	43	4	0	15	6	1	80	152	-
periphras.	0	0	0	0	0	0	0	0	-	0	9

2. Attic Greek

Attic Greek was the dialect spoken in Athens, and is perhaps the principal influence on the future development of Koine. The heyday of Attic Greek was from the fifth century before the Common Era to the end of the fourth. I will be looking at three authors from that period: Aristophanes, Plato and Aristotle. Aristophanes wrote comedies for the Greek theatre, and while in verse, are believed to be quite close to the language of the masses. Plato, born around the time Aristophanes' plays were first being performed, wrote dialogues in which Socrates teaches others his philosophies. Aristotle, a student of Plato and born early in the fourth century, wrote less discursive texts and may be the furthest from the everyday language. However, he was the teacher of Alexander the Great, and it is Alexander's Koine that is the successor of the various Greek dialects.

The perfect in Attic Greek has undergone certain changes from the perfect of the Homeric dialect. For one, there are more consonant-initial verbs that fail to undergo reduplication. The loss of the reduplicating morphology is progressing slowly, so it can still be used as a principle marker of the perfect for a significant percentage of verbs. There are also more verbs that may optionally use present ablaut in place of the perfect ablaut. The continuation of these changes will eventually lead to the confusion of the perfect with the aorist (or plain past) that is common of Late Koine. However, the significant change of interest to us is the consonant final verbs in the perfect passive.

Periphrasis begins in both the present perfect medio-passive and the pluperfect passive simultaneously, and the solution is the same. As shown in (9), the present perfect periphrastic is formed with a present form of 'be' plus the perfect passive participle, while the past perfect periphrasis is formed with the past form of 'be' plus the perfect passive participle. However, with vowel-final verb stems, the morphological ending in [-ntai] remains. Note that in Attic the third plural morphological cases are never in [-atai]. The morphological alternation in [-ntai] ~ [-atai], familiar from Homer, remains a feature of the Doric dialect only.

(9) Perfect Passive Conjugation in Attic Greek

- a. 'I have been loosed' λελυμαι [lelu:mai] 'we have been loosed' λελυμεθα [lelu:met^ha]
 'you have been loosed' λελυσαι [lelu:sai] 'you have been loosed' λελυσθε [lelu:st^he]
 'he has been loosed' λελυται [lelu:tai] **'they have been loosed'** **λελυνται [lelu:ntai]**
- b. 'I have been left' λελειμμαι [leleimmai] 'we have been left' λελειμμαεθα [leleimmet^ha]

'you have been left' λελειψαι [leleipsai] 'you have been left' λελειφθε [leleip^ht^he]
 'he has been left' λελειπται [leleiptai] **'they have been left'** λελειμμένοι εἰσι

[leleimmenoi eisi]

That's the textbook explanation, but how well does that fit with reality?

2.1. Aristophanes

The Aristophanes' texts used for this are three plays: *Clouds*, *Wasps* and *Peace*. These three plays together make up one Loeb Library edition book, and so are *approximately* equal in length to the twelve books of Homer discussed above. The table of data collected for these texts is given below. Unfortunately, there are only two examples of third person plural perfect passive periphrastics. However, among these, the lone consonant-final verb stem is periphrastic, the vowel-final one is not. This is suggestive, but hardly sufficient evidence to make my point.

(10) Perfect Medio-Passives in Aristophanes

Aristoph.	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	5	9	18	5	3	1	6	3	60	110	-
periphras.	0	0	0	0	0	1	0	0	-	1	1

Consider the high rate of perfect participles in these texts. While slightly lower than the Homeric texts, perfect participles are extremely frequent even in the common dialogue of a comedy. From this point forward, the number of perfect participles will not include the ones used in the periphrastic constructions under discussion.

2.2. Plato

The dialogues of Plato used for this study are the *Timaeus*, *Critias*, *Cleitophon* and *Menexenus*. In addition to these, I added thirteen letters included in the Loeb Library book containing the four dialogues. The table in (11) gives the numbers of perfect passive forms found. There are several features of note here. The first is the jump in the perfect passive participles. This is possibly a sign of the relative formality of the texts in contrast to Aristophanes with more complex sentence structures. Also note the increase in examples of the third person plural perfect passive.

(11) Perfect Medio-Passives in Plato

Plato	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	5	0	38	7	4	5	20	5	120	204	-
periphras.	0	0	1?	0	0	7	0	0	-	8	4

As with Aristophanes, the instances of perfect passive periphrastics are concentrated in the third person plural form. There are twelve examples altogether or third plural perfect passives, and of these all the vowel-final stems are morphological, and all the consonant-final stems are periphrastic. The table contains

only one form that does not participate in this phonologically conditioned alternation, and that is a questionable case. The sentence occurs in the letters of Plato and can be interpreted as being a periphrastic with a form of 'be' plus a perfect passive participle, however, it can also be interpreted as a kind of construction seen elsewhere with the participle phrase taking the place of the subject. This is unlike the third plural cases shown in (12), where the most natural interpretation must be the verbal one. This ambiguity is why I would tend to discount that sentence as a good example of periphrasis outside the phonologically conditioned environment. This leaves a clean alternation. It may be that there is just a very low percentage occurrence in the non-conditioned environments, an argument I am certain Kroch would make. Plato has a very large number of texts written in his lifetime, and this is something that could be checked with more extensive research.

(12) Periphrasis in Plato

a. $\forall \supseteq * \infty (<^{\text{TM}}: \forall 4 * , * \cong \Lambda 8 \text{T}: \Xi < \forall 4 \quad \square \text{B} \zeta < \theta \text{T} < \quad \square < 2 \Delta \phi \text{BT} < \infty \Phi \forall < \theta$
 hai de η no:mai dedulo:menai hapanto:n ant^hro:po:n e:san
 the but opinions enslave-pf.-part-fem.pl. meet-in-court-pres.part. men-gen. be-past-3.pl.
 but the opinions had been enslaved by professional jurors. (Menexenus 240 A:2-3)

b. $\forall \supseteq : \infty < \quad (\square \Delta \square 88 \forall 4 \text{B} \bar{8}, 4 \text{H} f 6 \quad \text{B} \forall < \theta \cong * \forall \text{B}^{\text{TM}} < 6 \forall 9 \forall \Phi 6, \Lambda \forall \Phi: \Xi < \forall 4$
 hai men gar allai poleis ek pantodapo:n kataskeuasmenai
 the on-the-one-hand for other cities out-of all-sorts-gen.pl. equip-pf.pass.part.fem.pl.
 $\square < 2 \Delta \phi \text{BT} < , \emptyset \Phi \Re \quad 6 \forall 4 \square < \text{T}: \zeta 8 \text{T} < , \dots$
 ant^hro:po:n eisi kai ano:malo:n
 men-gen.pl. are-3pl.pres. and irregular-gen.pl
 For on the one hand, the other cities have been equipped from men of all sorts and
 irregular ones,... (Menexenus 238 E 1-3)

c. $, \emptyset \Phi \Re < \quad \heartsuit 6 \zeta \Phi \theta \cong 4 \text{H} \quad \theta \cong \beta \theta \text{T} < \quad 8 (\cong 4 \quad \text{B} \forall \Delta, \Phi 6, \Lambda \forall \Phi: \Xi < \cong 4, \dots$
 eisin hekastois tuto:n logoi pareskeuasmenoi
 are-3pl. each-dat.pl. this-gen.pl. words-nom.pl. prepare-pf.pass.masc.pl.
 Speeches have been prepared for each of these men,... (Menexenus 235 D:1-2)

(13) Morphological Perfect Passive in Plato

...6∇ℝ <→< ♣94 ∇∅Φ2ZΦ,4H >Λ<ςB∇Φ∇4 6Ξ680<9∇4.

kai ny:n eti aist^he:seis ksynapasai kekle:ntai

and now still perception-pl. altogether lean-pf.pass.3-pl.

And even still, all our perceptions have depended (on it). (Timaeus 43 C:8-9)

2.3. Aristotle

Of all the texts considered so far, Aristotle is probably the least like everyday speech. The text I chose for this author was *On the Heavens*. While some of his early writing were in the form of dialogues like Plato, I was not able to find out which ones these were. More so even than previous authors, Aristotle used three verbs as perfect passive participles as technical terms such as 'finite', throughout the text both as adjectives modifying nouns, but also with forms of 'be' similar to the periphrastic constructions. However, as I had done with Homer, these technical or idiomatic meanings were eliminated from my count of instances of periphrasis. Eliminating these cases left very few cases indeed, but like the other author of this period, Aristotle conformed to the phonologically conditioned alternation. The data is given in (14).

(14) Perfect Medio-Passives in Aristotle

Aristotle	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	0	0	27	0	0	3	5	2	114	151	-
periphras.	0	0	0	0	0	1	0	0	-	1	8

Unlike the morphological variation of Homer, the texts that I have looked at in the Attic Period, particularly Plato, seem to show great consistency in the use of the two forms. Forms that can be constructed morphologically--vowel-final roots--do so, and those that cannot use periphrasis. I have also found evidence for morphological forms of the perfect passive in the rest of the paradigm, but there does not seem to be any periphrastic forms that correspond to these that are not of a questionable nature. A number of authors in the philological literature have observed and commented on the phonological conditioning for periphrasis at this stage.

3. Koine and New Testament Greek

Literary Greek because quite static with the rise of Koine and its spread across all of Alexander's empire. This conservatism makes it extremely difficult to chart the progress of the change in periphrastic usage. It can be noted, however, that Koine exhibits exactly the phonological conditioning shown in the Attic texts for the use of periphrasis. The data for four authors is given below. This seems like an interesting place to fossilize. Late texts do finally seem to have allowed some changes from the common language to creep in, particularly the confusion between the perfect and the aorist. Both of the two latest authors I studied produced forms with perfect reduplication but aorist person and number marking, revealing confusion even in the morphology. The confusion does not seem to extend, however, to the spread of the use of periphrasis in the literary works, except for the very occasional use of periphrasis in the third person plural with vowel-final verbs.

The four texts I looked at were Ptolemy, Select Papyri, Libanius and Procopius. Ptolemy's text was *Tetrabiblos*, a book on astrology, but comparable to Aristotle's style. Ptolemy's one third person plural periphrastic was a vowel-final verb. This is already the second century of the Common Era and one would expect that the literary language used was already vastly different after five centuries since Koine had been established. The Select Papyri are scraps of papyri from prior to the Common Era to about the second century of the Common Era. These texts contain wills, bills of sale, etc. from the hand of the everyday speaker of Greek. These texts, while more mundane, use morphological perfect passives everywhere the literary language dictates. Libanius' texts are his autobiography and his letters. Although these were written in the sixth century of the Common Era, the use of morphology versus periphrasis is still basically in the conservative literary style. The only deviation is one occurrence of what seems to be a periphrastic in the third person singular. The final author was Procopius, also of the sixth century of the Common Era. The text was a section of his Histories. I had hoped that these texts would contain a large number of perfects, larger than normal because of its subject matter. The greater the chance perhaps that more errors would be made. It did contain more perfects, and more perfect passives, but still it did not deviate from the literary alternation described before. The use of participles in some of these texts may represent ways of getting around the use of periphrasis in writing. The decline in number from a handful over a text of equivalent length to one in hundred of pages of text seems likely to be by design.

(15) Perfect Medio-Passives in Late Koine

Ptolemy	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	0	0	2	1	0	2	3	1	120	129	-
periphras.	0	0	0	0	0	1	0	0	-	1	4
Papyri	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	25	2	31	2	1	2	28	0	171	262	-
periphras.	0	0	0	0	0	1	0	0	-	1	3
Libanius	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	13	2	50	5	0	5	55	2	136	268	-
periphras.	0	0	1	0	0	0	0	0	-	1	2
Procopius	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	3	0	72	2	1	43	30	0	197	348	-
periphras.	0	0	0	0	0	1	0	0	-	1	1

4. The New Testament

There is one final test I wanted to consider, and that is the New Testament. For this study I considered the gospels of Matthew and Mark as a representative sample. Descriptions of New Testament Greek describe it quite differently than the literary language used in that period and long after. Written in the first century of the Common Era, it is believed to be quite close to the colloquial language. This is reflected in the data collected in the table in (16). The periphrasis is strongly present in the third person singular forms, in addition to counting for all the cases of the third plural. A lot has changed since the pre-Koine texts, though the difference between the Koine literary language and the common language appears to be approximately like modern speakers of English writing in Shakespeare's dialect. This is clear evidence that the period between the fourth century before the Common Era and the first century of the Common Era is the time period in which this change is taking place. The

morphological perfects that remain in these texts are entirely in the form of fixed expression like 'for it has been written that...!'

(16) Perfect Medio-Passives in the New Testament

NT	1sg	2sg	3sg	1pl	2pl	3pl	inf.	imp.	part.	total	other
morph.	0	0	25	0	0	0	2	0	43	70	-
periphras.	0	0	6	0	0	7	0	0	-	13	5

5. Modern Greek

The perfect passive in Modern Greek is the periphrastic construction that developed from this era. The modern perfect passive is formed with a form of 'be' and the perfect passive participle. Periphrasis has arisen in more tenses in Greek since then as well, with roughly the same distribution as English.

6. Discussion & Conclusion

In this paper I've tried to gather evidence to shed some light on the rise of periphrasis in the Greek perfect medio-passive. The evidence is spotty at best, and more work needs to be done to shed light on the details of the development of the original alternation, as well as accounting for its spread through the language. The data I have does show that the initial stage of the perfect passive periphrastic alternation in Greek is phonologically conditioned. This conditioning is not just a tendency apparently, but the only environment in which the alternation takes place in the early Attic texts. The interpretation of this alternation is open to further study. Does this represent phonology outranking syntax, which Golston (1995) insists is impossible? Or is this phonology interacting with morphology? What does this evidence say about the phonology-syntax interface? What is clear is that whether this is secondhand through morphology or directly, phonology can have a synchronic influence on a syntactic alternation that is limited to only one context. This is contrary to Kroch (1989).

To further this study, more work needs to be done on the texts leading up to the New Testament. A look at other texts of Plato might be useful. A larger sample set might catch the low percentage alternations that Kroch expects to find there. Other comedic playwrights like Aristophanes' successors, as well as the early dialogues of Aristotle might reflect the common speech we need to see progression in the periphrastic perfect passives. Some more research will be needed to find texts between the start of the third century before the Common Era and the writing of the New Testament. It is likely--at least possible--that the spread of periphrasis is distinct from the initial trigger of the alternation. Phonological properties should not have contributed further to the development of periphrasis in Greek because the perfect passive participle did not eliminate nor simplify the consonant clusters in the perfect passive. How long did the alternation remain relatively stable? If not phonological factors, then what did cause the alternation to spread? Contact with Latin? Other periphrastic paradigms already in Greek? Loss of the semantic distinction between perfect and past? More work needs done.

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