# THE PERFECT IN HOMERIC GREEK: A FUNCTIONAL ACCOUNT

**HOWARD JONES, OLIVER JONES, AND MORGAN MACLEOD**

**howard.jones@keble.ox.ac.uk**

## Abstract

The function of almost all perfects in Homer can be inferred from the function of the present/aorist of the same verb according to a model which combines time reference, Aktionsart, and thematic roles. This makes it possible to explain why some perfects are resultative (e.g. ὄλωλε 'it is destroyed') and some are not (e.g. τέτριγε 'it squeaks') and why some active perfects have a different argument structure from that found elsewhere in the active (e.g. perfect ὄλωλε 'is destroyed' vs present ὄλλυμι 'I destroy'). The exceptions to this pattern are few enough for language learners to have been able to acquire the function of the perfect as a rule. We hypothesize a pre-Homeric stage at which the perfect predicated the present state of the subject but was voice-neutral. The Homeric data can be explained as arising from this earlier stage with minimal reanalysis.

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## 1. Introduction

Previous accounts of the Homeric perfect have spanned the synchronic and the diachronic, the functional and the morphological, sometimes all at once. The first aim of this paper is a narrower one, to provide as unified an account as possible of the perfect in Homer from a synchronic, functional perspective. In other words, we try to fit as many Homeric perfects as possible into a model of their semantic function. We find that an overwhelming majority fit into such a model, suggesting that the function of the Homeric perfect was regular enough to be acquired by language learners, rather than being a collection of uses anachronistically co-occurring under the heading 'Homeric'. We then discuss the diachronic implications of our findings. If it was possible for the functions that we find in Homer to co-occur within a coherent synchronic system, this would lend support to diachronic analyses of the perfect which rely on a similar co-occurrence at earlier stages of the language for which there is no direct evidence. More precisely, we hypothesize that, at some pre-Homeric stage, the unified function of the perfect was to predicate the present state of the subject, but that this function had developed in a number of different identifiable ways which led to the data we find in Homer.

The account proposed here builds on previous studies in several respects. In particular, we follow Wackernagel (1904), Chantraine (1927), Berrettoni (1972), and Romagno (2005) in arguing that the function of the perfect is to predicate the state of the subject. Of those

accounts, ours is closest to those of Berrettoni and Romagno in that we make use of other tenses of the verb in analysing the meaning of the perfect and we (synchronically) derive the Aktionsart of the Homeric perfect from that of the rest of the verb's paradigm. Moreover, in line with Romagno, we relate the thematic roles in the subject/object of the perfect to those of the verb's other tenses. However, our account differs from previous work in distinguishing rigorously between the synchronic function of the Homeric perfect and the diachronic development of the Indo-European perfect.

We have tried to capture all Homeric perfects in our study, that is, the mediopassive as well as the active, the subjunctive and optative as well as the indicative, and infinitives and participles as well as finite forms.

### 1.1 Outline of our approach

In Sections 2.2–2.4 we set out a semantic model which we then test empirically in Section 3. In the present section we provide an informal outline of our approach, initially by showing how it addresses five problems which, together, have made a unified functional account of the Homeric perfect elusive.

The first of these problems is that some perfects in Homer are typically translated by the present (e.g. ἔολπα 'I expect', γέγωνε 'he shouts') and others, at least in English, by the present perfect (e.g. ἔοργε 'he has done', ὄπωπα 'I have seen'). Our approach is that perfects of the latter type predicate a result in the (speaker's) present of a past event, but that the nature of the present result is implicated (i.e. contextually determined) rather than made explicit, as schematized below.[1]

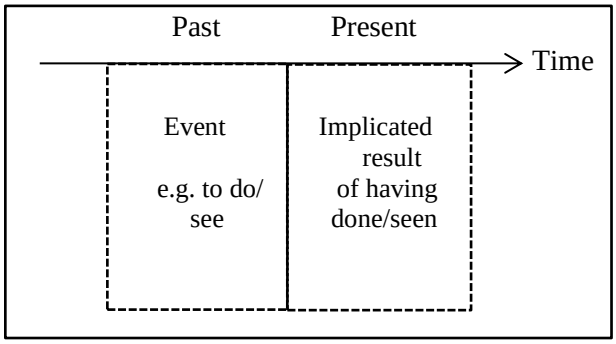


Figure 1: Event structure of perfects with implicated result

For example, in Il. 2.272 δὴ μυρί' Ὀδυσσεὺς ἐσθλὰ ἔοργε the past event is that of doing noble things and the implicated result at speech time might be Odysseus's prowess; and in Il. 2.799, οὔ πω τοιόνδε τοσόνδέ τε λαὸν ὄπωπα the event is that of seeing (or not) an army and the implicated result at speech time might be having the knowledge to assess the daunting challenge facing the Greeks. As English does not have a transitive tense form which captures this sense (along the lines of 'to be in a situation resulting from doing noble things/seeing an army'), the present perfect tends to be used to translate Homeric perfects such as these.[2]

[1] In some treatments of the Greek perfect, e.g. Wackernagel (1904), 'resultative' refers to the resultant state of the object, not of the subject; we use 'resultative' to refer to a resultant state and, where this is unclear, will specify whether this is the state of the subject or object. We will not use the terms 'nactostatic' or 'nactostative', which have been used to refer to the achieved state of the subject; see Willi (2018: 232–233).

[2] Our analysis of the Homeric perfect in such cases comes close to that of the 'perfect of result', one of the functions which has been ascribed to the English present perfect; see Comrie (1976: 52), Moens and Steedman

According to this approach, all Homeric perfects therefore have present time reference.[3] In some cases, such as ἔολπα and γέγωνε, the present situation is non-resultative, while in others, such as ἔοργε and ὄπωπα, it is resultative. We will test this analysis by examining the collocation of Homeric perfects with temporal adverbial expressions. Our hypothesis is that the Homeric perfect will occur with temporal adverbials which are interpretable in relation to the present, notably νῦν 'now', but not with adverbials which refer to a definite past time, notably ποτέ (in the positive-polarity sense 'once, at some time'; the negative-polarity sense 'ever' would be less restricted).[4]

The second problem is that some perfect actives can apparently be translated to refer either to a past situation (e.g. using the English present perfect) or to a present state, e.g. τέθνηκε 'he has died' or 'he is dead', εἰλήλουθας 'you have come' or 'you are here', and λέλοιπε 'he has left' or 'he is away'. Our approach is that, as with ἔοργε and ὄπωπα, the perfect of such verbs predicates the result in the present of a past event. However, with these verbs the nature of the resultant state is given by default rather than by implicature. Thus τέθνηκε means 'is dead as a result of dying', εἰλήλουθε means 'is here as a result of coming', and λέλοιπε means 'is away as a result of leaving (something/something)'. Note that for a verb such as τέθνηκε, it is exceptionally easy to state the resultant state explicitly: by definition, the state of being dead is the result of the transition of dying, and the transition of dying automatically entails the resultant state of being dead.[5] The event structure of these perfects can be represented schematically as follows:

(1988: 19), and Portner (2003: 471). But while analyses of the English perfect may vary, in the Homeric perfect we see the situation predicated as the present result, not the past event.

[3] What we refer to as 'time reference' is different from Reichenbachian 'reference time'. According to Reichenbach (1947), reference time is the time from which situations are viewed, while event time is the time of the situations predicated. Thus, in the English present perfect, according to Reichenbach, reference time is in the speaker's present and event time is in the speaker's past. Under a Reichenbachian approach, ἔοργε and ὄπωπα would predicate events in the past from the point of view of the speaker's present. Under our approach, by contrast, they predicate a situation in the present, and that situation is the result of an event in the past.

[4] As a parallel, the non-occurrence of the definite past time expressions with finite forms of the English perfect has long been recognized; see, for example, Pickbourn (1789, pp. 30–32), Klein (1992), and Portner (2003: 493–498), Schaden (2009), and Meyer-Viol and Jones (2011). For related phenomena in other languages, including discussions of languages in which the perfect can, under certain conditions, co-occur with definite past time expressions, see Klein (2000) for German, Rothstein (2008) for German and Swedish, and Schaden (2009) for French, German, and Spanish.

[5] Our default states are similar to 'target states' as defined in Parsons (1990: 235), that is, states which are 'typical' and 'independently identifiable', such as that of something which 'is cracked' having cracks in it. By contrast with default states, implicated states are not independently identifiable. See Haug (2004) for the argument that the Greek perfect involves a target state.

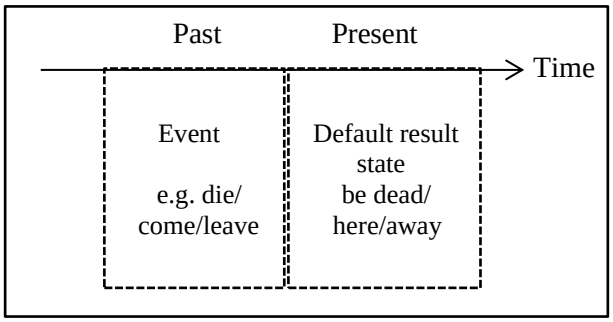


Figure 2: Event structure of perfects with default result

We argue that, when such a perfect occurs in Homer, it predicates a state in the (speaker's) present which is the default resultant state of a past event.

It is rare for both the event and the result of these perfects to be reflected in translation. When τέθνηκε is used of a (once animate) subject, either 'has died' or 'is dead' tends to be used in English; indeed, in this case they serve equally well because the past event and present result entail each other.[6] But that is not the case with εἰλήλουθε and λέλοιπε because 'being here' and 'being away' can be true without resulting from a past event of coming and leaving, respectively. They may be translated by 'is here' or 'is away' depending on the context[7] but, according to our approach, this leaves out the ideas of 'coming' and 'leaving' which are part of the event structure of the two verbs. In archaic English the translation 'is come' (parsed as 'is here as a result of coming') captures the event structure of εἰλήλουθε. However, Standard English does not have a verb form for the present resultative of transitive verbs such as 'to leave (someone/something)' (parsed as 'is away as a result of having left (someone/something)'), which explains why translators are forced to make a choice in each context between translations such as 'is away' and 'has left'.[8]

The third problem is that certain perfects which predicate something about the present denote states, e.g. ἔοικε 'it befits' or ἔολπα 'I expect', while others seemingly denote atelic events, e.g. γέγωνε 'he shouts' and τέτριγε 'it squeaks'. Some have argued that these latter perfects can be read as stative (see Berrettoni 1972: 147) in that they predicate a characteristic quality, in this case a sound, of the subject. However, when these verbs refer in context to specific instances of that quality, such a stative interpretation is hard to sustain. To address this problem we work with a semantic category 'non-transitional' which comprises both states and non-transitional events, so that 'befitting', 'expecting', 'shouting' and 'squeaking' all fall into the same non-transitional category. We contrast this with the category 'transitional', which refers to a transition from one situation to its result (which may be a default result or an implicated result depending on the lexical meaning of the verb). Thus 'to die' denotes the transition from life to the default result of being dead; 'to come' denotes the transition from absence to the default result of being present; 'to do something' the transition from not having done something to the implicated result of having done it (e.g. being an accomplished person); and 'to see something' the transition from not having seen something to the

[6] The archaic English 'is deceased' captures both ideas.
[7] For example, one might translate εἰλήλουθε as 'is here' of a previously absent referent or λέλοιπε as 'is away' of a previously present referent.
[8] For examples of such 'agent-orientated resultatives' in other languages and varieties of English, see Nedjalkov (2001: 928–929), Fruehwald & Myler (2015).

implicated result of having seen it (e.g. having knowledge of it). The categories 'non-transitional' and 'transitional' are not coterminous with 'atelic' and 'telic', respectively, because a transition does not entail an end point as a telic event does. For example, 'to fall', 'to grow', and 'to go east', referring to the transition to a lower, larger, or more easterly state, may be viewed as transitional but not telic. Transitions therefore include, but are not limited to, telic events. The advantages of transitionality over telicity as a classification will be discussed in Section 2.3.

The fourth problem is that, in some verbs, the present and perfect apparently have the same meaning, e.g. τρίζει/τέτριγε 'it squeaks' and μέλει/μέμηλε 'it matters'. To make sense of such cases, we argue that the perfect morphology in Homer acts as an operator which takes as its input the semantic function of the present or aorist stem of the same verb and yields as its output a non-transitional predicate. When the present and/or aorist is transitional, the perfect predicates the resultant state of a past instance of that transition. For example, the stem of the present and aorist of ἔρχομαι means 'come', i.e. it denotes a transition from absence to presence, and the perfect εἰλήλουθε predicates being present as a result of coming. However, when the stem of the present and aorist is non-transitional, the perfect simply takes that non-transitional situation as its input and yields a non-transitional situation as its output. This explains why, when the perfect morphology is applied to the non-transitional stem in τρίζει 'squeaks', its semantic output τέτριγε is equally non-transitional and the present and perfect may be synonymous (see examples 7a–b below).[9]

The final problem is that the subject of the Homeric perfect sometimes has a different thematic role from the subject of other tenses of the same verb. It is true that, in many verbs, the subject of the perfect and of the non-perfect have the same thematic role; thus, the subject of the perfect active ἔοργε and of the aorist active ἦρξε are both agents. By contrast, the subject of the perfect active ὄλωλε 'is destroyed/has perished' is a patient but the subject of the aorist active ὤλεσα 'I destroyed (something)' is an agent. Taking our cue from Romagno (2005), we identify patterns in the relationship between the subject role of the perfect and that of other tenses of the same verb. For example, the present ὄλλυμι has two arguments, those of the subject (thematic role: agent) and object (thematic role: patient), while the perfect ὄλωλε has only one argument, that of the subject, with the thematic role of patient. We will show that, when the perfect has one argument and other tenses of the same verb two, the subject of the perfect corresponds to the object of the non-perfect form, which, as is usual for objects, is normally the less agentive of the two arguments; this means that in the case of ὄλλυμι the object of the non-perfect becomes the subject of the perfect form. By contrast, when the perfect has the same number of arguments as non-perfect forms, the arguments in the perfect have the same thematic roles as those outside the perfect. We follow Romagno in viewing thematic role assignment as correlated both with agentivity and with transitivity, although our accounts differ in the extent to which these criteria are seen as synchronically active. We also find that these patterns hold for the perfect medio-passive as well (which Romagno does not consider).

In short, we propose a synchronic model of the Homeric perfect in which the time reference is the speaker's present and in which the Aktionsart of the perfect and the thematic role of its subject are largely predictable from the other tense forms (if any) in that verb's paradigm. Given the consistency of function we identify in the Homeric perfect along the three

[9] In Section 5.1 we argue that, in a pre-Greek stage of the language, there was a difference of function between such present/perfect pairs, which became neutralized by the Homeric period.

dimensions of time reference, Aktionsart, and thematic role, we conclude that the meaning of almost all perfects in Homer can be reliably inferred from the meaning of other parts of the same verb and that, to this extent, the Homeric perfect is regular enough to have been acquired by language learners.

Since our approach to the function of the perfect depends on the occurrence of forms elsewhere in the paradigm, it cannot be applied to the perfects for which there are no such forms ('perfecta tantum'). On this basis, all such perfects would have to be learnt as isolates, in the same way that, for example, praesentia tantum would have to be learnt (e.g. εἰμί 'be', ἄημι 'blow', λάω 'worry', ἧμαι 'sit'). However, even among perfecta tantum we find regularities along the first two of our measures, time reference and Aktionsart. It is only along the third dimension, that of thematic role, that the function of the perfect (together with the lexical meaning of the verb) would have to be learnt rather than inferred.

Although our main analysis is synchronic, we also explore its diachronic implications. This leads us to form a hypothesis about a unified function for the perfect at some earlier stage of the language which, with minimal reanalysis, could have led to the evidence found in Homer. Our hypothesis is that, at this earlier stage, the function of the perfect was to predicate the present state of the subject. That state was resultative or non-resultative according to whether the verb stem was transitional or non-transitional, respectively. In other words, it was the interaction between the function of the perfect and the Aktionsart of the verb stem which determined whether perfects were resultative stative or just stative, not the function of the perfect alone. As for the pattern of thematic roles we find in Homer, we propose that this reflects an earlier stage before voice distinctions had arisen in the perfect; at the time of the Homeric data, morphological voice and diathesis were becoming aligned, but relics of a more fluid relationship between them persisted.

## 2. Previous literature and semantic model

### 2.1. Previous literature

In this section we review some of the studies which have offered a unifying account of the Homeric perfect before outlining our own approach in detail.[10]

The dominant approach to the function of the Homeric perfect since the beginning of the twentieth century has been to see it as denoting a state.[11] This is the approach adopted by Wackernagel (1904) and Chantraine (1927), who see the unifying function of the early Greek perfect as denoting the state of the subject in the present.[12] For Wackernagel, this is obviously

[10] Rather than attempting a unifying account of the functions of the Homeric perfect, some scholars trace its different functions back to differences in the PIE perfect. For example, Schmidt (1964: 4) has, on the one hand, PIE perfects with purely present time reference and, on the other, perfects denoting an achieved state. Other scholars have found the difficulty of reconciling the different functions of the Homeric perfect so great that they explicitly leave some out of their accounts. Thus Haspelmath (1992: 208–209) leaves sound verbs such as βέβρυχε 'it roars' out of his account, while Gerö and von Stechow (2003: 254) largely exclude 'intensive' perfects such as γέγηθε 'rejoices' from theirs.

[11] For a critical assessment of earlier accounts arguing that this was in particular a *resultant* state, see Willi (2018: 232–237).

[12] In doing so, Wackernagel and Chantraine classify the functions of the early Greek perfect under various headings. Wackernagel's categories (1904: 4–5) are based on Aktionsart: i. pure states, e.g. βεβίηκεν 'oppresses'; ii. resultant states, e.g. τέθνηκε 'is dead'; iii. perfects, e.g. ὄπωπα 'I have seen'; iv. up-to-now

true of intransitive active verbs such as τέθνηκε ‘has died/is dead’, or mediopassive perfects used passively, such as δέδοται ‘has been given/is given’, which denote the effect of a previous event on the subject. But it is also true of active verbs used transitively, such as ἔοργε ‘has done’ or λέλοιπε ‘has left behind’, in which it is the effect of past events on the subject (the doer or leaver, respectively) which is at issue, rather than on the object (what is done or left behind).[13] According to Wackernagel, it is only in post-Homeric Greek that we find perfect actives such as δέδωκα ‘I have given’, which denote the effect of a past event on the *object*. Chantraine (1927: 20) largely follows Wackernagel, although he points out one perfect active in Homer that does denote the state of the object rather than the subject; this is βεβίηκεν ‘has oppressed/oppresses’, where the subject is grief or need and the object is the Achaeans.[14] It is hard to dispute Wackernagel’s and Chantraine’s argument that the focus of the Homeric perfect is on the subject, notwithstanding the counterexample of βεβίηκεν. But it is unclear, without further explanation, how the semantic category ‘state’ comprises apparently eventive verbs denoting ‘rejoicing’, ‘shouting’, or ‘roaring’. We address this problem by using the category ‘non-transitional’ which groups stative and atelic eventive verbs together.

Berrettoni’s (1972) approach to perfects with apparent past time reference such as ἔοργε and ὄπωπα is that they denote a complex event structure which includes both a past situation and its present resultant state. Thus, the sense of ὄπωπα is ‘ho visto e ho ancora negli occhi’,[15] and readings which exclude the idea of anteriority are forced (1972: 113–14).[16] More generally, Berrettoni argues that the state denoted by the perfect cannot be viewed separately from the event which gave rise to it if this is denoted elsewhere in the same paradigm. Thus we should not read εἰλήλουθας merely as ‘you are here’, since this would fail to reflect the meaning ‘come’ in the present and aorist of ἔρχομαι which must be preserved in all parts of the verb’s paradigm (1972: 87).[17] As for the perfects which seem to denote atelic events, Berrettoni interprets them as in fact stative. So the perfect ἀλάλημαι has the stative meaning of ‘sono errante’ (comprising the copular verb plus adjective), roughly equivalent to ‘I am astray/am a-wandering’ (1972: 84), and verbs denoting noises like shouting and roaring are stative in the sense that they indicate a characteristic sound made by the subject (1972: 147).

The approach put forward in the present study follows Berrettoni in assuming that, in the case of which in the present or aorist denote an event that leads to a result, such as ἔρχομαι, the perfect typically includes the idea of both the event and the result. While Berrettoni goes through the Homeric perfects one semantic field at a time and discusses the functional differences and overlaps between the perfect and other tenses in the same paradigm, we will

perfects, e.g. ἔοργε ‘has been doing’. All but one of Chantraine’s categories (1927: 8–12) are based on semantic fields, e.g. i. verbs which denote mental operations, ii. verbs which express a feeling, joy, suffering, fear, anger, etc.; the exception is his tenth category, passive verbs. For an English summary of Wackernagel’s and Chantraine’s categories, see Willi (2018: 225–228).

[13] Wackernagel (1904: 4–5).

[14] Chantraine (1927: 13–14).

[15] ‘I have seen and still have before my eyes’.

[16] As an example of such readings, Berrettoni cites Chantraine’s translation of ἀλλ᾽ οὔ πω τοιόνδε τοσόνδέ τε λαὸν ὄπωπα (Il. 2.799) as ‘je n’ai pas dans mes souvenirs la vue d’une armée aussi belle ni aussi nombreuse’ (‘I have not in my memory the sight of an army so fine or so great’). Note that Berettoni’s approach (in which ὄπωπα denotes a past situation and its present result) predicts that perfects would be redundant in negative contexts such as this, since denying the past situation (e.g. with an aorist) would automatically preclude a result state. However, ὄπωπα is also used in positive contexts, e.g. Od 3.93.

[17] To indicate a state holding in the present arising from a past event we might translate εἰλήλουθας by the archaic English ‘you are come’ (as opposed to ‘you have come’, which does not guarantee that the state still holds).

propose a more formal functional relationship between the perfect and other tenses of the same verb and try to apply it across all semantic fields.

Romagno (2005) also focuses on the semantic relationship between the perfect and other tenses in the same paradigm.[18] So-called 'intensive' perfects occur in verbs which denote atelic events[19] elsewhere in their paradigm, while resultative perfects are formed to verbs which elsewhere denote telic events. For example, the 'intensive' perfect τέτριγα is formed to the atelic eventive τρίζω, while the resultative perfect διέφθορα is formed to the telic eventive διαφθείρω (2005: 9–10). In line with Berrettoni, Romagno interprets perfects of the former type as stative or stative-like (as opposed to eventive). Thus, while the present τρίζω refers to individual acts of squeaking, the perfect τέτριγα can be read as a state-like situation of iterativity (2005: 79–80).[20] The semantic relationships Romagno identifies between the perfect and the rest of a verb's paradigm are not just to do with the semantic function of the verb itself: they also concern the thematic role of the subject, a topic largely ignored by most previous authors. In unergative verbs, e.g. τρίζω 'squeak',[21] and in transitive verbs with low levels of transitivity, e.g. χανδάνω 'contain', the subject role of the perfect tends to be the same in the perfect active as in non-perfect forms (2005: 65, 113, 116–117). In telic verbs with two arguments and a high level of transitivity, e.g. ὄλλυμι 'I destroy', the object of non-perfect forms becomes the subject of the perfect; thus ὄλωλα means 'I am destroyed/in ruins' (2005: 85, 123); she suggests that the object in such verbs is promoted if it has a high degree of affectedness (2005: 55−57). Romagno also identifies patterns which can be explained if we assume that the original function of both the perfect active and of tense forms with middle voice inflection was to denote a state of the subject (2005: 44). First, verbs which are stative in the present, notably media tantum such as κεῖμαι and ἧμαι, do not have perfects in Homer because the stativizing role of the perfect active and of the middle are in complementary distribution and the perfect would be redundant (2005: 9). Secondly, if there are both perfect actives and middle forms in the same paradigm, one of these tends to be recent (2005: 107–109; see Section 3.3 for examples and further discussion).

While Romagno's approach represents a substantial advance over that of previous authors, it nevertheless leaves a number of issues still to be addressed. Romagno interprets the time reference of the perfect as variable, with some examples being classified as preterital and others as atemporal (e.g. 2005: 89ff); this is difficult to reconcile with the present orientation perceived by many of the other authors cited here. Likewise, it will be seen in Section 3.2 (7)–(9) that the uniformly stative Aktionsart ascribed to the perfect is often unsupported by the data, many examples being at least as compatible with an eventive interpretation.[22] The criterion proposed for thematic role assignment, subject affectedness, generates questionable predictions for perfects such as ἔοργα (from ἔρδω 'do, work'), where the subject (the doer) is

[18] In contrast to the studies mentioned so far, Romagno (2005: 61) considers only perfect indicatives and participles, on the grounds that the pluperfect and other moods are more recent formations.

[19] Romagno does not accept that these perfects are 'intensive' in comparison to presents of the same paradigm (2005: 47–49); she classifies such verbs as 'mono-argument unergatives' or, using the classification of Vendler (1967), as a type of 'activity' verbs.

[20] This stativity is ascribed even to perfects such as ἔοργα (from ἔρδω 'do, work'), cf. the gloss (Romagno 2005: 59) on Il 2.272 ἐσθλὰ ἔοργε 'è … un uomo che fa molto bene (= è un uomo buono)', i.e. 'he is … a man who does much well (= is a good man)'.

[21] Unergative verbs are intransitives whose grammatical subject is the semantic agent.

[22] While it can be difficult methodologically to distinguish between pure states and atelic events, the analysis that we propose considers the two categories simply as two types of non-transitional situation, in contrast to transitions; this means that an example such as ἐσθλὰ ἔοργε (Il 2.272), which is classified by Romagno as atelic (2005: 59), would in our classification be considered transitional.

less affected than the object (the deed); this problem is avoided only through the assumption that perfects such as these are atelic and with low object affectedness, resulting in a strict link between Aktionsart and thematic roles (2005: 57). The uniformly stative function ascribed to the middle is at odds with the more complex picture provided by authors such as Allan (2003); moreover, Romagno's exclusive focus on the perfect active (as being the more archaic category) provides no data on how the semantics of the perfect and the middle might interact within a synchronic grammar. As will be seen in Section 5, adopting a more rigid separation between synchronic and diachronic analysis can clarify some of these points, so that many aspects of Romagno's analysis can be seen as more descriptive of a pre-Homeric than of the Homeric period.

A radical approach to Homeric perfects with apparent past time reference is proposed by Willi (2018). He argues (2018: 231–232) that it is 'usually more to the point' to translate certain Homeric perfects as present statives than as English perfects with 'have', e.g. εἰλήλουθε as 'is present' rather than 'has come' and λέλοιπε as 'is away/gone' rather than 'has left/gone'. Likewise, in a vein similar to Romagno, he proposes for ἐσθλὰ ἔοργε 'is a doer of noble things' and for οὔ πω τοιόνδε τοσόνδέ τε λαὸν ὄπωπα 'I am a not-so-far-seer of an army of this sort and size'. These readings support the view that the Homeric perfect underlyingly – or originally – denoted a pure, that is, non-resultant, state. To explain how states such as 'being a doer' or 'being a seer' come to refer to specific instances of doing or seeing, Willi argues that they can be 'contextually anchored in a specific … eventuality', which in these cases are 'noble things' and 'an army', respectively. He also suggests that, since being a doer or seer 'can only be predicated on someone who fulfils the necessary condition of having performed the activity the one time he/she could possibly perform it', a resultative value arises by implicature. (2018: 233–234).

However, it is unclear how, under this approach, εἰλήλουθε can be interpreted as 'is present' or λέλοιπε as 'is away/is gone' in contexts where another part of the verb phrase qualifies the event rather than the state. In Il. 5.204 Pandarus says, ἐς Ἴλιον εἰλήλουθα, which cannot simply be interpreted as referring to a state of 'being here', because ἐς Ἴλιον ('to Troy', not 'in Troy') includes the event of coming, not just the state of being present. As for λέλοιπε, take Il. 1.234, in which the subject is a wooden staff: ἐπεὶ δὴ πρῶτα τομὴν ἐν ὄρεσσι λέλοιπεν (translated as 'since it first left its stump in the mountains' in the Loeb edition, Murray & Wyatt 1999: 31); here the problem is that the context specifies the event, and this cannot be captured if we read λέλοιπε as 'is away/gone'. Moreover, Willi's approach would seem to predict more transitive perfects than are actually found. It might be expected that, as soon as it was possible to say ἐσθλὰ ἔοργε 'he is a doer of fine things', it would also be possible to say *ἐσθλὰ δέδωκε 'he is a giver of fine things' or even *ἐσθλὰ διέφθαρκε 'he is a destroyer of fine things', since these too would express subject-oriented states; while the absence of such constructions for individual verbs might be explained in terms of accidental gaps, their rarity in general is still striking. We argue below, in line with Berrettoni, that perfects such as ἔοργε, ὄπωπα, εἰλήλουθε and λέλοιπε predicate an event structure which includes both a previous event and its resultant state in the present. In Section 5.2, we also discuss additional factors that may have played a part in the assignment of thematic roles to perfect subjects.

### 2.2. Semantic model: overview

In our empirical analysis we test whether the meaning of the Homeric perfect can be inferred from the meaning of the rest of the paradigm to which it belongs. The assumption underlying

our approach is that the perfect morphology is an operator which takes as its input the semantic function of the verb as it is exemplified in its present or aorist (or, in the absence of finite present or aorist forms, in other tenses with a present or aorist stem), and gives as its output a predictable function for the perfect. To the extent that the function of the perfect cannot be predicted from the rest of the paradigm, or if the perfect is the only tense, it has to be stored separately. The derivation of the perfect from the present or aorist seems more probable than the derivation of the present or aorist from the perfect, given the small incidence of the perfect in Homer against that of other tenses (according to Schlachter (1907/08), finite verbs with a perfect stem represent 7.0%–7.5% of all finite verb forms in the Iliad and Odyssey, while the present and aorist stems represent between 40% and 50% each). Note that we are referring here to a synchronic derivation and we are not claiming that the perfect is derived diachronically from the present or aorist.

Describing the perfect as derived from the present or aorist allows us to avoid a commitment as to the extent to which speakers related different stems of the verbal paradigm to one underlying, abstract 'root'. Ancient Greek was still close to the reconstructed system of (late) PIE, in which either the present or the aorist was derived directly from the root, while the other stem was formed with additional morphology, with root aorists the norm for telic roots and root presents for atelic roots (e.g. Cowgill 2006; Clackson 2007). For example, θνήσκω 'die' has a present formed with the common inchoative suffix -σκω (on the synchronic and diachronic semantics of this suffix see e.g. Willi 2018: 479–489), and a thematic aorist ἔθανον formed directly from the root; the perfect τέθνηκα might be seen as having a greater affinity to the aorist than the present, inasmuch as the perfect and aorist both lack the inchoative suffix found in the present. Conversely, the present ἔργω/ἔργομαι 'enclose' is a thematic formation based directly upon the root (cf. LIV s.v. **u̯erĝ-*), while the aorist εἶρξα/εἴρχθην is formed with the addition of the highly productive sigmatic suffix and its passive counterpart; the perfect ἔργμαι might thus be seen as having a greater affinity to the present than the aorist. Such an approach is similar in some respects to that of Botman (2021), who considers the root present/root aorist distinction as relevant to the derivation of the perfect. However, our approach differs from his in focusing on Homeric Greek as a synchronic entity rather than on its diachronic relationship to PIE categories such as the Caland system. It should be emphasized that, in most cases, derivation from the present or the aorist would give semantically similar results for the perfect. The choice of stem would matter primarily in the case of verbs with semantically differentiated aorists; for example, the perfect πέφυκα has a greater semantic similarity to the intransitive root aorist ἔφυν 'grew' than to the sigmatic aorist ἔφυσα 'engendered, planted', whose causative meaning is signalled by overt morphological means (while meanings corresponding to both aorists are found in the present φύω). Our main conclusions would remain substantially unchanged in an approach which derived the perfect directly from a root (on perfecta tantum see Section 3.4). However, avoiding the concept of roots as cognitive entities eliminates the need to delineate synchronic boundaries between roots. For example, diachronically πίπτω 'fall' and ποτάομαι 'flit' (< πέτομαι 'fly') are derived by some from a single PIE root (e.g. Willi 2018: 149–150, *contra* LIV). A root-based approach might need to consider the possibility that their respective perfects, πεπτεώς and πεπότημαι, were synchronically perceived as the active and mediopassive forms of a single perfect, parallel to pairs such as τετιηώς/τετίημαι, but it would then be necessary to explain how the semantic distinction between πεπτεώς and πεπότημαι came to mirror that between πίπτω and ποτάομαι. Any such analysis would also depend crucially on whether there was in fact a synchronic identity between the roots of the two verbs, a question for which there are few independent diagnostics.

In the rest of this section we use English rather than Greek to illustrate semantic categories; in this way we avoid prejudging the empirical results that follow. Most terms used in this paper will be defined as we go along. However, it should be emphasized here that, when we employ the term 'perfect', we refer to its form and function in Homeric Greek, not to the function of the 'present perfect' in English. Our use of English for illustration does not imply that the English and Homeric Greek verb systems are necessarily equivalent, although there are parallels between them. We focus first on Aktionsart before turning to argument structure and thematic roles.

### 2.3. Semantic model: Aktionsart

*Basic situational categories*

Here we define the basic functional categories which we use to describe a verb's event structure: 'transitional', 'non-transitional', and 'resultative'.

We divide the situations denoted by verb forms into 'transitional' and 'non-transitional'. A verb (or verb phrase) is transitional ('T') if it denotes a transition from one situation to another, e.g., 'to open', 'to come', 'to break', and non-transitional ('NT') if it does not, e.g. 'to walk', 'to carry', 'to contain'. A non-transitional verb may be coerced into becoming transitional by an adverb or prepositional phrase; thus, 'to walk' is non-transitional, but 'to walk to school' is transitional.[23] As explained above, the categories 'transitional' and 'non-transitional' include but are broader than 'telic' and 'atelic', respectively, because, unlike telic verbs, transitional verbs do not necessarily include an end point. For example, 'to walk to school' and 'to walk east' are both transitional in that they both denote transitions from one situation to another, but only 'to walk to school' is telic. The transitional/non-transitional classification, which has been developed in previous work on Germanic linguistics (Jones 2009; Jones & Macleod 2018), has certain advantages for our purposes over a telic/atelic classification. As discussed above, it is well known that adverbial phrases and other sentence constituents can change the Aktionsart category of a predicate; however, transitionality is less liable to coercion of this sort than telicity, as the following examples illustrate:

1. a. Mary ate an apple
   b. Mary ate apples
   c. Mary was eating an apple

In this example, (1a) is telic, while (1b) is atelic, but the telicity of (1c) is more difficult to classify, given that there is a potential endpoint whose attainment is not strictly entailed; a classification based on the telic/atelic dichotomy is therefore faced with the task of confronting such variability (cf. Romagno 2005: 59). However, all three examples would be considered transitional in our classification because they all denote, at the very least, a transition to greater consumption (in the same way that 'walking east' denotes a transition to a more easterly location). While it is possible to come up with non-transitional examples involving *eat* (e.g. an ouroboros), these are clearly more marginal than (1b–c); it is therefore more valid to say, as a lexeme-wide generalization, that *eat* is normally transitional than that it is normally telic.

[23] For the role of sentence constituents in the determination of such categories, see Verkuyl (1972) and Dowty (1972).

As has often been noted, certain verbs are capable of transitional and/or non-transitional readings.[24] We divide such verbs into two categories: 'polysemous' verbs and 'ambiguous' verbs. Polysemous verbs are those which may refer to a bounded or an unbounded situation according to context. For example, 'to write' without an object may refer to an unbounded (i.e. non-transitional) situation and, with a countable direct object such as 'a letter', to a bounded (i.e. transitional) one.[25] We denote the Aktionsart of such polysemous verbs as 'NT/T'. In the 'ambiguous' category are verbs whose transitionality is rarely made clear even in context. This is particularly true of verbs to do with physical and mental processes which may denote the transition into a non-transitional situation or the situation itself. In 'he frightened me', it is ambiguous whether 'frightened' refers to a transition into a state of fear along the lines of 'to startle' or to a continuing effect along the lines of 'to daunt'. Likewise, 'to hide' can mean 'to place in concealment' or 'to keep in concealment'. We denote the Aktionsart of such verbs as 'NT+T'.[26]

The transitional/non-transitional distinction is related to the distinction between eventive and stative verbs, respectively, in that transitional verbs, e.g. 'to open', 'to come', 'to break', are always eventive. But non-transitional verbs may be eventive or stative; thus 'to walk' and 'to carry' are eventive while 'to contain' is stative.[27] Examples of this breakdown are shown below.

| | Transitional | Non-transitional |
|---|---|---|
| Eventive | open, come, break | walk, carry |
| Stative | – | contain |

Table 1: Transitionality and event type

However, as our main analysis does not depend on the breakdown of verbs between eventive and stative, we do not distinguish between them in our notation.

*Resultatives*

According to our analysis, a resultative predicates some state resulting from the situation encoded in that verb's non-perfect forms. In other words, the resultative can be glossed as 'to be in the resultant state of *x*', where *x* denotes the event predicated in other tenses. With certain verbs, the resultant state is implicated. Thus the resultant state in 'to be in the resultant state of seeing/doing' is given by context, but the resultant state in 'to be in the resultant state of dying' is 'to be dead' by default (see Section 1.1).

[24] For example, Romagno (2005: 89) observes that 'i verbi di movimento translazionale e posizionale ammettono sia un uso telico, sia uno atelico' ('verbs of translational and positional movement admit of either a telic or an atelic usage').
[25] See Parsons (1990: 183) and Klein (2010: 1230) for other examples of this type of polysemy.
[26] For other verbs in this category, such as (in English at least) 'to sit' and 'to obstruct', see Nedjalkov and Jaxontov (1988: 13) and Kratzer (2000: 393).
[27] Our 'transitionals' correspond to the 'Transitions' category found in Pustejovsky (1991); our non-transitional eventives and non-transitional statives correspond to Pustejovsky's 'Processes' and 'States', respectively. For a similar breakdown, see Nedjalkov and Jaxontov (1988).

In some contexts, English expressions with the same form as resultatives do not denote a result. For example, 'broken' does not denote a result in 'the paper is manufactured with broken lines' (see Koontz-Garboden 2011: 287). Other examples of resultative-like constructions which do not denote results include gradable expressions such as 'be darkened' which in certain contexts simply mean 'be dark(er)', as in 'the baby's skin is darkened under the neck' (ibid.). Examples such as these have been termed 'quasi-resultatives' (see Nedjalkov and Jaxontov 1988: 14), and we use this term for particular tokens for which a resultative reading is ruled out in context. However, we define perfects as resultative as long as a resultative reading is possible in most contexts, even if such a reading is sometimes overridden. Thus, 'to be broken' and 'to be darkened' are classified as resultative. By contrast, if a form has the appearance of a resultative but does not have a resultative reading in any context, it is not classed as resultative. A comparable example in English is 'to have got' in the (non-resultative) sense of 'to have', as in 'I have got something to tell you' (see Kiparsky 2002: 1).

Our notation for resultatives is $^{(T)}$NT, with 'NT' indicating the state in the present and the superscript '$^{(T)}$' indicating the transitional event which caused it.

*Hypotheses on Aktionsart*

Using the categories transitional (T), non-transitional (NT), and resultative ($^{(T)}$NT), we propose the following hypotheses for the Aktionsart of the Homeric perfect:

If non-perfect forms are transitional, the perfect is resultative; otherwise, the perfect is non-transitional. We symbolize this as follows, using notation which will serve as shorthand in the remainder of the paper:

PF(T) → $^{(T)}$NT

PF(NT) → NT

We can thus think of 'PF' as an operator in the form of perfect morphology which takes the function of non-perfect forms of the verb to give the function of the perfect. The Aktionsart of the perfect (that is, $^{(T)}$NT or NT) then depends on the Aktionsart of non-perfect forms.

Note that 'NT' comprises cases in which the non-perfect forms are non-transitional ('NT'). It does not include cases in which there are no non-perfect forms ('Ø'), i.e. perfecta tantum.[28] Since these perfects cannot be modelled in terms of other forms in the same paradigm, they will be dealt with separately in Section 3.4.

Examples of these outcomes in the 3rd person singular in English are as follows:

PF(T) → $^{(T)}$NT

PF(opening) → is open as a result of opening
PF(coming) → is here as a result of coming

[28] In this class we include all verbs without non-perfect forms attested in Homer, even if such forms occur in later texts. In at least some verbs, new non-perfect forms were created as back-formations to the perfect (e.g. γέγωνα, δείδω; cf. LSJ), and a uniform treatment of this sort avoids the need to prejudge the relative age of different forms.

PF(NT) → NT

PF(carrying) → carries
PF(containing) → contains

In the case of polysemous verbs, such as 'to write', whose Aktionsart can be NT or T depending on context (designated 'NT/T'), we hypothesise that the context will tell us the Aktionsart of the perfect form. For example, if the perfect of the verb 'to write ' is used with a countable noun, as in 'the letter is written' (i.e. is in the resultant state of writing), we interpret this as transitional rather than non-transitional.

With verbs whose transitionality is ambiguous, such as 'to frighten', it is rarely possible to disambiguate the function of the perfect between NT and $^{(T)}$NT in context. For example, if we interpret 'to frighten' as non-transitional ('NT'; ≈ 'to daunt'), we may interpret 'to be frightened' as denoting a non-transitional state of fear. But if we interpret 'to frighten' as transitional ('T'; ≈ 'to startle'), we may interpret 'he is frightened' as a resultative ($^{(T)}$NT) meaning 'he is in the resultant state of being startled'. If there is no commitment in either case to a transition as the cause of such a state, the two interpretations are functionally equivalent. Our hypothesis for such verbs is as follows:

PF(NT+T) → NT+$^{(T)}$NT

Here the ambiguity of the non-perfect forms carries over to the perfect.

### 2.4. Semantic model: argument structure and thematic roles

Thematic roles are the roles played by the arguments of the verb, which here include the subject and any direct object.[29] In our empirical analysis we use the following thematic roles, illustrated here by English verbs whose grammatical subject has this role:

| Thematic role | Abbreviation | Examples with grammatical subject in this role |
|---|---|---|
| Agent | A | To destroy, to run |
| Experiencer | E | To rejoice, to love |
| Recipient | R | To receive, to take |
| Theme | Th | To be concealed, to die |
| Patient | P | To be destroyed, to be broken |

Table 2: Thematic Roles

The categories are self-explanatory except for 'Theme' and 'Patient'. Subjects in both of these categories are affected by what is predicated by the verb, but 'Patient' typically implies an external cause. Thus the subject of 'to die' is a 'Theme', while that of 'to be killed' is a 'Patient'.

[29] We ignore the roles of indirect objects of ditransitive verbs, as these are not relevant to the role of the perfect subject.

Using this notation for thematic roles, we can represent intransitive (one-argument) verbs with the thematic role of the subject, e.g. 'to run' by 'A', and transitive (two-argument) verbs by the thematic roles of both of their subject and object, with the role of the subject shown first, e.g. 'to destroy' by 'A_P'.

A category requiring special treatment is represented by motion verbs such as βλώσκω 'go'. In many languages, such as French and German, these verbs pattern with unaccusative (theme-subject) verbs with meanings such as 'die'.[30] However, in context these motion verbs often describe volitional, agentive activities, like those denoted by prototypical unergative verbs such as 'dance'. It might be premature to assume that motion verbs that are unaccusative in some languages are necessarily unaccusative in all, given the cross-linguistic variation observed in the syntactic realization of verbs (e.g. Levin & Rappaport Hovav 1995) and the difficulty of finding language-specific diagnostics of unaccusativity applicable to Ancient Greek (Alexiadou & Anagnostopoulou 1999; Lavidas 2013). Following the approach of Romagno (2005: 20), we assign a dual role of both agent and theme to such verbs (denoted A+Th).[31]

*Hypotheses on argument structure and thematic roles*

In the hypotheses on Aktionsart above we used the Aktionsart of non-perfect forms *in any voice* to predict the Aktionsart of the perfect. By contrast, in our hypotheses on argument structure/thematic roles we use the argument structure of non-perfect forms to predict the argument structure/thematic roles of the perfect only *in the same voice*. This reflects the fact that the relationship in argument structure/thematic roles between the active and the mediopassive in Homer is unpredictable across different tenses, not just the perfect, and we wish to avoid confounding our analysis of the perfect/non-perfect relationship with factors to do with the functional relationship between voices in general (see Section 3.3, Tables 7, 8, and 9).

Within the same voice, most Homeric perfects have the same number of arguments as non-perfect forms, that is, one or two. In other words, if the non-perfect forms are intransitive, so is the perfect, and if the non-perfect forms are transitive, so is the perfect. In such cases we predict that the subjects (and any objects) of non-perfect and perfect forms will simply have the same thematic roles. However, a number of transitive Homeric verbs form intransitive perfects (see Section 5.2 for a diachronic survey). In these instances we predict that the argument retained in the perfect will be the less agentive of the arguments in non-perfect forms.[32] Since the less agentive argument in transitive verbs is always the object, we thus predict that the object in transitive non-perfect forms will become the subject of intransitive perfects in such cases. Denoting the thematic roles of arguments as 'X' and 'Y' (for generality), and with 'X_Y' representing the thematic roles of the subject and object, respectively, we hypothesise the following:

$$PF(X) \rightarrow X$$

$$PF(X\_Y) \rightarrow X$$

[30] For example, in French and German such verbs are conjugated with the verb 'to be' in the perfect: *elle est allée* and *elle est morte* and *sie ist gegangen* and *sie ist gestorben*.
[31] If we designated such verbs as either all 'A' or all 'Th', the results of our empirical analysis would be qualitatively unchanged.
[32] See Section 2.1 for similarities and differences between our and previous proposals.

PF(X_Y) → Y

By 'PF(X) → X' we mean that, when non-perfect and perfect forms are both intransitive, the thematic role of the subject is the same. An English example would be 'I run/ran' (non-perfect) and perfect 'I have run' (perfect).

By 'PF(X_Y) → X_Y' we mean that, when non-perfect and perfect forms are both transitive, the thematic roles of their subject and object are the same. An English example would be 'The child eats/ate the biscuit' (non-perfect) and 'The child has eaten the biscuit' (perfect).

By 'PF(X_Y) → Y' we mean that, when a verb's non-perfect forms are transitive but the perfect is intransitive, the thematic role of the object of the non-perfect forms becomes that of the subject of the perfect. It would be as if, in its non-perfect forms, the English verb 'to break' were always transitive (e.g. 'I break/broke the vase'), but the perfect were always intransitive and that the subject of the perfect had the same thematic role as that of the object of the non-perfect forms (e.g. 'The vase has broken').[33]

## 3. Methodology and data

As the first step in our identification of relevant verb forms, the Chicago Homer (Kahane & Mueller 2019) was used to search for all verbs occurring in finite perfect forms. Exhaustive searches were then performed on the lemmata identified in this first step; for this, the Perseus site (Crane 2022) was used, owing to the greater flexibility of its user interface. Occasional use was also made of the *Thesaurus Linguae Graecae* (Pantelia 2022) to execute more specialized queries as needed. Enough consistency exists among the different editions of Homer that no significant impact was anticipated from this use of multiple sources; in the following section, unless otherwise specified, quotations are taken from the Perseus data. Our aim has been to identify all occurrences in the *Iliad* and *Odyssey* of perfect forms from all verbs, although as with any form of automated searching, the possibility of occasional omissions cannot be wholly excluded. Although our primary focus has been on the semantics of the perfect indicative, the following discussion includes data on non-finite forms, subjunctives, and optatives, including verbs that are recorded only in such forms. In some languages, such as English, certain differences exist between the perfect indicative and non-finite or modal forms of the perfect (for references see Section 1.1, fn. 4); while we have remained alert to the possibility of such differences in Greek, none have been identified that are relevant to the semantic relationships between perfect and non-perfect forms, and the inclusion of non-finite verbs greatly expands the amount of data available (see Table 4). However, we have excluded pluperfect and future perfect forms, given that their semantics are largely parasitic on the perfect, with the added complication of differences in temporal reference and sometimes, in the pluperfect, differences in voice (e.g. Willi 2018); such an exclusion is in line with the methodology of previous work such as Romagno (2005).

[33] Although subject and object are syntactic categories, our hypotheses are ultimately based on semantic categories. Thus, we hypothesise that the thematic role of the subject in an intransitive perfect is the same as the less agentive of the arguments of a transitive verb. Since the less agentive argument of transitive verbs is (in almost all cases) the object, we can more economically express the hypotheses in terms of subjects and objects.

### 3.1 The perfect and temporal adverbs

We have examined the extent to which the perfect combines with different adverbial expressions of temporal reference. Our prediction is that, if the Homeric perfect has a reference time in the speaker's present, it will be qualified by adverbial expressions which are interpretable in relation to the speaker's present but not with those which exclude it. Searches were performed in TLG for perfects occurring within 5 words of specific adverbial lemmata; only the perfect indicative was considered, as other forms, being tenseless, might be expected to combine freely with forms of any temporal reference. A summary of the results can be seen in Table 3.

| Lemma | Gloss | Total tokens | With perfect | Percentage |
|---|---|---|---|---|
| νῦν | now | 742 | 29 | 3.9% |
| τότε | then | 286 | 0 | 0.0% |
| τοτέ | sometimes | 4 | 0 | 0.0% |
| ποτέ | at some time, once | 232 | 1[34] | 0.4% |
| πάλαι | long ago | 18 | 0 | 0.0% |
| πρόσθεν | previously | 90 | 1 | 1.1% |

Table 3: Co-occurrence of the perfect indicative with temporal adverbs

It can be seen that the distribution is what might be expected for a category with its time reference in the present. As (2) illustrates, the perfect occurs quite freely with νῦν 'now'; (3) shows its sole occurrence with an adverb of indefinite past time, namely πρόσθεν 'previously'. However, with the possible exception of (4), it does not occur with definite past expressions.

2. νῦν δ᾽ ὁ μὲν ὣς ἀπόλωλε κακὸν μόρον
   Now he has thus perished by an evil fate (Od. 1.166)[35]

3. ἦ γάρ μιν πρόσθεν ὄπωπα
   I have seen him before (Od. 17.371)

4. ὅς ποτ᾽ ἐνὶ Τρώων ἀγορῇ Μενέλαον ἄνωγεν / […]αὖθι κατακτεῖναι
   …who once at a gathering of the Trojans ordered them to kill Menelaus forthwith (Il. 11.139)

It is significant that the only possible exception involves the verb ἄνωγα 'bid'. This verb originally lacked a present; however, a new present ἀνώγω was backformed to the perfect, to which a form such as ἄνωγεν would correspond as an imperfect; a number of morphologically unambiguous presents and imperfects are already found in Homer (e.g. 30 below). If this is the case, (4) does not actually involve a perfect at all. In its temporal semantics, at least, the Greek perfect thus seems quite compatible with an analysis in terms of present time reference, although some of the situations denoted stem from past events.

[34] Occurrences in negative-polarity contexts, with the meaning 'ever', have been manually excluded.
[35] The translations given here and below generally follow Murray & Wyatt (1999), but we have adapted them for greater clarity.

### 3.2 Aktionsart

| | Active | Mediopassive |
|---|---|---|
| Indicative | 576 | 178 |
| Imperative | 47 | 8 |
| Subjunctive | 55 | 1 |
| Optative | 20 | 2 |
| Infinitive | 49 | 40 |
| Participle | 514 | 426 |

Table 4: Tokens by morphological category

For this part of the analysis, the Aktionsart of each individual perfect example was assessed in order to determine the most characteristic value. The Aktionsart of the non-perfect forms was determined using a sample of representative constructions; especially in the case of more frequent verbs, lexicons (LSJ; Autenrieth) were consulted for the identification of relevant data. For these purposes, Aktionsart has been categorized as non-transitional (NT) or involving a transition (T, $^{(T)}$NT). While most verbs clearly fall into one category or the other, there are also some intermediate cases, which will be discussed below.

Our hypotheses for the Aktionsart relationship between non-perfect and perfect forms are reproduced below from Section 2.3.

PF(T) → $^{(T)}$NT

PF(NT) → NT

PF(NT+T) → NT+$^{(T)}$NT

These hypotheses lead to the predictions in Table 5. For polysemous verbs we expect the Aktionsart of the perfect to fall in either category, while for ambiguous verbs we predict that it will not be possible to distinguish the Aktionsart of the perfect. Table 6 shows the extent to which our predictions regarding Aktionsart are borne out, comparing perfects to corresponding non-perfect forms in any voice.

| | Perfect | |
|---|---|---|
| Non-Perfect | $^{(T)}$NT | NT |
| T | ✓ | ✗ |
| NT | ✗ | ✓ |
| NT/T (polysemous) | ✓ | ✓ |
| NT+T (ambiguous) | ✓ | |

Table 5: Predicted Aktionsart of perfect forms

| | Perfect | |
|---|---|---|
| Non-Perfect | $^{(T)}$NT | NT |
| T | 111 | **2** |
| NT | — | 23 |
| NT/T | 10 | 1 |
| NT+T | 34 | |

Table 6: Aktionsart of attested perfect forms

It can be seen from Table 6 that a strong correlation exists between the Aktionsart of non-perfect forms and that of the perfect in line with our predictions. As the second row shows, if the non-perfect forms are non-transitional, so is the perfect. As shown in the top row, if the non-perfect forms are transitional, the perfect forms are normally also transitional (i.e. resultative), with the exception of two cases, marked in bold in the table, which will be discussed shortly. Perfecta tantum, which lack non-perfect forms, will be discussed in Section 3.4. First, however, we illustrate the prevailing patterns.

**PF(T) → $^{(T)}$NT**
***Active***

5. a. αὐτὸς δ᾽ ἀμφὶ πόδεσσιν ἑοῖς <u>ἀράρισκε</u> πέδιλα
   He himself was fitting sandals to his feet (Od. 14.23, imperfect of ἀραρίσκω)

   b. τεῦξε δέ οἱ κόρυθα βριαρὴν κροτάφοις <u>ἀραρυῖαν</u>
   He made him a heavy helmet fitted to the temples (Il. 18.611, perfect of ἀραρίσκω)

   c. Ἐλπήνωρ δέ τις ἔσκε νεώτατος, οὔτε τι λίην / ἄλκιμος ἐν πολέμῳ οὔτε φρεσὶν ᾗσιν <u>ἀρηρώς</u>
   One Elpenor was the youngest, neither very brave in war nor fit in his wits (Od. 10.552, perfect of ἀραρίσκω)

***Mediopassive***

6. a. οὔ κέ μοι ὕπνος ἐπὶ βλεφάροισι <u>χυθείη</u>
   Sleep would never be poured upon my eyelids (Od. 19.590, aorist passive of χέω)

   b. καί τ᾽ ἐφ᾽ ἁλὸς πολιῆς <u>κέχυται</u> λιμέσιν τε καὶ ἀκταῖς
   And [snow] lies poured on the harbours and shores of the grey sea (Il. 12.284, perfect of χέω)

   c. αἳ μέν τ᾽ ἀγχιστῖναι ἐπ᾽ ἀλλήλῃσι <u>κέχυνται</u>
   They [sheep] are strewn upon one another in heaps (Il. 5.141, perfect of χέω)

Examples (5)–(6) illustrate the patterns expected for perfects of transitional verbs. In both cases, the perfect has a resultative meaning, whether referring to the literal result of a previous event, as in (5b) and (6b), or in a looser, quasi-resultative sense (see Section 2.3), as in (5c) and (6c).

**PF(NT) → NT**
***Active***

7. a. ταὶ δὲ <u>τρίζουσαι</u> ἕποντο
   They followed, squeaking (Od. 24.5, present of τρίζω)

   b. ὣς αἱ <u>τετριγυῖαι</u> ἅμ᾽ ᾔϊσαν
   Thus they went along, squeaking (Od 24.9, perfect of τρίζω)

8. a. περὶ σταχύεσσιν ἐέρση / […] ὅτε φρίσσουσιν ἄρουραι
the dew upon the ears of grain when the fields bristle (Il. 23.598, present of φρίσσω)

b. πάντες δέ με πεφρίκασιν
All men shudder at me (Il. 24.775, perfect of φρίσσω)

***Mediopassive***

9. a. τίφθ᾽ οὕτω κατὰ νῆας ἀνὰ στρατὸν οἷοι ἀλᾶσθε
Why ever do you wander thus, alone through the camp by the ships? (Il. 10.141, present of ἀλάομαι)

b. αἰὲν ἔχων ἀλάλημαι ὀιζύν, / ἐξ οὗ τὰ πρώτισθ᾽ ἑπόμην Ἀγαμέμνονι
I have always wandered, having woe, since first I followed Agamemnon (Od. 11.167, perfect of ἀλάομαι)[36]

Examples (7)–(9) illustrate the expected behaviour for the NT category, in which the perfect is non-transitional and non-resultative, so that, synchronically at least, there are no clear semantic differences between the present and perfect. In Section 5, we propose that the coexistence of apparently synonymous forms is a relic of an earlier, pre-Homeric stage of the language in which there were functional differences in such pairs.

Different theories have been proposed to account for the choice between present and perfect for such verbs. As mentioned in Section 2.1, some authors have suggested that the perfect and non-perfect forms of verbs in this category can be distinguished respectively as stative and eventive. However, such an approach is complicated not only by the difficulty of distinguishing states from atelic (and non-transitional) activities, as opposed to telic events, but by the scarcity in type and token frequency of these verbs; the small quantity of data that exists is seldom adequate for falsifying any analysis at all. For example, Berrettoni (1972: 146−9) sees the perfect of sound verbs as referring to a process characteristic of the subject. In theory, there are some contexts in which such stative perfects would have different truth conditions from corresponding eventive non-perfect forms (e.g. *it has been a squeaker ever since it was born* v. *it has been squeaking ever since it was born*). However, such sentences are relatively rare not only in the data but in natural language generally; we have encountered no examples of temporal expressions that would help to determine the reference of the perfect in this way, beyond the simpler cases discussed in Section 3.1 (2)–(4). Moreover, the present and perfect alternate in examples such as (7a)–(7b), referring to the same entities (the spirits of the dead) within the same passage; while some semantic distinction may have existed in the author's mind between the two sentences, the text itself provides few clues to recover this. Likewise, Romagno (2005: 80) interprets (8b) as an example of a stative perfect, denoting the mental state of horror. While this passage was undoubtedly intended to express the existence of such a state, it may be questioned whether the perfect directly asserts its existence or whether it asserts the existence of an activity, shuddering or quivering, from which the state of horror may simply be inferred. Conversely, in (8a) the present seems to describe a more static situation, although it may nevertheless have been intended to suggest a literal or metaphorical process of continual motion. Similarly, van Beek & Migliori (2019: 74–75), following Berrettoni (1972), see (9b) as prototypically stative, as shown by the

[36] The use of a present perfect in the English translation reflects the presence of a temporal clause with *since* rather than the meaning of the Greek perfect *per se*. In many other languages, such as French, the corresponding translation would simply use the present.

accompanying temporal expressions. However, precisely the same temporal modifiers would be compatible with an activity (e.g. *I have been dancing ever since I arrived*), while a present such as (9a) could be interpreted equally as an activity ('why are you (now) wandering?') or a state ('why are you (now) astray?'). Similar ambiguities exist for many other verbs, including γηθέω 'rejoice', which is discussed in Section 3.3 below, (26a)–(26b).

As a reviewer suggests, another possible factor involved in the choice between present and perfect for such verbs is metrical suitability. The formulaic and metrically constrained nature of Homeric diction has long been recognized (e.g. Parry 1928). However, the clearest examples of the influence of metrical constraints on language in Homer involve semantically neutral changes such as variation in vowel length or selection among different allomorphs of a given morpheme (see Chiattelli 2022 for examples and review of the extensive literature). It is less likely that metrical considerations alone would result in the substitution of one form for another form with different truth conditions (cf. Polkas 2010). If forms such as ἀλάομαι and ἀλάλημαι could be substituted for each other to satisfy metrical requirements, this might therefore presuppose a high degree of synonymy between them.

The only apparent exceptions to the predicted patterns shown in Table 5 are ἀνατρέχω and ἐπισεύω, whose respective active and mediopassive perfects are shown in Tables 6 in bold. For the former verb, non-perfect examples such as (10) clearly involve a change of state, while perfects such as (11) refer to a static situation. However, (11) can be seen as resultative or quasi-resultative in a spatial sense, making use of a common metaphor in which extent in space is represented in the same terms as extent in time (Koontz-Garboden 2011), in which case this verb too would fit the prevailing pattern.

10. ὃ δ' <u>ἀνέδραμεν</u> ἔρνεϊ ἶσος
    He shot up like a sapling (Il. 18.437, aorist active, T)

11. λισσὴ δ' <u>ἀναδέδρομε</u> πέτρη
    The rock runs up sheer (Od. 5.412, perfect active, NT?)

A slightly different situation is represented by ἐπισεύω, which in non-perfect forms normally has the concrete, transitional meaning 'rush upon', but which in the perfect ἐπέσσυμαι can have the more abstract, stative meaning 'be eager'. However, the semantic development of this sense in the perfect is most easily explained in terms of a more transitional sense such as 'be moving toward', whether the metaphor was still perceptible as such synchronically or had become a more arbitrary form of polysemy. The ultimate stage of such a process can be seen in the verb οἶδα 'know'. Originally this was the perfect corresponding to the aorist εἶδον 'saw', with a semantic development often reconstructed along the lines of 'I have seen' > 'I know' (e.g. LIV s.v. **u̯eid-*). However, synchronically no resultative nuance can be identified in this verb,[37] and with the rise of ὄπωπα as a new, suppletive perfect for εἶδον, οἶδα may have come to be perceived as an isolated perfectum tantum.

Some polysemous verbs, shown as 'NT/T', have clearly related senses that differ in their transitionality (e.g. τλάω 'endure (NT)'/'dare (T)'); we would predict that these verbs could potentially form resultative perfects based on the T sense or non-transitional perfects based on the NT sense. Of these verbs, only one forms a non-transitional perfect, while the other ten are transitional; the existence of both possibilities is predicted by our analysis. The exceptional verb is ἐπιτρέχω 'run at (T)' / 'run over (NT)', whose polysemy reflects the

[37] This can be seen clearly in contexts such as Il. 3.308: Ζεὺς[…] οἶδε[…] ὁπποτέρῳ θανάτοιο τέλος πεπρωμένον ἐστίν 'Zeus knows for which of them the end of death is ordained'.

polysemy inherent in the prefix. Both senses are represented in non-perfect forms, but the two examples of the perfect are both derived from the non-transitional use.

12. καρφαλέον δέ οἱ ἀσπὶς ἐπιθρέξαντος ἄϋσεν / ἔγχεος
    The spear having hit, his shield rang sharply (Il. 13.409) (aorist active, T)

13. οἳ δὲ ἄνακτος ὑποδείσαντες ὁμοκλὴν / μᾶλλον ἐπιδραμέτην
    Fearing their master's rebuke, they ran on all the more (Il. 23.446) (aorist active, NT)

14. αἴθρη / πέπταται ἀνέφελος, λευκὴ δ᾽ ἐπιδέδρομεν αἴγλη
    The air is spread cloudless, and a white radiance runs over it (Od. 6.44) (perfect active, NT)

Other verbs, which we have described as 'NT+T', exhibit a more inherent ambiguity. In their attested uses they can denote either the existence of a state or entry into that state, the two uses being generally correlated with imperfective and perfective forms respectively; because these aspect categories can potentially coerce non-transitional and transitional readings (cf. e.g. Dowty 1977), it can be difficult to determine how much transitionality is inherent in the verbal root itself, as either analysis would be compatible with the attested data. [38] Accordingly, these verbs are of little use as evidence for any semantic model of the perfect; the verb ἄχνυμαι 'grieve' offers a range of examples in the Homeric data to illustrate this:

15. ὃ δέ τ᾽ ἄχνυται ὕστερος ἐλθών
    Returning later, he grieves (Il. 18.320, present)
    T base: 'enters a state of grief' → 'grieves'
    NT base: 'is in a state of grief' → 'grieves'

16. μνηστῆρες δ᾽ ἀκάχοντο κατήφησάν τ᾽ ἐνὶ θυμῷ
    The suitors grieved and were downcast in spirit (Od. 16.342, aorist)
    T base: 'entered a state of grief' → 'grieved'
    NT base: 'were (suddenly) in a state of grief' → 'grieved'

17. ἐγὼ δ᾽ ὁρόων ἀκάχημαι
    Seeing (this), I am grieved (Od. 8.314, perfect)
    T base: 'have entered a state of grief' → 'am grieved'
    NT base: 'am in a state of grief' → 'am grieved'

In the case of ambiguous (NT+T) verbs such as this we find, as hypothesised, that the ambiguity of non-perfect forms carries over into the perfect; such perfects are denoted PF(NT+T) → NT+$^{(T)}$NT in the Appendix.

In summary, the Aktionsart for all but two of the 181 perfects in Homer with non-perfect forms is in line with our predictions.

### 3.3 Argument structure and thematic role

As described in Section 2.4, we also classify verbs in terms of the relation between the arguments found in the perfect and in non-perfect forms. While verbs whose non-perfect

[38] Such an approach allows us to make sense of apparently transitional use of the aorist of such verbs, e.g. Od. 5.486, τὴν μὲν ἰδὼν γήθησε[…] Ὀδυσσεύς 'Seeing it, Odysseus was [suddenly] glad'; see Haug (2004: 394).

forms are intransitive are expected to remain so in the perfect, transitive verbs fall into two types; in some verbs the subject of the perfect corresponds to the subject of non-perfect forms, while in other verbs it corresponds to the object.

Our hypotheses for the relationship between non-perfect and perfect forms in their argument structure and thematic roles are reproduced below from Section 2.4:

$PF(X) \rightarrow X$

$PF(X\_Y) \rightarrow X\_Y$

$PF(X\_Y) \rightarrow Y$

These hypotheses lead to the predictions in Table 7, with the results of our empirical analysis shown in Tables 8 and 9.[39] As discussed above, unlike Table 6, these tables compare only non-perfect actives to perfect actives, and non-perfect mediopassives to perfect mediopassives. This means that verbs of which only active forms of the non-perfect and mediopassive forms of the perfect are recorded, or vice versa, are excluded.

| Non-Perfect | Perfect | | |
|---|---|---|---|
| | X | X_Y | Y |
| X | ✓ | ✗ | ✗ |
| X_Y | ✗ | ✓ | ✓ |

Table 7: Predicted argument structure of perfect forms

| Non-Perfect Active | Perfect Active | | | | |
|---|---|---|---|---|---|
| | X | X_Y | Y | X/Y | Ambiguous |
| X | 38 | — | — | — | — |
| X_Y | **1** | 17[40] | 23 | — | 1 |

Table 8: Argument structure of perfect active forms

| Non-Perfect MP | Perfect Mediopassive | | | | |
|---|---|---|---|---|---|
| | X | X_Y | Y | X/Y | Ambiguous |
| X | 42 | — | — | **1** | — |
| X_Y | **3** | 5 | 21 | **1** | 1 |

Table 9: Argument structure of perfect non-active forms

These tables show the distribution of forms among the different categories, which is very close to our predictions. As may be seen, they include two columns not shown in the predictions table: 'X/Y', for verbs with two distinct types of perfect (illustrated below), and

[39] In Table 9, which shows the results for non-active forms, we have chosen not to make a further division into middle and passive, given that a morphological distinction between these voices existed only in the aorist and future, and that even here the two morphological categories did not show a rigid semantic distinction; for example, despite its passive morphology, ἐστάθη (Od. 17.463) means 'stood' rather than 'was placed', while the middle form ἀπέκτατο (Il. 15.437) means 'he was killed' rather than 'he killed himself' (Allan 2003). If a verb has both active and non-active forms, it will appear in both Tables 8 and 9.

[40] This category includes some transitive perfects used with transparent object ellipsis (e.g. 'I have eaten')

'Ambiguous', for cases where the thematic role of the perfect is difficult to determine.[41] As above, perfecta tantum are not included at this stage, but will be discussed separately. The relative scarcity of X_Y→ X_Y forms in Table 9 reflects the fact that, in the mediopassive, transitive constructions are normally restricted to true middles (i.e. middles where the subject retains the thematic role of the active and simply adds a new role, such as beneficiary), while in the passive, some reduction in the number of arguments has already taken place. It may be seen that, as expected, the type X → X_Y does not occur; however, there are a few unusual cases, shown in bold, which merit closer attention. First, though, we illustrate the prevalent patterns.

**PF(X) → X**
***Active***

18. a. οὐ γάρ πω μύσαν ὅσσε ὑπὸ βλεφάροισιν ἐμοῖσιν
For my eyes have not yet closed beneath my lids (Il. 24.637) (aorist of μύω)

b. σὺν δ᾽ ἕλκεα πάντα μέμυκεν
All the wounds are/have closed up (Il. 24.420) (perfect of μύω)

***Mediopassive***

19. a. μέγας ὠδύσατο Ζεύς
Great Zeus was enraged (Il. 18.292) (aorist middle of ὀδύσσομαι)

b. μοι ὀδώδυσται κλυτὸς ἐννοσίγαιος
The renowned Earth-Shaker is enraged with me (Od. 5.424) (perfect of ὀδύσσομαι)

Examples (18)–(19) show the expected behaviour of perfects for intransitive verbs. Both in the active and in the mediopassive, such verbs form intransitive perfects, with no change to their argument structure.

**PF(X_Y) → X_Y**
***Active***

20. a. κόπτε δὲ δεσμοὺς / ἀρρήκτους
He hammered out unbreakable bonds (Od. 8.274) (imperfect of κόπτω)

b. ὅς τίς σ᾽ ἀμφὶ κάρη κεκοπὼς χερσὶ στιβαρῇσι / δώματος ἐκπέμψῃσι
…who, having beaten you about the head with strong hands, shall send you out of the house (Od. 18.335) (perfect of κόπτω)

c. σκηπανίῳ […] ἐννοσίγαιος / ἀμφοτέρω κεκοπὼς πλῆσεν μένεος κρατεροῖο
The Earth-Shaker, having struck them both with his staff, filled them with strong spirit (Il. 13.59) (perfect of κόπτω)

[41] E.g. κεκορυθμένος 'having equipped oneself' (middle, X subject) or 'having been equipped' (passive, Y subject).

***Mediopassive***

21. a. ὡς ἐπύθοντο μετὰ Τρώεσσιν Ἄρηα
…when they found out that Ares was with the Trojans (Il. 5.702) (aorist middle of πυνθάνομαι)

b. Πηλῆος ἀμύμονος οὔ τι πέπυσμαι
I have not found out anything about noble Peleus (Od. 11.505) (perfect of πυνθάνομαι)

Examples (20)–(21) illustrate the behaviour of transitive verbs whose argument structure remains unchanged in the perfect. In such verbs, the number of arguments in the perfect and their thematic roles mirror what is found in non-perfect forms. Example (20) also illustrates the problematic nature of affectedness as a criterion. It is possible to see (20b) as emphasizing the affectedness of the subject, as victor, but in (20c) the primary effect seems to be clearly on the object; while one context may have been the original and the other extended to it analogically, the data offer few synchronic cues for determining which is primary.

**PF(X_Y) → Y**
***Active***

22. a. ὁ μὲν ὤλεσε λαὸν ἀτάσθαλον
He has destroyed his reckless people (Od. 7.60) (aorist of ὄλλυμι)

b. τοῖος γὰρ ἀνὴρ ὥριστος ὄλωλε
For so great a man, the best, has perished (Il. 24.384) (perfect of ὄλλυμι)

***Mediopassive***

23. a. κούρω δὲ δύω καὶ πεντήκοντα / κρινάσθων κατὰ δῆμον
Let them choose two and fifty youths from the people (Od. 8.35) (aorist middle of κρίνω)

b. ἐκ μὲν Δουλιχίοιο δύω καὶ πεντήκοντα / κοῦροι κεκριμένοι
From Dulichium there are two and fifty youths chosen (Od. 16.247) (perfect of κρίνω)[42]

Examples (22)–(23) illustrate the behaviour of verbs whose argument structure is subject to change. In such verbs, the number of arguments in the perfect is reduced by one, and the subject of the perfect corresponds to the object (i.e. the less agentive argument) of the non-perfect forms.

The category PF(X_Y) → X, which goes against our predictions, is represented by only four verbs: ὀρέγω ‘stretch’, ἀλιταίνω ‘offend’, γέγηθα ‘rejoice’, and κλίνω ‘lean’. The first three cases are relatively straightforward. The only recorded perfect of ὀρέγω, shown in (24b), involves a somewhat idiomatic use of the middle, with the meaning ‘stretch oneself toward, strive after’; this meaning is not recorded among the non-perfect forms that are found

[42] The category PF(X_Y) → Y is more difficult to identify securely in the mediopassive; as Y subjects (e.g. patients) can occur in any tense, phenomena related to the perfect can potentially be conflated with phenomena related to the general polysemy of the mediopassive. However, pairs such as (23a)–(23b) represent the closest counterparts to active pairs such as (22a)–(22b).

in Homer, but is more widely attested in later texts. The verb ἀλιταίνω is normally construed with an accusative object, as in (25a); however, its sole occurrence in the perfect involves a dative.

24. a. χεῖρ' ὀρέγων εἰς οὐρανὸν ἀστερόεντα
…stretching out his hands to the starry heavens (Od. 5.108) (present active)

b. Ἕκτορος ὠκέες ἵπποι / ποσσὶν ὀρωρέχαται πολεμίζειν
Hector's swift horses hasten on foot to fight (Il. 16.833) (perfect mediopassive)

25. a. ἀτὰρ ἐν νόστῳ Ἀθηναίην ἀλίτοντο
But on their return they sinned against Athena (Od. 5.108) (aorist middle)

b. οὐ μὲν γάρ τι θεοῖς ἀλιτήμενός ἐστι
For he is not at all a sinner to the gods (Od. 4.807) (perfect mediopassive)

26. a. τίς ἂν τάδε γηθήσειε;
Who would rejoice at these things? (Il. 9.77) (aorist active)

b. γέγηθε δέ τε φρένα Λητώ
And Leto is glad at heart (Od. 6.106) (perfect active)

In (25b), if the dative θεοῖς depends on ἀλιτήμενός, the perfect would in fact have the same number of arguments as other tenses; alternatively, it might depend on ἐστι, in which case the absence of an accusative object could be seen as exemplifying the very frequent phenomenon of object ellipsis. In either case, there is little reason to see the difference between (25a) and (25b) as reflecting a systematic syntactic difference between non-perfect and perfect forms, rather than simply a lack of data for the latter. Similarly, constructions such as (26a), in which γηθέω occurs with an accusative denoting the cause of joy, are relatively rare in any tense. This accusative may have been an adverbial accusative of respect, similar to φρένα in (26b), in which case it would not be an argument; alternatively, the constructions without such an accusative may have been elliptical. In either case, the rare perfect simply represents a type of construction which is found in all tenses.

The verb κλίνω, however, does reflect a more complex semantic situation. In the perfect mediopassive, this verb has a middle meaning; in other tenses, both middles and passives are found. It may be noted that this verb has no perfect active in Homer. The attested constructions form a continuous spectrum between descriptions of volitional acts by animate entities, as in (27), and quasi-resultative descriptions of inanimate objects, as in (28).

27. πὰρ δέ οἱ αὐτὸς / ἕστη[…] / φηγῷ κεκλιμένος
He stood beside him, leaning on an oak (Il. 21.547) (perfect mediopassive)

28. τις ἀκτὴ / κεῖθ' ἁλὶ κεκλιμένη[…];
Is it some promontory, leaning there against the sea? (Od. 13.234) (perfect mediopassive)

It can be difficult to evaluate the thematic roles of the subjects in these examples; the agentive meaning may be primary, with personification employed for inanimate subjects, or all subjects may have been viewed as themes, with the agentivity that was actually present in

some cases receiving no overt linguistic expression. This ambiguity need not be only a methodological artefact of the analysis of historical texts; it may have existed for native speakers as well, and contributed to the flexible behaviour we see with this verb.

Mention should also be made of the verbs whose semantic roles in the perfect mediopassive are listed as 'X/Y'. These are polysemous verbs showing multiple, clearly separate argument structures in the perfect. One of these is παλάσσω 'scatter, spatter', which occurs in the perfect both as a literal passive, as in (29), and in the middle sense 'cast (lots)', as in (30), an idiomatic usage which is not found in other tenses.

29. εὗρεν ἔπειτ᾽ Ὀδυσῆα[…] / αἵματι καὶ λύθρῳ <u>πεπαλαγμένον</u>
    Then she found Odysseus, spattered with blood and gore (Od. 22.401)

30. τοὺς ἄλλους κλήρῳ <u>πεπαλάσθαι</u> ἄνωγον
    I bade the others cast lots (Od. 9.331)

The other is παύω 'stop, cease' which in the perfect mediopassive can have either a middle meaning, with an agent subject, or passive meaning, with a theme subject. These two constructions can be seen respectively in (31) and (32).

31. ἥατο δημογέροντες[…] πολέμοιο <u>πεπαυμένοι</u>
    The elders sat, having ceased from war (Il. 3.149)

32. πόλεμος δὲ <u>πέπαυται</u>
    The battle has ceased (Il. 3.134)

In summary, then, we find that the argument structure and semantic roles for all but six of the 149 perfects in Homer with non-perfect forms in the same voice are in line with our predictions.

Although verbs for which comparison within the same voice is not possible have been excluded from the quantitative analysis, this should not be taken to suggest that there was no connection for speakers between the argument structures of perfect and non-perfect forms. For example, a verb such as γίγνομαι 'become', which has only a single argument in any tense, can be seen as falling clearly within the PF(X) → X category. From a methodological point of view, though, it can be difficult to delimit such categories clearly. For example, a verb such as σήπομαι may have been a middle ('become rotten'), with a perfect reflecting the same argument structure in the pattern PF(X) → X, or it may already have been perceived as the passive ('get rotted') of an active σήπω, which is attested in later texts; in this case the relation between σήπω and σέσηπα would have been PF(X_Y) → Y.[43] Verbs such as these also illustrate a recurring pattern that cuts across voice distinctions, in which verbs whose present is a medium tantum have an active perfect with the same argument structure as the present. This pattern is found in a small number of verbs including not only γίγνομαι/γέγονα and σήπομαι/σέσηπα but also μείρομαι/ἔμμορα 'share'. Other verbs show the same alternation between present and perfect, but also have an active aorist with the same argument structure, as with δέρκομαι/ἔδρακον/δέδορκα 'gaze', μυκάομαι/ἔμυκον/μέμυκα 'bellow', and the suppletive ἔρχομαι/ἦλθον/εἰλήλουθα 'come'. Diachronically, alternations of this sort seem to be a relatively recent development (e.g. Romagno 2005: 107–109). Synchronically, their existence suggests that some degree at least of semantic compatibility

[43] In either case, there would be a straightforward Aktionsart relationship between the perfect and non-perfect across voices, so that σέσηπα and γέγονα would both be PF(T) → $^{(T)}$NT; similarly, μέμυκα would be PF(NT) → NT. All these classifications are represented in Table 6.

was felt to exist between the perfect active and mediopassive morphology. This resemblance is underscored by the existence of synonymous or near-synonymous active/mediopassive doublets in the perfect (e.g. τετιηώς/τετιημένος 'sorrowing'), although other verbs exist in which the difference in voice corresponds to a difference in argument structure (e.g. λέλοιπα 'have left'/λέλειμμαι 'am left'), a phenomenon whose diachronic implications will be revisited in Section 5.2. Any analysis of this phenomenon would have to take into account the nature of the relationship between active and mediopassive forms in other tenses, an issue about which there is still no complete consensus (e.g. Allan 2003; Horrocks 2020). Nevertheless, while it may be difficult to make strong claims about such verbs, we would expect that if enough data were available, the relationship between non-perfect and perfect forms of all verbs would fall within the categories described above.

From the data above it can be seen that the semantic properties of the perfect, both in terms of Aktionsart and in terms of thematic role, are largely predictable from those of other tenses. Despite its association with stativity, the perfect generally exhibits the same degree of transitionality as other tenses. The number of arguments will either remain the same in the perfect or decrease; in the latter case, the thematic role of the subject in the perfect is the less agentive of those seen in other tenses. While some potential exceptions to these generalizations exist, these are few enough that the prevailing patterns should still have been readily learnable.

### 3.4 Perfecta tantum

Perfecta tantum, which lack any non-perfect forms to which the perfect can be related, constitute something of a special case. As mentioned in Section 2.3 (fn. 28), we place in this category all verbs of which the perfect is the only form attested in Homer, to avoid the need for potentially unverifiable judgements as to which gaps are purely accidental. Some perfecta tantum result from paradigm splits that led to the reanalysis of the perfect as a separate lexeme, one which could follow a different diachronic path from the non-perfect forms (see Section 3.2 on οἶδα); others may have been formed directly from nouns, with non-perfect forms added later or not at all (see e.g. Romagno 2005: 62–89). As regards their Aktionsart, all the 54 perfecta tantum in our sample can be classified as NT, as in (33)–(34). This might suggest that non-transitionality is the default interpretation of perfect morphology, but we cannot exclude the possibility that this is simply an artefact of the sample and that transitional perfecta tantum may have existed. As with other perfects, the time reference of perfecta tantum is present; however, their non-transitional nature and the lack of non-perfect forms tend to obscure the extent to which speakers may have perceived them as deriving compositionally from the semantic combination of perfect morphology with a distinct stem.

33. βέβρυχεν μέγα κῦμα ποτὶ ῥόον
    The great wave roars at the stream (Il. 17.264)[44]

34. τετευχῆσθαι γὰρ ἄμεινον
    For it is better to be armoured (Od. 22.104)[45]

[44] Non-perfect forms of this verb are post-Homeric; note too that this is another example of a potentially eventive perfect.

[45] Diachronically, τετευχῆσθαι is derived from the same PIE root as τεύχω 'fashion' and τυγχάνω 'attain, happen' (cf. LIV svv. *$d^heu\underline{g}^h$-, *$teu\underline{k}$-). However, from a synchronic perspective these verbs have their own distinct perfects, τέτευχα/τέτυγμαι and τετύχηκα. Not only is τετευχῆσθαι semantically distinct from these, but morphologically it might seem to correspond to a denominative verb *τευχέω (e.g. LSJ, Autenrieth). For these

| Role | Count |
|---|---|
| A | 4 |
| A/P | 1 |
| A+Th | 4 |
| E | 9 |
| E/Th | 3 |
| Th | 23 |
| P | 8 |
| Ambiguous | 2 |

Table 10: Thematic roles of perfecta tantum

The thematic roles of perfecta tantum are relatively diverse, as shown in Table 10. When the perfect is the only form, its argument structure and thematic roles cannot be determined by those elsewhere in the verb's paradigm. If the argument structure of a verb is in any sense lexically determined, and if the perfect is the only possible form of a verb, it follows that this lexically stored structure would be reflected in the perfect. Perfecta tantum might thus seem to constitute exceptions to our generalization that the meaning of the perfect is derived from that of the present or the aorist. However, this generalization is intended as an alternative to suggesting either that meaning is specified redundantly for each stem or that all tense stems are equal and independent derivatives of an abstract root; such distinctions are not relevant for perfecta tantum. Most importantly, as perfecta tantum are underived, they exclude by definition the cross-linguistically unusual type of derivation seen in PF(X_Y) → Y verbs like ὄλλυμι, where the argument structure of the perfect differs from what is found elsewhere in the same voice of the same paradigm. Thus, although the thematic roles of the perfecta tantum would have to be learnt on an individual basis, they nevertheless show coherence in terms of Aktionsart and time reference.

## 4. Synchronic implications of the analysis

We have tried to show that the semantic function of the Homeric perfect is, synchronically, largely predictable. The evidence of temporal adverbs is consistent with all Homeric perfects having a present time reference. Moreover, the analysis of Aktionsart shows that, for 179 (99%) of the 181 verbs which have perfects as well as non-perfects in their paradigm, the function of the perfect can be inferred from that of those forms; the same is true for 143 (96%) of the 149 verbs in the thematic role analysis (note that this smaller total of 149 reflects the fact that, in the thematic role analysis, we compare non-perfects with perfects only in the same voice). The remaining exceptions are capable of principled explanations such as polysemy and ellipsis, which are in any case effects found throughout the Homeric verb system. The 54 perfecta tantum are predictable in terms of reference time and Aktionsart, but not in terms of thematic role; however, as isolates, their thematic roles would have to be acquired with their lexical meaning, so the lack of predictability in this respect is to be expected.

For the learnability of morphological rules,[46] Yang (2016) proposes a threshold in the form of the Tolerance Principle, according to which the number of exceptions must be no greater than

reasons we treat it as paradigmatically isolated; however, these issues further illustrate the problematic boundaries of 'roots' from a synchronic perspective.

[46] By using the term 'rule', we are not committing ourselves to a generativist or similar framework; 'rule' could be understood as a grammatical rule, an analogical pattern (as within the category of onomatopoeic verbs), or simply a heuristic.

$\frac{N}{lnN}$ for a rule to be learnable where 'N' is the number of 'candidates' and 'lnN' is the natural logarithm of this number. On this measure, the tolerable number of exceptions among 181 types would be 34, while the corresponding number among 149 types would be 29. Of course, morphological rules are learnable in different ways from semantic rules. With a morphological rule, the semantic function is given, and the learner uses a rule to produce the correct form if she has not already learnt it. In the English tense system, for example, a learner might produce 'has kicked' for the perfect of 'to kick' according to the predominant rule for the formation of the perfect tense. With a semantic rule, by contrast, the form is given, and the learner has to infer what the semantic function is, as opposed to producing one. In English, this would mean that the learner is presented with 'has kicked', which she knows is the perfect of 'to kick', and has to infer its semantic function from her knowledge of the predominant rule about the semantic function of the perfect. However, while the focus of Yang's original work was on morphological rules, recent work has sought to extend and test the Tolerance Principle as a measure for semantic rules of this sort (e.g. Trips & Rainsford 2022).

Although the semantic function of the English perfect is a vexed and long-standing question,[47] recent analyses would broadly agree on one basic functional relationship between the perfect and the present of any English verb, which is that the perfect predicates the same type of situation as the present but situates it before speech time. However, even in the English perfect (which has a narrower function range than the Homeric perfect) there are two common exceptions to the unity that otherwise prevails. First, 'have got' can refer to the present without any reference to the past, as in 'I have got something say' in the sense of 'I have something to say'.[48] Secondly, the perfect of the verb 'to be' can be used as the (experiential) perfect of 'to go', as in 'She has been to London'. In neither of these two cases is the function of the perfect fully predictable from that of the present given a knowledge of the predominant rule, although there is clearly some semantic relationship between present and perfect even here. Another type of exception can be seen in the resultative use of certain past participles in English, where the usual changes in argument structure may not take place, as in *Dinner is finished*, but also *We are finished* (*eating*),[49] or *The road was well travelled*, but also *Mary was well travelled*.[50] These exceptions in English do not exactly match the exceptions we have identified in the Homeric perfect. However, they show that, even in a well attested language like Modern English, there are apparently idiosyncratic departures from prevailing patterns. The few exceptional perfects in Homer seem to bear the same loose functional relationship to the core members of their category that these English cases do to theirs.

## 5. Diachronic implications of the analysis

While the analysis set out above does not inform us directly about the origins of the Greek perfect, it does provide us with a starting point from which we can hypothesize about earlier states of the language. In this section we propose, as a hypothesis for further study, a single

[47] See, among many others, McCoard (1978), Elsness (1997), Portner (2003), and Meyer-Viol and Jones (2011).
[48] See Kiparsky (2002: 1). Using notation similar to that used for the Homeric perfect in this paper, with 'F' standing in for the appropriate operator in English, the usual pattern in the English perfect could be modelled as F(T) → $^{(T)}$NT, but the exceptional *I have got* could be modelled as F(T) → NT.
[49] See also Fruehwald & Myler (2015) on the transitive use of such constructions in certain varieties
[50] Again, using notation from the rest of this paper, but with 'F' for the appropriate operator in English, *Dinner is finished* or *The road was well travelled* could be modelled as F(X_Y) → Y, but *We are finished* and *Mary was well travelled* could be modelled as F(X_Y) → X); similar examples can be found in other modern languages (e.g. Spanish *bebido* 'drunk', German *gelernt* 'learnèd').

semantic function for the pre-Homeric perfect[51] which, with minimal change, could have resulted in the evidence we find in Homer. We argue that this earlier function was to predicate the present state of the subject. There are two reasons why this apparently simple function led to the complex situation we find in Homer. First, some of this complexity developed from the interaction between the function of the perfect and the meaning of the verbal stem, in the ways that we have set out in this paper; secondly, the function of the perfect had developed by the time of the Homeric data beyond its earlier function.

We see no reason why the present time reference we have identified in the Homeric perfect should have changed from the time reference at an earlier stage. It is true that the time reference of the reflex of the PIE perfect becomes past in many of its daughter languages,[52] following a well-trodden typological path from present resultative to preterite (cf. Bybee et al. 1994: 68-9), but this evolution occurs in Greek only after the Homeric period (see Haspelmath 1992: 209-20), making present time reference likely in the period before.

### 5.1. Aktionsart

The second part of our definition of the function of the pre-Homeric perfect is that it predicates a state. In our synchronic model of the Homeric perfect we proposed that the Homeric perfect predicated a non-transitional situation of one of two broad types, as summarized below (see Section 2.4 and Section 3.2 for details):

PF(T) → $^{(T)}$NT

PF(NT) → NT

The first type of non-transitional situation, symbolized as '$^{(T)}$NT', is a resultant state, that is, a state resulting from a previous transition, such as 'being here' as a result of coming or 'being dead' as a result of dying. The second type of non-transitional situation, symbolized by 'NT', is any other non-transitional situation; this situation may be eventive, such as quivering or wandering, or stative, such as mattering or containing. In both cases the perfect predicates a non-transitional situation and the nature of that situation depends on the Aktionsart of the verb stem. However, it seems unlikely that the perfect was originally used with non-transitional stems merely to create synonymous non-transitional predicates, as we have argued it does in Homer (e.g. with ϙρίσσω/πέφρικα 'quivers' or ἀλάομαι/ἀλάλημαι 'wanders'), because that would make the perfect, for verbs with a non-transitional stem, functionally redundant. To ascribe a unique function to the pre-Homeric perfect while avoiding such duplication of function, we suggest that the perfect was once an operator which took an eventive stem and predicated a state and that the state was resultative or non-resultative depending on whether the event argument of the stem was transitional or non-transitional, respectively. We model this earlier stage of the perfect as follows:

PF($^{(T)}$E) → $^{(T)}$S: the perfect makes a transitional event into a resultant state.

PF($^{(NT)}$E) → S: the perfect makes a non-transitional event into a non-resultant state.

[51] In this discussion, unless otherwise specified, we refer primarily to the perfect active, as being the earlier form, without necessarily including the perfect mediopassive.
[52] This is seen, for example, in reflexes of the PIE perfect in Latin, post-Classical Greek, Germanic, and even in some verbs in Sanskrit (see Kümmel: 2000: 71-2).

For transitional verbs, little development need be assumed from the proposed earlier function of PF($^{(T)}$E) → $^{(T)}$S to the pattern we have identified in Homer as PF(T) → $^{(T)}$NT, because all transitions are events and all resultant situations are states.[53]

For non-transitional verbs, the development from the proposed PF($^{(NT)}$E) → S to the pattern identified in Homer of PF(NT) → NT is more complex. In our proposed pre-Homeric model, the function of the present/aorist stem and that of the perfect are narrower than the function we have identified in Homer; thus, in PF($^{(NT)}$E) → S the present/aorist stem is eventive and the perfect predicates a state, whereas in PF(NT) → NT both are defined more broadly as non-transitional. In other words, '$^{(NT)}$E' is a subset of the notational category 'NT': it includes verbs whose present/aorist stem is eventive and excludes those whose present/aorist stem is stative. To explain the development from the earlier model to what we find in Homer, we need to account for two categories we find in the Homeric data: first, cases such as φρίσσω/πέφρικα 'quivers' or ἀλάομαι/ἀλάλημαι 'wanders', in which the present and perfect apparently both predicate events; and, second, cases such as μέλω/μέμηλα 'it matters', in which present and perfect apparently both predicate states.

To account for apparently eventive NT pairs like φρίσσω/πέφρικα and ἀλάομαι/ἀλάλημαι we propose that, at an earlier stage, the distinction between the present/aorist and perfect of the same verb corresponded to a distinction between (non-transitional) events on the one hand and states on the other, but that this distinction became obscured or neutralized, explaining the apparent synonymy found in the Homeric data. Thus the functional distinction between an eventive ancestor of φρίσσει and a stative ancestor of πέφρικε was lost and they became interchangeable in context; likewise between the eventive and stative ancestors of ἀλάομαι and ἀλάλημαι, respectively. A parallel in English would be between English *to quiver* and *to be a-quiver* or between *to wander* and *to be a-wandering*, which are interchangeable in most contexts even though, historically, the first and second member of each pair can be analysed as eventive and stative, respectively.[54]

Of the 24 non-transitional verbs with perfects in Homer, there are only four pairs in Homer which we identify as unambiguously stative in both non-perfect and perfect forms: κέκασμαι 'excel', κεχανδώς 'contain', μέμηλα 'matter', and ὀδώδυσμαι 'hate'.[55] For only one of these verbs, κεχανδώς (from χανδάνω), can the root be securely reconstructed, but it may provide a clue to the origin of the other stative pairs as well.[56] In the Homeric data we find the imperfect, aorist, and perfect of χανδάνω, all with the stative meaning 'contain'. According to

[53] The two exceptions in Homer which we find to this pattern, ἀνατρέχω and ἐπισεύω, can be accounted for as metaphors; see Section 3.2.

[54] As a modern-day parallel for an eventive/stative distinction which shows up morphologically in non-transitional verbs, we may cite example of certain German verbs in the passive. In a group of verbs including *lieben* 'to love' and *fürchten* 'to fear', non-transitional passives can be conjugated with both *werden*, the auxiliary used for eventive passives, and *sein*, the auxiliary used for stative passives. The eventive/stative distinction shows up, not only in the choice of auxiliary, but also in different selection restrictions, so that the *werden* passive can occur freely with specific agents, as in *Sie wird von uns geliebt/gefürchtet* 'she is loved/feared by us', but the *sein* passive with specific agents is doubtful: *?Sie ist von uns geliebt/gefürchtet* (see Zifonun et al. 2011: 1814-15). Without specific agents, however, these verbs are close to being functionally interchangeable, and this may provide a clue to the way in which the perfect of non-transitional verbs developed between pre-Homeric and Homeric Greek. Eighteen of the twenty-four NT verbs are intransitive, so that there can be no difference in the selection restrictions between the present/aorist and the perfect.

[55] We omit from this list two verbs whose perfects are stative but whose non-perfect forms may be eventive or stative; these are βρίθω (perfect: 'weigh upon' (stative); non-perfect: 'weigh upon' (stative), 'prevail' (eventive)), and χράομαι (perfect: 'need' (stative); non-perfect: 'need' (stative), 'use' (eventive)).

[56] On κέκασμαι, see Willi (2018: 279 ftn); on μέμηλα, see Willi (2018: 218); and on ὀδώδυσμαι, see LIV p. 296.

LIV (p. 194), this verb can be traced back to an eventive, transitional root glossed as 'fassen' ('to take hold of'); a parallel development of stative meaning can be seen in English *hold*, which unlike χανδάνω also retains its original eventive sense. Our hypothesis for this small group of non-perfect/perfect statives in Homer is that their perfects were originally resultative statives which were, by the Homeric period, reanalysed as pure statives.[57]

We therefore hypothesize that, at some pre-Homeric stage, the perfect morphology was a function which took the event denoted by the present/aorist and predicated a state, and that this state was resultative or non-resultative according as the present/aorist was transitional or not, respectively. The fact that root stative presents, such as εἰμί and κεῖμαι, do not form perfects (as pointed out by Romagno 2005: 10), is consistent with this model; the roots that do form stative perfects, in cases where the etymology is clearly reconstructible, seem to be eventive, not only for verbs such as κεχανδώς but even in the case of perfecta tantum such as οἶδα 'know' < 'have seen' (see Section 3.2). Two factors then explain the development between this stage and what we find in Homer: the blurring of the eventive/stative distinction in verbs such as φρίσσω/πέφρικα and ἀλάομαι/ἀλάλημαι and the emergence of verbs like χανδάνω, whose perfect was originally formed to a transitional root, but which later developed perfect and non-perfect forms which were both stative. Once the original semantic distinctions between perfect and non-perfect forms were no longer clear, new developments were possible that could disrupt them still further, such as the direct creation of new perfects by analogy with existing forms (e.g. Willi 2018: 217 on onomatopoeic verbs; see Section 2.1).

Our hypothesis about the Aktionsart of the pre-Homeric perfect is similar to what Romagno finds in the Homeric data itself (2005: 11, 62–81). However, as we argue in Section 3.2, we do not discern in Homer the contrast between eventive non-perfect forms and stative perfect forms for verbs such as φρίσσω/πέφρικα and ἀλάομαι/ἀλάλημαι (see exx. 7–9); rather, we hypothesize that a previous functional contrast of this sort had already become neutralized by Homeric times. Under such an approach, Romagno's analysis of Aktionsart would thus be interpreted as applicable to a pre-Homeric stage of the language rather than Homeric Greek *per se*.

### 5.2 Thematic roles

The third part of our definition of the pre-Homeric perfect is that the state it denotes is that of the subject. The variation seen in the relationships between the thematic roles of perfect and non-perfect forms may be easiest to understand on the assumption that at an earlier stage the perfect was unspecified for voice. It would thus be parallel to forms such as the adjectives in *-tos* (e.g. πιστός 'trusting'/'trusted'); the tendency of the perfect to acquire the same voice distinctions as other forms would mirror the tendency of adjectives in *-tos* to become passive participles in branches such as Italic and Germanic. As noted in Section 4, even after this development certain past participles in resultative use are still found with the argument structure characteristic of the active (as in English *well travelled* or Latin *notus* 'known, knowing'[58]). At a time when the perfect was still voice-neutral, speakers would have been able to use it with reference to the subject as the most saliently affected entity in a situation, regardless of its thematic role. Accordingly, the ancestor of a verb like ὄπωπα would have a

[57] Such a reanalysis could have come about if the root was at some stage ambiguous between a transitional and non-transitional sense (i.e. as 'NT+T' in the notation explained in Section 2.3); parallels in modern English would be 'to surround' and 'to embrace', both of which can refer to a transition or to a state.
[58] For the active meaning, cf. Plaut. Ps. 4.2.39 (cited in Lewis & Short s.v. *nosco*)

PF(X_Y) → X_Y perfect, as the person seeing is more likely to be affected than the thing seen (cf. the development of οἶδα described in Section 3.2), while the ancestor of a verb like διαφθείρω would have a PF(X_Y) → Y perfect. The ancestor of a verb such as ἔοργα could potentially have formed either type of perfect, with the choice perhaps reflecting perceptions of its lexical semantics; a focus on the effect of creation or accomplishment might have led to a PF(X_Y) → Y perfect, while the PF(X_Y) → X_Y perfect actually found might relate to a focus on agent-related properties such as activity or effort.[59] An example of the contrary development is possibly to be seen in γέγονα, from a root for which transitive non-perfect forms are attested in other languages (e.g. Latin *gigno* 'beget'). As mentioned in Section 2.1, a parallel proposal was made by Romagno (2005: 55−7), who explains this distinction in terms of subject affectedness; similarly, Botman (2021) suggests that PF(X_Y) → Y perfects were originally associated with roots having a 'patientive' semantic orientation. However, it was shown above that the criterion of affectedness generates different predictions from that of pragmatic salience (e.g. for ἔοργα); likewise, many of the cues that Botman adduces for patientive orientation, such as the semantics of root aorists, had by this period come to be increasingly obscured by changes in the Greek verbal system. While the criterion of salience that we propose avoids these issues, it nevertheless has a certain degree of subjectivity, making it difficult to falsify; we remain open to the possibility that if additional data were available, they would show that salience was not the controlling factor.

However, by the Homeric period the perfect had already begun to move beyond any voice-neutral stage that may once have existed. A perfect unspecified for voice might be expected to exhibit multiple functions for individual forms, as with πιστός above. Instead we find multiple forms apparently with the same function, such as τετιηώς/τετιημένος 'sorrowing', and verbs where distinctions of form and distinctions of function are clearly aligned, as with λέλοιπα/λέλειμμαι. The creation of a new mediopassive counterpart to λέλοιπα and the creation of parallel active and mediopassive forms for a relatively innovative perfect (cf. LIV s.v. **ku̯eǰ-* as the root to τετιηώς/τετιημένος) suggest that speakers were becoming attuned to the perfect function as something that could be aligned or misaligned to specific morphological voice categories; the result of such developments seems to be a trend associating active/mediopassive perfect morphology with voice-specific argument structures. Moreover, the development of mediopassive perfects provided the perfect with a morphological marker already associated with a broad range of subject roles. Mediopassive perfects could easily accommodate ambiguity of the sort seen in the examples below, repeated from (27) and (28) above. Inanimate subjects, as in (36), were clearly themes, while animate subjects, as in (35), could also be interpreted as agents of reflexive middles; reflexive interpretations of this sort were not normally available in the perfect active. Once such mediopassive forms were available, it was possible for the perfect active to become increasingly aligned in its semantics with non-perfect active forms.

35. πὰρ δέ οἱ αὐτὸς / ἔστη[…] / φηγῷ <u>κεκλιμένος</u>
    He stood beside him, leaning on an oak (Il. 21.547) (perfect mediopassive)

36. τις ἀκτὴ / κεῖθ᾽ ἁλὶ <u>κεκλιμένη</u>[…];
    Is it some promontory, leaning there against the sea? (Od. 13.234) (perfect mediopassive)

Despite these innovations, remnants of earlier stages also persisted in Homeric Greek (e.g. PF(X_Y) → Y perfects such as ὄλωλα), so that synchronically the relationships between the

[59] As shown by examples such as (20), any such factors had ceased to be applicable by the Homeric period.

thematic roles of perfect and non-perfect forms were partly unpredictable. Nevertheless, the fact that there were, as we have shown, only two possible configurations for transitive verbs and one for transitive verbs meant that these unpredictable relationships would still have been relatively easy to acquire.

## 6. Conclusion

We have argued in this paper that the predominant functional patterns identified in the Homeric perfect and the paucity of exceptions to these patterns are consistent with a learnable language variety, for which the *Iliad* and the *Odyssey* give us partial evidence. We hypothesize that these patterns developed from a pre-Homeric stage in which the function of the perfect was to predicate the present state of the subject. Almost all the complexities found in Homer would then reflect the following factors: the interaction between the function of the perfect and the meaning of the verb stem; the blurring of an eventive-stative distinction between the non-perfect and perfect of non-transitional verbs; and the retention of perfect actives from a time when this form was voice-neutral. The resulting system was one in which the relationships between perfect and non-perfect forms were dependent partly on semantic factors but partly also on arbitrary assignment; nevertheless, its simplicity and coherence were sufficient for it to persist as such, at least for a time.

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## Appendix

Table 12 includes a full list of all perfects found in the data, with details of how we have categorised their thematic roles and Aktionsart. Details are also provided, where relevant, of any differences among tense stems.

| Verb | Lexeme Gloss | Tokens | Voice | Role (Non-Pf) | Role (Pf) | Role (Function) | Aktionsart (Non-Pf) | Aktionsart (Function) |
|---|---|---|---|---|---|---|---|---|
| ἀδηκώς | surfeit | 5 | A | E | E | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἀκάχημαι | grieve | 21 | M | A_E | E | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἀλάλημαι | wander, stray | 15 | M | A+Th | A+Th | PF(X) → X | NT | PF(NT) → NT |
| ἀλαλύκτημαι | distress | 1 | M | ∅ | E | N/A[60] | ∅ | PF(∅) → NT |
| ἀλιτήμενος | offend | 1 | M | A_Th | A | PF(X_Y) → X | T | PF(T) → $^{(T)}$NT |
| ἀρημένος | tire | 7 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἀρηρομένος | plough | 1 | M | A | P | N/A | NT/T | PF(T) → $^{(T)}$NT |
| ἀρηρώς | fit | 44 | A | A_Th, Th[61] | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἐναρηρώς | fit in | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| προσαρηρώς | fit to | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| βέβαγμαι | utter | 1 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| βεβαρηώς | weigh down | 2 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| βέβηκα | plant the feet | 9 | A | A+Th, A_Th[62] | A+Th | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἀμφιβέβηκα | bestride | 9 | A | ∅ | A+Th | N/A | ∅ | PF(∅) → NT |
| ἐμβεβαώς | mount | 2 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἐπεμβεβαώς | step on | 1 | A | ∅ | A+Th | N/A | ∅ | PF(∅) → NT |
| παρβεβαώς | stand by | 2 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| προβέβηκα | surpass | 4 | A | ∅ | A+Th | N/A | ∅ | PF(∅) → NT |
| βεβίηκα | oppress | 3 | A | A_P | A_P | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| βεβλαμμένος | disable | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| βέβληκα | hit | 1 | A | A_P | A_P | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| βέβλημαι | hit | 27 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| βεβολημένος | smite | 2 | M | ∅ | E | N/A | ∅ | PF(∅) → NT |
| προβέβουλα | prefer | 1 | A | ∅ | E_Th | N/A | ∅ | PF(∅) → NT |

[60] Cases of this sort are marked 'N/A' because of the absence of comparable voice forms in each category (i.e. in this case only active non-perfect forms are recorded)
[61] Aor. 2 only
[62] Aor. 1 only

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| βέβριθα | weigh upon | 3 | A | A_Th, Th | Th | PF(X_Y) → Y | NT | PF(NT) → NT |
| βεβροτωμένος | stain | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| ἀναβέβροχα | well up | 1 | A | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| βέβρυχα | roar | 4 | A | ∅ | A | N/A | ∅ | PF(∅) → NT |
| βεβρωκώς | devour | 1 | A | ∅ | A_P | N/A | ∅ | PF(∅) → NT |
| βεβυσμένος | stuff | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| γέγηθα | rejoice | 2 | A | E_Th | E | PF(X_Y) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| γέγονα | become | 14 | A | Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| ἐγγέγονα | be born in | 4 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐκγέγονα | be born of | 11 | A | Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| γέγωνα | shout | 14 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| δεδάηκα | learn | 3 | A | E, A_E[63] | E | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| δέδαιμαι | divide | 10 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| δεδάκρυμαι | weep | 4 | M | A | Th | N/A | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| δέδεγμαι | receive | 11 | M | R_Th | R_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| δέδηα | burn | 4 | A | A_P | P | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἀμφιδέδηα | burn around | 1 | A | ∅ | P | N/A | ∅ | PF(∅) → NT |
| δεδιδάχθαι | teach | 1 | M | A_E | E | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| δέδμημαι | overcome | 9 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| δεδμημένος | build | 2 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| δεδοκημένος | watch | 1 | M | ∅[64] | E | N/A | ∅ | PF(∅) → NT |
| δέδομαι | give | 1 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| δέδορκα | gaze | 2 | A | E | E | PF(X) → X | NT | PF(NT) → NT |
| δεδουπώς | thud | 1 | A | A+Th | A+Th | PF(X) → X | NT/T | PF(T) → $^{(T)}$NT |
| δεδραγμένος | grasp | 2 | M | ∅ | A | N/A | ∅ | PF(∅) → NT |
| ἀναδέδρομα | run up | 2 | A | A | A | PF(X) → X | T | PF(T) → NT? |
| ἐπιδέδρομα | run over | 2 | A | A | A | PF(X) → X | NT/T | PF(NT) → NT |
| δέδυκα | enter | 3 | A | A_Th | A_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| δείδια | fear | 40 | A | E_T | E_T | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |

[63] Reduplicated aor. 2 only

[64] From the root **dek-* 'receive' were formed three present stems: δέχομαι 'accept, await', δοκέω 'think, seem', and δοκεύω 'watch'. There is a lack of consensus regarding the stem with which δεδοκημένος should be associated, LSJ assigning it to δέχομαι and Autenreith to δοκεύω, via a hypothetical variant *δοκάω; δοκέω is the closest match morphologically, from a synchronic perspective, but the most distant semantically. Because of this ambiguity, we treat δεδοκημένος as a perfectum tantum.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| περιδείδια | dread | 4 | A | E_T | E_T | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ὑποδείδια | cower | 1 | A | E_T | E_T | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἑαδώς | please | 2 | A | P | P | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἐγρήγορα | awaken | 4 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐδήδομαι | eat | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κατεδηδώς | eat up | 1 | A | A_P | A_P | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| ἔελμαι | shut in | 5 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐερμένος | string | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐζευγμένος | yoke | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| εἰλήλουθα | come | 27 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἀπελήλυθα | come from | 3 | A | A+Th | A+Th | PF(X) → X | NT+T | PF(T) → $^{(T)}$NT |
| ἐπελήλυθα | go upon | 1 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| εἴλυμαι | enfold | 7 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| εἷμαι | clothe | 10 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐπιειμένος | cloak | 7 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| καταειμένος | cover | 2 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| εἴρημαι | speak | 3 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| εἴρυμαι | drag | 3 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κατείρυμαι | launch | 3 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| εἴωθα | be wont | 6 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐκτῆσθαι | acquire | 1 | M | R_Th | R_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| ἐλήλαμαι | drive | 2 | M | A_Th | Th | PF(X_Y) → Y | NT | PF(NT) → NT |
| ἔμμορα | share | 4 | A | R_Th | R_Th | N/A | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ὑπεμνήμυκα | bow down | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἀνήνοθα | gush up | 2 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐπενήνοθα | pile up | 3 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἔοικα | resemble | 100 | A | ∅ | Th[65] | N/A | ∅ | PF(∅) → NT |
| ἐπέοικα | befit | 12 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἔολπα | expect | 8 | A | E, A_E[66] | E | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἔοργα | perform | 9 | A | A_Th | A_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |

[65] In our analysis, the complement of ἔοικα is treated as a subject predicate rather than an additional argument. The existence of constructions in which the complement is in the dative suggests that this might be something of an oversimplification; however, as this is a perfectum tantum, the choice of analysis does not affect our conclusions.
[66] The rare causative use is present only

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ἔργμαι | enclose | 3 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐρήρεισμαι | prop | 2 | M | A+Th, A_Th | A+Th | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κατερήριπα | cast down | 1 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἔρραμμαι | sprinkle | 1 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| συνέρρηγμαι | break up | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| ἔρριγα | shudder | 3 | A | E | E | PF(X) → X | NT | PF(NT) → NT |
| ἀπέρριγα | shudder from | 1 | A | ∅ | E | N/A | ∅ | PF(∅) → NT |
| ἔσσυμαι | rush | 11 | M | A_Th | Th | PF(X_Y) → Y | NT | PF(NT) → NT |
| ἐπέσσυμαι | rush upon | 17 | M | A | A | PF(X) → X | T | PF(T) → NT? |
| ἕστηκα | stand | 63 | A | A_Th, Th[67] | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἀφέστηκα | stand away | 6 | A | Th | Th | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| διέστηκα | stand apart | 1 | A | Th | Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἐφέστηκα | stand upon | 7 | A | Th | Th | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| παρέστηκα | stand beside | 7 | A | Th | Th | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| συνεσταώς | stand with | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐστεφάνωμαι | wreathe | 3 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐσφαγμένος | slaughter | 2 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| διέφθορα | corrupt | 1 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἤσκημαι | adorn | 1 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| ἠσχυμμένος | disfigure | 1 | M | A_P, A_E | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἀμφιαχώς | shriek around | 1 | A | ∅ | A | N/A | ∅ | PF(∅) → NT |
| ἀφῖχθαι | arrive | 1 | M | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| κεκακωμένος | afflict | 3 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| κεκαλυμμένος | cover up | 8 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κέκασμαι | excel | 7 | M | Th | Th | PF(X) → X | NT | PF(NT) → NT |
| κεκαφηώς | expire | 2 | A | ∅ | Amb | N/A | ∅ | PF(∅) → NT |
| κεκεασμένος | cleave | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κέκευθα | hide | 2 | A | A_Th | A_Th | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κεκληγώς | scream | 12 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| κέκλημαι | call | 7 | M | A_Th | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κέκλιμαι | lean | 13 | M | A_Th | A | PF(X_Y) → X | T | PF(T) → $^{(T)}$NT |
| ἐπικεκλιμένος | lean to | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |

[67] Aor. 2 only

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| κέκμηκα | toil | 7 | A | A_P | Amb | Amb | T | PF(T) → $^{(T)}$NT |
| κεκονιμένος | make dusty | 1 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| κεκοπώς | knock | 2 | A | A_P | A_P | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| κεκορηώς | sate | 1 | A | E | E | N/A | T | PF(T) → $^{(T)}$NT |
| κεκόρημαι | sate | 4 | M | E | E | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| κεκορυθμένος | equip | 14 | M | A_Th | Amb | Amb | T | PF(T) → $^{(T)}$NT |
| κεκοτηώς | resent | 4 | A | E | E | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κεκριμένος | choose | 5 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| διακεκριμένος | separate | 1 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κεκρυμμένος | conceal | 2 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κεχανδώς | contain | 2 | A | R_Th | R_Th | PF(X_Y) → X_Y | NT | PF(NT) → NT |
| κεχαρηώς | rejoice | 1 | A | E | E | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κεχαρισμένος | gratify | 12 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κεχηνώς | gape | 1 | A | Th | Th | N/A | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| κεχόλωμαι | anger | 23 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| κεχρημένος | need | 9 | M | R_Th | R_Th | PF(X_Y) → X_Y | NT | PF(NT) → NT |
| κέχυμαι | pour | 3 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| λέλασμαι | forget | 8 | M | E_Th | E_Th | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| προλελεγμένος | select | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| λεληκώς | ring | 1 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| λελιημένος | strive | 4 | M | ∅ | Amb | N/A | ∅ | PF(∅) → NT |
| λέλογχα | obtain | 1 | A | A_Th | A_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| λέλοιπα | leave | 3 | A | A_Th | A_Th | PF(X_Y) → X_Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| λέλειμμαι | leave | 7 | M | A_Th | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| προλέλοιπα | desert | 1 | A | A_Th | A_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| λελουμένος | bathe | 1 | M | A_Th | A | PF(X_Y) → X | NT/T | PF(T) → $^{(T)}$NT |
| λέλυμαι | loose | 6 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| μέμβλωκα | go | 1 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| παρμέμβλωκα | go beside | 2 | A | ∅ | A+Th | N/A | ∅ | PF(∅) → NT |
| μεμηκώς | bleat | 2 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| μέμηλα | matter | 13 | A | Th | Th | PF(X) → X | NT | PF(NT) → NT |
| μέμβλομαι | matter | 1 | M | Th | Th | PF(X) → X | NT | PF(NT) → NT |
| μεμιγμένος | mix | 6 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| μέμνημαι | remind | 31 | M | A_E | E | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| μέμονα | intend | 106 | A | ∅ | E | N/A | ∅ | PF(∅) → NT |
| ἐμμεμαώς | be eager | 12 | A | ∅ | E | N/A | ∅ | PF(∅) → NT |
| μεμορυγμένος | soil | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| μέμυκα | close | 1 | A | Th | Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| μεμυκώς | bellow | 2 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| ἀμφιμέμυκα | resound | 1 | A | ∅ | A | N/A | ∅ | PF(∅) → NT |
| νένιμμαι | wash | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ὀδώδυσμαι | hate | 1 | M | E | E | PF(X) → X | NT | PF(NT) → NT |
| οἶδα | know | 283 | A | ∅ | E_Th | N/A | ∅ | PF(∅) → NT |
| περίοιδα | know well | 2 | A | ∅ | E_Th | N/A | ∅ | PF(∅) → NT |
| ὄλωλα | lose | 9 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἀπόλωλα | ruin | 5 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| διόλωλα | destroy | 1 | A | ∅ | P | N/A | ∅ | PF(∅) → NT |
| ἐξαπόλωλα | destroy | 2 | A | P[68] | P | N/A | T | PF(T) → $^{(T)}$NT |
| ὄπωπα | see | 7 | A | E_Th | E_Th | N/A | T | PF(T) → $^{(T)}$NT |
| ὄρωρα | rouse | 16 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ὀρώρομαι | rouse | 2 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ὀρώρεγμαι | stretch | 1 | M | A_P | A | PF(X_Y) → X | T | PF(T) → $^{(T)}$NT |
| οὔτασμαι | stab | 3 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| συνοχωκώς | converge | 1 | A | Th | Th | PF(X) → X | NT | PF(NT) → NT |
| πεπαλαγμένος | spatter | 5 | M | A_P | A/P | PF(X_Y) → X, Y | T | PF(T) → $^{(T)}$NT |
| πεπαρμένος | pierce | 4 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| ἐκπεπαταγμένος | derange | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| πέπαυμαι | stop | 3 | M | A_Th | A/Th | PF(X_Y) → X, Y | T | PF(T) → $^{(T)}$NT |
| πεπείρασμαι | end | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| πεπείρημαι | try | 1 | M | A_Th | Th | PF(X_Y) → Y | NT/T | PF(T) → $^{(T)}$NT |
| πεπερημένος | sell | 1 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| πέπηγα | fix | 1 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| πεπληγώς | strike | 4 | A | A_P | A_P | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| πεπλημένος | approach | 1 | M | A_Th, A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| πέπνυμαι | inspire | 82 | M | ∅ | E | N/A | ∅ | PF(∅) → NT |
| πεποίημαι | make | 2 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |

[68] Occurs only in aor. 2 middle

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| πέποιθα | persuade | 26 | A | A_E | E | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ἐκπέπομαι | drink up | 1 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| πέπονθα | suffer | 6 | A | E_Th | E_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| πεπότημαι | flit | 2 | M | A | A | PF(X) → X | NT | PF(NT) → NT |
| πέπρωμαι | provide | 5 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| πέπταμαι | spread | 3 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἀναπεπταμένος | shut up | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| πεπτεώς | fall | 2 | A | A+Th | A+Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| πεπτηώς | crouch | 3 | A | A_P | P | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| ὑποπεπτηώς | crouch down | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| πεπυκασμένος | wrap | 4 | M | A_Th | Th | N/A | T | PF(T) → $^{(T)}$NT |
| πέπυσμαι | find out | 5 | M | E_Th | E_Th | PF(X_Y) → X_Y | T | PF(T) → $^{(T)}$NT |
| πέφαμαι | slay | 10 | M | A_P | P | PF(X_Y) → Y | NT/T | PF(T) → $^{(T)}$NT |
| πέφασμαι | show | 2 | M | A_Th | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| πεφευγώς | flee | 6 | A | A_Th | A_Th | PF(X_Y) → X_Y | NT/T | PF(T) → $^{(T)}$NT |
| πεφυγμένος | flee | 4 | M | A_Th | A_Th | N/A | NT/T | PF(T) → $^{(T)}$NT |
| πεφοβημένος | panic | 3 | M | A_Th | Th | PF(X_Y) → Y | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| πέφρικα | quiver | 4 | A | Th | Th | PF(X) → X | NT | PF(NT) → NT |
| πέφυκα | grow | 6 | A | A_Th, Th[69] | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐκπεφυώς | grow from | 1 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| ἐμπέφυκα | grow in | 2 | A | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| πεφυλαγμένος | guard | 1 | M | A_Th | Th | PF(X_Y) → Y | NT | PF(NT) → NT |
| πεφυρμένος | wet | 4 | M | A_P | P | N/A | T | PF(T) → $^{(T)}$NT |
| ῥερυπωμένος | be filthy | 1 | M | Th | Th | N/A | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| σέσηπα | rot | 1 | A | Th[70] | Th | N/A | T | PF(T) → $^{(T)}$NT |
| τεθάρσηκα | be brave | 2 | A | E | E | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| τεθηλώς | sprout | 5 | A | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| τέθηπα | marvel | 6 | A | E | E | PF(X) → X | NT+T | PF(NT+T) → NT+$^{(T)}$NT |
| τέθνηκα | die | 55 | A | Th | Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| ἀποτεθνηώς | die | 1 | A | Th | Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |
| κατατέθνηκα | fall dead | 22 | A | Th | Th | PF(X) → X | T | PF(T) → $^{(T)}$NT |

[69] Aor. 2 only
[70] Occurs only in mediopassive

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| τεθυωμένος | scent | 1 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| τέταμαι | stretch | 1 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετέλεσμαι | accomplish | 26 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐκτετέλεσμαι | fulfil | 2 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετευχῆσθαι | armour | 1 | M | ∅ | P | N/A | ∅ | PF(∅) → NT |
| τετευχώς | form | 1 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τέτυγμαι | form | 52 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| προτετύχθαι | precede | 3 | M | ∅ | Th | N/A | ∅ | PF(∅) → NT |
| τέτηκα | melt | 1 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετιηώς | sorrow | 6 | A | ∅ | E | N/A | ∅ | PF(∅) → NT |
| τετίημαι | sorrow | 9 | M | ∅ | E | N/A | ∅ | PF(∅) → NT |
| τετίμημαι | honour | 4 | M | E_Th | Th | PF(X_Y) → Y | NT/T | PF(T) → $^{(T)}$NT |
| τέτληκα | endure | 23 | A | E_Th | E | PF(X_Y) → Y | NT/T | PF(T) → $^{(T)}$NT |
| τετμημένος | cut | 1 | M | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετραμμένος | turn | 8 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἐπιτέτραμμαι | turn over | 4 | M | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετρηχώς | disturb | 1 | A | A_P | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετριγώς | squeak | 3 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| τέτροφα | congeal | 1 | A | A_P, P[71] | P | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| τετυμμένος | beat | 1 | M | A_P | P | PF(X_Y) → Y | NT/T | PF(T) → $^{(T)}$NT |
| τετύχηκα | happen | 2 | A | A_Th | Th | PF(X_Y) → Y | T | PF(T) → $^{(T)}$NT |
| ἄνωγα | bid | 79 | A | A | A | PF(X) → X | NT | PF(NT) → NT |
| παρῴχηκα | pass by | 1 | A | A+Th | A+Th | N/A | T | PF(T) → $^{(T)}$NT |

Table 12: Semantic analysis by verb

[71] Aor. 2. only