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# Active versus Middle Perfect in Homeric Greek: Synchrony and Diachrony

**Abstract:** While there is no doubt that the middle perfect stem is a secondary addition to the verbal system of Ancient Greek, the reasons for its creation beside the older active perfect are rarely discussed. On the one hand, it has been claimed that the middle perfect stem was first introduced in the pluperfect for morphological reasons, in order to supply the active perfect with a past tense (Chantraine 1927); on the other hand, it has been argued that the difference lies in the role of the subject (Daues 2006). In this contribution, we propose that active and middle perfects fulfilled two different derivational functions. Originally, the active perfect transformed certain types of dynamic events into a state (not necessarily a resulting state) of the subject; the middle perfect was introduced to indicate the resulting state of the object with transitive verbs. Subsequently, the middle perfect gradually replaced the active perfect with deponent verbs, but the active perfect was left untouched in large parts of its original domain. Finally, we argue that the perfect stem transformed a complex predicate into a simple one.

**Keywords:** Perfect, Ancient Greek, voice, verb class, thematic roles.

## 1 Introduction

The nature of the distinction between active and middle perfect in the oldest stages of Ancient Greek is a neglected problem, both in Greek Linguistics and Indo-European Studies.<sup>1</sup> No opposition between the active and middle voice can be reconstructed for the perfect in the earliest stages of PIE, and still in Homeric Greek, only a handful of verbs have both an active and a middle perfect stem. The most salient (if rather atypical) example is βάλλω ‘throw, hit’, with an active pluperfect βεβλήκει ‘had hit’ beside a middle perfect βέβληται ‘has been hit’. It is

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only in the classical language that such active/passive distinctions become systematic. Thus, in view of the low functional load of the middle perfect, it is unclear how the voice distinction originated, and whether it had a function.<sup>2</sup>

The first systematic approach to the problem was made by Chantraine (1927), who proposed that middle endings were first introduced in the participle and the pluperfect for morphological reasons: this allowed speakers to supply the perfect with a past tense. This scenario has hardly found any supporters; most handbooks are still content to merely signal the emergence of a middle perfect, noting that the voice distinction that already existed in the present/aorist system was transferred to the perfect.<sup>3</sup> The same approach characterizes a more recent treatment of the problem by Haug (2008). What is still missing is a *functional* motivation for introducing these forms.

In this article, we propose a new explanation, building on the old observation that middle perfects often function as passives,<sup>4</sup> but also taking into account the event structure of verbal lexemes. We argue that the possibility of forming an active perfect was related to event structure. In PIE, this possibility did not necessarily depend on the existence of a middle, as is often assumed, but forming a perfect was simply the canonical way of transforming certain types of dynamic predicates into stative ones. What this ‘active’ perfect was unable to do, however, was to indicate the resulting state of the *object* of transitive verbs. It is for this purpose, we submit, that the middle perfect was created.<sup>5</sup>

<sup>2</sup> The problem of the origin of the middle perfect *as a category* is explicitly signaled by Rix 1992, 195: “[d]ie morphologische Übereinstimmung mit dem Perf. Med. des Arischen deutet auf vor-einzelsprachliches Alter der Formen, aber nicht notwendig auch der Kategorien, deren Entstehung noch nicht geklärt ist”. Cf. also LIV 22.

<sup>3</sup> Clackson 2007, 120 speaks of an “analogical extension of the active and middle distinction in the present and aorist”, but gives no further motivation. See also Watkins 1969, 131: “[d]ie letzte Entwicklung ist die Ausbreitung der athematischen Medialendungen auf das Perfekt, wo sie zwar einen formalen Gegensatz zwischen Aktiv und Passiv herstellen, aber praktisch in ihrer Bedeutung mit dem alten statisch-intransitiven ‚Aktiv‘-Perfekt zusammengefallen sind und es tatsächlich z.T. ersetzen”.

<sup>4</sup> See e.g. Schwyzler/Debrunner 1950, 237 on passive interpretations of the Greek middle in general: “[b]esonders häufig sind dabei wegen der Zustandsbedeutung des Perfekts Formen des Perf. Med., das wohl sekundär, aber früh zum Perf. Akt. hinzugebildet war”. See also Chantraine 1953, 182.

<sup>5</sup> Something along these lines may have been intended by Kümmel 2000, 69 when noting that the Indo-European perfect “muss [...] speziell den beim ersten Aktanten (auch Agens) des Grundverbs resultierenden Zustand bezeichnet haben, es war also nicht in der Lage, die Valenz und Rektion zu verändern (wie dies für das passive Zustandperfekt und das Verbaladjektiv auf \*-tō-gilt)”.

Our hypothesis will be tested by analyzing and categorizing the semantics of all primary verbs with active and/or middle perfect stems in Homer. We will first sketch our views on the semantics of the perfect stem in general; then we will discuss previous analyses of the active vs. middle distinction in the perfect, including the question as to whether there was a special derivational relation between the ‘active’ perfect and the middle voice. Finally, we will consider the behaviour of different semantic verb classes from a theoretical and cross-linguistic perspective.

## 2 The Semantics of the Perfect Stem

Our basic premise is that the early Greek perfect denoted a non-dynamic event, i.e. a state, and that this reflects the PIE situation.<sup>6</sup> The perfect stem can be derived from the eventive (present or aorist) stem of a verb, and it may acquire different readings depending on the type of event described by these stems.

The reading that usually receives most attention is the so-called ‘stative-resultative’: τέθνηκε means ‘he is dead’, denoting the state following (or resulting from) the punctual event ἔθανε ‘he died’. The stative-resultative perfect does not refer to a completed event, but it presupposes that such an event took place and may, therefore, optionally invoke it in the background (see Kümmel 2000, 66; Allan 2016, 103).<sup>7</sup> It is widely held that the PIE perfect primarily formed stative-resultatives to telic roots.<sup>8</sup> In support of this, it is pointed out that the perfect is continued as a past tense in language groups like Italic and Germanic, and that plain statives may develop secondarily by lexicalization, e.g. \**woid-h₂e* ‘I know’ (οἶδα, Ved. *véda*, Gothic *wait*) from earlier ‘I have witnessed’ or ‘I have found’ (in either case with the implicature ‘and therefore I know’).

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<sup>6</sup> In terms of the Vendlerian classification, which we adopt here, a state is a non-dynamic activity, accomplishment or achievement.

<sup>7</sup> In literature with a more typological orientation (e.g. Haug 2008, 292), the term ‘resultative’ is used in this sense. We prefer, however, to reserve that term for constructions of the type *John has painted the wall green*, which indicate that the object of a transitive verb has undergone a change of state and that the subject has caused this change of state. In the literature about the Greek perfect, such constructions are sometimes called ‘object-resultative’.

<sup>8</sup> Within Indo-European Studies, cf. Kümmel 2000, 65–71; Clackson 2007, 121; Fortson 2010, 105; within Greek Linguistics, Haug 2008 and most recently Allan 2016, 103–104.

There are, however, a number of problems with this view.<sup>9</sup> First, the alleged primacy of stative-resultatives does not explain how the so-called ‘intensive’ readings fit into the picture. This term (a misnomer)<sup>10</sup> is traditionally used as a cover for, among other readings, sound verbs (such as μέμυκε ‘bellows, lows’) and plain statives (like γέγηθα ‘be glad’).<sup>11</sup> Secondly, and more importantly, there is ample evidence that the distinction present/aorist vs. perfect in Homeric Greek may correspond to dynamic vs. non-dynamic events, as has been illustrated by Berrettoni (1972).<sup>12</sup> Consider the following examples for the verb ἀλάομαι ‘wander, roam’, perfect ἀλάλημαι. In (1), Odysseus answers the soul of his mother Anticleia, who asks what he is doing in the Netherworld:

- (1) μήτηρ ἐμή, χρειώ με κατήγαγεν εἰς Αἴδαο  
 ψυχῇ χρησόμενον Θηβαίου Τειρεσίαο·  
 οὐ γάρ πω σχεδὸν ἦλθον Ἀχαιῖδος οὐδέ πω ἀμῆς  
 γῆς ἐπέβην, ἀλλ’ αἰὲν ἔχων ἀλάλημαι οἷζύν,  
 ἐξ οὗ τὰ πρῶτισθ’ ἐπόμεν Ἀγαμέμνονι δίω [...].

(*Od.* 11.164–168)

Mother of mine, necessity has brought me down into the house of Hades, as I have to obtain an oracle from the soul of the Theban Tiresias. For I have not yet come close to Achaea nor yet have I set foot on the shore of our own land, but I have been wandering continuously, subject to misery, from the time I first followed bright Agamemnon [...].

In (2), Odysseus asks Nestor and Agamemnon, who have woken him up in the middle of the night:

- (2) τίφθ’ οὐτῶ κατὰ νῆας ἀνὰ στρατὸν οἷοι ἀλᾶσθε  
 νύκτα δι’ ἀμβροσίην, ὃ τι δὴ χρειώ τόσον ἵκει;

(*Il.* 10.141–142)

<sup>9</sup> For a general and, in our view, convincing criticism of what he calls “nactostatic primacy”, see Willi 2018, 232–244.

<sup>10</sup> The term ‘anomalous’, which is also widely used, is less misleading but equally uninformative.

<sup>11</sup> Recently, an interesting attempt has been made by Magni 2017 to analyze a wide range of perfect readings (including sound verbs) under the header of verbal plurality.

<sup>12</sup> Many details of Berrettoni’s analysis have been followed in more recent times by e.g. Romagnolo 2005 and Willi 2018, 229–237.

How come you are wandering like this alone by the ships, across the camp, through the divine night? What need so great has come on you?

In passage (1), the perfect ἀλάλημαι is accompanied by the adverb αἰέν indicating a lasting condition of Odysseus, as well as by the participial clause ἔχων [...] ὄϊζυν, another indication of his condition. The starting point of this state is indicated by the phrase beginning with ἐξ οὔ. In passage (2), by contrast, the present ἀλᾶσθε is accompanied by a precise indication of time, νύκτα δι' ἀμβροσίην, showing that the wandering referred to actually occurs. By taking into account this type of clue, Berrettoni (1972, 82–87) shows that the present stem denotes an actual, effective wandering that can be localized in time, whereas the perfect refers to a lasting or characteristic condition of its subject.

Various active perfects (both with transitive and intransitive verbs) display the same function of presenting an activity or accomplishment as a property of the subject. An example is κεύθω 'hide, withhold' (transitive), which in the present stem denotes a volitional, controlled activity. In Homer, the perfect stem κεκευθ- occurs three times: in all these cases the agentive role of the subject is annulled as a consequence of the perfect stem's non-dynamicity.<sup>13</sup> For instance, in ὅσα τε πτόλις ἦδε κέκευθε 'as much (treasure) as this city conceals' (*Il.* 22.118), the motive for using the perfect is that a city, being an inanimate entity, cannot dynamically withhold an object.<sup>14</sup> It seems attractive to also analyze perfects like ἔολπα (ἔλπομαι 'think') and μέμηλε (μέλω 'concern'), which are traditionally labelled 'intensive', in the same way as ἀλάλημαι.

An important and cross-linguistically well-attested type is the so-called existential perfect, which indicates that an event has happened at least once during some time in the past.<sup>15</sup> Consider the following, much-discussed passage, where 'the man in the crowd' discusses the way Odysseus has just restrained Thersites:

<sup>13</sup> The non-agentivity or low transitivity of the perfect of transitive verbs is also confirmed by the properties of its objects (for which see Section 6.1.1). These properties, however, are to be seen as consequences of its non-dynamicity.

<sup>14</sup> At *Od.* 9.348, ὄφρ' εἰδῆς, οἷόν τι ποτόν τόδε νηὺς ἐκεκευθει / ἡμετέρη 'so that you may find out what kind of drink this is which our ship contained', the subject is again inanimate. At *Od.* 3.18, εἶδομεν ἦν τινα μῆτιν ἐνὶ στήθεσσι κέκευθε 'we will find out what counsel he (Nestor) hides in his chest', the subject is animate. The pragmatic implication of using the perfect here is not that Nestor is wilfully hiding his advice, but merely that this advice is both desirable and presently unavailable to the speaker.

<sup>15</sup> See Comrie 1976, 58–60, who, however, calls this type "experiential". With Allan (2016, 105), we prefer to reserve the term 'experiential' for those existential perfects where the subject has undergone a change of mental state (see below). The existential perfect has affinities with the

- (3) ὦ πόποι ἦ δὴ μυρί' Ὀδυσσεὺς ἐσθλὰ ἔοργε  
 βουλὰς τ' ἐξάρχων ἀγαθὰς πόλεμόν τε κορύσσω·  
 νῦν δὲ τόδε μέγ' ἄριστον ἐν Ἀργείοισιν ἔρεξεν  
 ὃς τὸν λωβητῆρα ἐπεσβόλον ἔσχ' ἀγοράων.

(*Il.* 2.272–275)

Man! Odysseus has truly performed countless noble deeds, initiating good plans and organizing war; but now he has done this thing among the Greeks, far the best of all: he has made this word-vomiting nuisance stop speaking.

In this example, the verbal action is described as characteristic of the subject. Although the action ἐσθλὰ ἔοργε may have occurred any number of times before the moment of speaking,<sup>16</sup> this use of the perfect does not differ substantially from that in another well-known example, βοὸς [...] μήπω τετοκυῖς ‘a cow that has never calved’ (*Hes. Op.* 591).<sup>17</sup> The existential perfect is frequently encountered with negated predicates (as in the last example), with indefinite temporal adverbs, and with indefinite objects. A subtype of the existential perfect is the experiential perfect, indicating the subject’s experience or knowledge resulting from a past event.<sup>18</sup> Examples are ἦ γὰρ πρόσθεν μιν ὄπωπα ‘I have seen him before’ (*Od.* 17.371) and, with a middle perfect, εἰπέ δέ μοι Πηλῆος ἀμύμονος εἴ τι πέπυσσαι ‘tell me if you have heard anything about Peleus’ (*Od.* 11.494). The boundary between this and other uses of the existential perfect is not clear-cut.

The existential perfect is frequent in Homer, but unfortunately is often confused with the stative-resultative. This confusion is due to formulations like “eine am Subjekt nachwirkende vergangene Handlung” (Wackernagel 1904, 4), which suggests that the perfect denotes an *actual condition* of the subject. Indeed, in experiential perfects like πρόσθεν μιν ὄπωπα, the pragmatic implication is that the subject has a certain memory. What the existential perfect does, however, is

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Anterior, but the latter is a more vaguely defined cross-linguistic category encompassing the functions stative-resultative, experiential, persistent situation, and hodiernal past.

<sup>16</sup> Wackernagel 1904, 4 distinguished this use of the perfect as follows: “wenn es gilt, einen Complex kontinuierlicher Handlungen zu bezeichnen, die in der Gegenwart ihren Endpunkt haben”. In reality, however, the ‘continuity’ of actions is irrelevant: ἐσθλὰ ἔοργε refers to a discrete (even if potentially uncountable) set of noble deeds. Various scholars distinguish a special type of perfect for cases like (3) which refer to an iterated event: Kümmel 2000, 73 speaks of a “comprehensive perfect”; Ruijgh 1991 and Ruijgh 2004 of a “totalizing-iterative” perfect.

<sup>17</sup> Romagno 2005, 62–81 speaks of the “valore qualificativo” of the perfect and analyzes many other active perfects in the same way.

<sup>18</sup> For this distinction between existential and experiential perfect, see Allan 2016, 105.

merely to predicate the fact that a past event applies.<sup>19</sup> In other words, in this use the perfect does not narrate, but *asserts* something *about* the subject, adds a qualification (as observed already by Berrettoni 1972).

In sum, the point to be retained is that the perfect did not necessarily refer to a resulting condition of the subject. Rather, its main encompassing function was to transform a dynamic event into a non-dynamic event (= a state). Depending on root semantics, event structure and context, this event may appear as a resulting state or an experience, or it may simply qualify the subject. As for the temporal dimension, the event invoked by the perfect may be a condition that applies at reference time (cf. ἀλάλημαι), it may relate a past event to reference time (cf. ὄπωπα), or it may be extra-temporal (cf. stative perfects like εἶωθα, ἔοικα).

### 3 The Problem of the Creation of a Middle Perfect

Let us now zoom in on the problem of the emergence of a middle perfect, and first focus on the way this was problematized by Chantraine (1927). As we have seen, active perfects are often paired with active present or aorist forms, mainly intransitives (τέθνηκα : θνήσκω ‘die’) but also transitives (κέκευθα : κεύθω ‘withhold’). In Chantraine’s view, however, these forms are “nullement instructif pour la théorie des désinences du parfait” (1927, 24) because they fit neatly in the Greek conjugational system with its distinctions of aspect and voice. Instead, he emphasizes the fact that all lexicalized perfects without other tense/aspect stems (e.g. οἶδα, ἔοικα, εἶωθα) are active perfects (1927, 24–26), noting that no similarly isolated middle perfects exist. In his view, such active perfects are debris from a more original system with many defective verbs.

Secondly, many old active perfects are formed to roots in which the middle voice plays a large part. In terms of alignment, these perfects match a middle present, whereas the corresponding active present has causative sense. An example is ἐγείρω ‘wake up’ (transitive), with a perfect ἐγρήγορα ‘be awake’ matching the intransitive middle present ἐγείρομαι ‘wake up’, aorist ἤγρετο. Similar pairs are also known from Indo-Iranian and Latin, e.g. Ved. pres. *vārtate* ‘turns’ beside

<sup>19</sup> Kümmel 2000, 73 also remarks that such perfects do not indicate a resulting state of the subject, but instead give a characterization of the subject. Interestingly, “[d]as Perfekt in dieser Gebrauchsweise musste im Indoiranischen immer verwendet werden bei Aussagen der Art, dass die betreffende Handlung irgendwann (einmal oder mehrfach) in der Vergangenheit stattgefunden hat, *ohne dass genauer festgelegt wird, wann*” (Kümmel 2000, 74; our emphasis).



perf. *vavárta*, Old Lat. pres. *revortor* beside perf. *revorti*, all intransitive. The intransitive semantics of the perfect to PIE *\*h<sub>1</sub>ger-* is confirmed by Ved. *jāgāra*, which like ἐγρήγορα also means ‘be awake’. In Chantraine’s view, which is still shared by many scholars today (e.g. Clackson 2007, 120), this pairing between active perfect and middle present forms was originally paradigmatic.<sup>20</sup>

Therefore, Chantraine concluded that the PIE perfect had ‘active’ endings only, that there was no functional need for a middle perfect, and that the middle perfect was (by and large) introduced after the proto-language.<sup>21</sup> But if there was no need for a middle perfect, why was it eventually formed? In Chantraine’s view, the motivation can be discovered by considering the few perfects in Homer that have both active and middle forms. In most cases, he claims that there is no clear semantic difference between active and middle forms (1927, 48–54).<sup>22</sup> His examples include active *ῥοικε* ‘looks like’ beside middle pluperfect *ῥῖκτο* ‘looked like’, and active *ἔμμορε* ‘has as a share’ beside middle pluperfect *ἔμμορτο* ‘is destined’. In his view, it is of paramount importance that these (and some other) middle forms are not perfects, but pluperfects. This distribution, though based on a small number of verbs, leads him to posit the following scenario: originally, the perfect *\*wewoike* paired with a pluperfect *\*(e)wewoik-t*, but after the latter form yielded *\*(e)wewoi* (loss of word-final obstruents), it became morphologically opaque. A morphologically transparent middle pluperfect *\*(e)wewikto* was then coined to mend this problem. Thus, the motivation for introducing the middle endings was morphological.<sup>23</sup> At a later stage, both middle perfect indicatives and active pluperfects were created.

<sup>20</sup> Not long after Chantraine’s study, Stang 1932 and Kuryłowicz 1932 independently demonstrated the striking similarity between the singular endings of the PIE perfect (*\*-h<sub>2</sub>e*, *\*-th<sub>2</sub>e*, *\*-e*) and those of the middle (*\*-h<sub>2</sub>*, *\*-th<sub>2</sub>o*, *\*-(t)o*). However, that the perfect and middle endings are etymologically related in pre-PIE does not entail that these categories were derivationally or paradigmatically connected in PIE.

<sup>21</sup> The rare occurrence of functional diathesis oppositions in the perfect stem has also been taken as an indication that such oppositions were devoid of semantic load (e.g. Haug 2008, 296–299). There are, however, a number of verbs where the distinction is clearly functional: see Sections 4 and 6.1.2.

<sup>22</sup> “Dans les exemples les plus anciens, la flexion moyenne est usuelle au parfait, mais sans se distinguer par aucune nuance de l’actif” (Chantraine 1927, 54).

<sup>23</sup> Like Chantraine, Haug also views morphology as the main driving force behind the spread of the middle perfect, but without assigning a pivotal role to the pluperfect. Instead, he speaks of “a tendency to normalize the morphological expression of diathesis: since the perfect patterns semantically with the present and aorist middle and not the active, it gets middle voice morphology” (2008, 298). He does not explain, however, why some transitive verbs retain an active perfect while others replace this form with a middle perfect. As for the Homeric verbs with active

Several important objections have been advanced against this scenario.<sup>24</sup> Cases like *ῥοικε* beside *ῥῖκτο* stand isolated,<sup>25</sup> and the absence of primary forms like 3rd sing. perf. *\*ῥῖκται* against only five instances of *ῥῖκτο/ῥῖκτο* might be coincidental. Moreover, if the perfect was aligned with the middle voice anyway, one might wonder why speakers created an active pluperfect later on and kept *both* active and middle perfects in productive use, instead of simply generalizing the middle conjugation and gradually eliminating the active perfect indicative.<sup>26</sup>

A more promising avenue, therefore, would be to ask whether the middle perfect shares any functions with other parts of the middle voice. Recently, an attempt in this direction has been made by Daues (2006), who argues that most instances of oppositional middle perfects in Homer display canonical functions of the middle voice, such as self-beneficiary (indirect-reflexive), subject-affectedness generally, and passivity. According to Kümmel (2000, 92) a similar conclusion also holds for the Indo-Iranian evidence. While we doubt that Daues' conclusions concerning subject-affectedness in Homeric middle perfects follow from the evidence,<sup>27</sup> the passive use is undeniable and appears to be widespread already in Homer and Mycenaean.<sup>28</sup>

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perfect beside middle pluperfect, Haug suggests that this might represent an intermediate stage of the transition from active to middle perfect, but in our view this is pure speculation.

**24** Cf. the details in Debrunner 1928, 287–288.

**25** Debrunner 1928, 288 rightly criticizes a number of Chantraine's examples for this alternation, noting that it constitutes "keine Grundlage für einen großen neuen Typus".

**26** This seems to be what happened between Homeric Greek and Classical Attic, witness *ἔφθαρμαι* 'am lost' replacing older *ἔφθορα* and similar cases (cf. Haug 2008, 299–300). This does not explain, however, why the active and middle perfect coexisted for such a long time (already long before our attestations of Mycenaean) without developing a functional distinction.

**27** While we agree that transitivity plays a role in the active/middle alternation as well as in the distribution of perfect forms in Homeric Greek, we disagree with Daues on a number of points. Firstly, she does not consider the properties of the objects of the perfect forms, which seem essential to us (cf. Section 6). Moreover, we are not convinced that the middle perfect stem functioned as a repertoire for metaphorical usages, as opposed to the active (Daues 2006, 11). She discusses the phrases *δσσα τοι ἐκπέποται καὶ ἐδήδοται* 'all that has been drunk and eaten up' (*Od.* 22.56); *χρήματα δ' αὖτε κακῶς βεβρώσεται* 'as for his possessions, they will be badly devoured' (*Od.* 2.203); *δαιτὸς κεκορήμεθα θυμὸν ἔϊσης* 'we have satisfied our appetite with the fair banquet' (*Od.* 8.98); *πολέων κεκορήμεθ' ἀέθλων* 'we are fed up with the numerous trials' (*Od.* 23.350), but it should be noted that the active perfect is often used with metaphorical meaning as well; therefore, this claim fails to nail down the exact distinction between middle and active perfect forms.

**28** "Die passive Bedeutung des Mediums ist bei Homer und im Veda im Pf. ganz besonders häufig" (Debrunner 1928, 288). Cf. also Chantraine 1953, 182; for the Mycenaean evidence, see below p. 94 n. 63.

Therefore, in this study we hypothesize that the middle perfect stem was created precisely in order to express the resulting state of the *object* of (certain types of) transitive verbs, because the active perfect could not do this. In other words, the introduction of middle endings with the perfect stem corresponded to the presence of external causation in the predication.<sup>29</sup> This idea has been hinted at by previous scholars, but to our knowledge its details and consequences have not yet been fully explored.<sup>30</sup> Moreover, the position of active perfects is frequently misunderstood when it is stated that they, too, could originally be used with passive function.<sup>31</sup>

## 4 Resulting States: Active or Middle Perfect?

In Section 2, we have discussed perfects that do not represent a dynamic event (activity or achievement) as actually taking place, but predicate an event as characteristic of the subject (existential, experiential, etc.).<sup>32</sup> In what follows, we will pay more attention to *resulting states*. Perfects denoting a resulting state indicate that their subject has a certain lasting property or condition that came about as *the result* of a past action in which the same entity acted as Patient. This situation is especially frequent with middle perfects, e.g. τίω ‘honour’, perf. ptcpl. τετιμμένος ‘honoured’; εἶρω ‘string’, perf. ἔερται ‘is strung’; aor. ἔτεφνον ‘slew’, perf. πέφωται ‘has been slain, lies dead’. In such cases, the verb is usually high on the transitivity scale and has a prototypical Agent or Causer argument: for instance, the state of being honoured usually presupposes that someone actually

<sup>29</sup> On the relationship between agentivity and the presence of an affected object, see Kratzer 1996.

<sup>30</sup> For instance, Schwyzler/Debrunner 1950, 264 consider “das passive Perf. transitiver Verba älter als das aktive”, although under ‘active perfect’ they seem to understand the later oppositional κ- and aspirated perfects of the classical language.

<sup>31</sup> Chantraine 1927, 90 thinks that the frequency of passive readings of middle perfects in Classical Attic prose authors replaces an older situation in which the active perfect could have passive function. Cf. Schwyzler/Debrunner 1950, 237: “[a]uch das Perfekt Akt. alter Bildung und intransitiv-zuständlicher Bedeutung konnte einem Passiv recht nahe kommen”. More explicitly Ruijgh 2011, 286, on Hom. τετευχώς and Myc. *te-tu-ko-wo-a*: “[i]n Proto-Indo-European, the ‘active’ perfect form could be used for expressing the resulting state of a passive subject”; in similar fashion Slings 1987, 63.

<sup>32</sup> This type of perfect is found with active and middle perfects alike (cf. ἀλλάλῃμαι, πέπυσμαι), but it should be noted that middle perfects occurring beside deponent eventive stems can be secondary replacements of active perfects (cf. Section 5.5).

conferred this honour at some point. Similarly, being strung is typically the result of a volitional act of stringing objects together.

With active perfects, however, the state of the subject is usually *not* the result of a prototypical transitive action. In most cases, the subject of the perfect is also the subject of the corresponding non-perfect stems. We may distinguish:

- (a) Active perfects of intransitive verbs denoting accomplishments (especially change-of-state, such as ‘die’, but also verbs of motion like ‘come’), which belong to the category of unaccusatives.<sup>33</sup>
- (b) Active perfects of activity verbs (sound verbs; other so-called ‘intensive’ perfects).
- (c) Active perfects of transitive verbs, provided that no change of state in the object is expressed (see Section 6); such cases are usually existential perfects.

There are, however, also some active perfects that (from a morphosyntactic perspective) seem to behave like the ‘passive’ middle perfects just mentioned. These active perfects stand beside a transitive eventive stem and denote a resulting state of the Patient of the event.<sup>34</sup> For instance, πέπηγε ‘is stuck, sticks (intr.)’ (as in *Il.* 3.135 παρὰ δ’ ἔγχεα μακρὰ πέπηγεν ‘and beside, long spears are stuck [in the ground]’) corresponds to the transitive aorist πήξε ‘fixed, stuck’ (a spear into someone’s body/the ground). Our question is, therefore: why is it that a resulting state of the Patient is usually expressed by a middle perfect, but sometimes by an active perfect? In other words, why do we find πέπηγε, rather than πέπηκται, as the perfect of πήγνυμι?

As we have seen, according to Chantraine, active perfects were aligned with middle presents and intransitive aorists: both from a semantic and a morphological perspective, the perfect belongs to the domain of the middle voice. This supposed original situation is reflected in Homer only partially, because older active perfects may have been replaced by middle perfects, and because new active presents have been created.

However, although a connection between perfect and middle is widely accepted, disagreement has recently been voiced by Romagno in her monograph on the Homeric perfect (Romagno 2005). Investigating the relationship between

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<sup>33</sup> The label ‘unaccusative’ indicates all those intransitives the subject of which has the properties of a Patient. From a syntactic perspective, this argument is considered as originally occupying the same locus as the direct object of transitive verbs; this fact explains their common properties (cf. Perlmutter 1978). Unaccusative verbs differ sharply from unergatives, which generally express activities and are characterized by an agentive subject.

<sup>34</sup> An overview of the examples can be found in Romagno 2005, 81–89.

the semantics of the perfect and the actionality of verbal predicates within the framework of thematic roles,<sup>35</sup> she claims that the perfect denotes a state of the subject, turning it into an inactive participant. She not only denies any connection between the PIE perfect and the middle voice, but even thinks that the two categories were incompatible and could not be derived from the same root. Her reasons are as follows. First, many active perfects are aligned with morphologically active presents and aorists (e.g. θνήσκω, perf. τέθνηκα); secondly, most deponents (e.g. νέομαι ‘return’, ἔρχομαι ‘come’) have no perfect at all, and when they do, it is usually a middle perfect (and therefore possibly secondary); and thirdly, she argues that the attested pairings between *medium tantum* and active perfect might be secondary.<sup>36</sup>

While we disagree with Romagno on various issues, we partly agree that there was no inherent connection between perfect and middle in the proto-language: perfects must already have been formed to morphologically active presents, too. However, we consider Romagno’s rejection of old pairings of the type γίγνομαι : γέγονα to be too categorical. In fact, from a morphological point of view the PIE perfect could be formed to both active and middle eventive stems; the real issue is to find out under which *semantic* conditions a perfect could be formed. In what follows, we will therefore ask whether there were semantic restrictions on creating active perfects: could they originally be formed beside any eventive stem (whether transitive or intransitive), or was there a ban on the formation of perfects beside, for instance, high-transitivity lexical items?

In order to reach an answer to this question, the distribution between active and middle perfects in Homeric Greek will be investigated, considering not only

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**35** Theta-roles (or semantic roles) express the function of an argument. They are strictly dependent on the syntactic location of arguments: for instance, the role of Agent can only be assigned to an external argument (subject), while the role of Patient is always assigned to the complement of a verb (internal argument). Therefore, they are a crucial element of the syntax/semantics interface and are essential for the interpretation of a sentence. For more details about theta-theory, see Reinhart 2002.

**36** Romagno 2005, 43–44. In her view, middles already contain a state predicate in their underlying logical structure, so that the perfect would be superfluous. This cannot be correct, since most uses of the Greek middle share the feature ‘subject-affectedness’, whether in spontaneous processes, body motion, mental processes and activities, reciprocal middles, indirect reflexives, or verbs of grooming (cf. Allan 2003). Only middles that continue old PIE statives (κέῖμαι, ἵμαι, εἵμαι) have a state predicate, and indeed perfects of these verbs do not occur. Note that Romagno 2005, 29, basing herself on articles by Lazzeroni, adheres to the view that there was no separate category ‘stative’ in PIE, a view which we (like the majority of Indo-Europeanists today) do not share.

the semantics of the concrete perfect stems, but also the underlying event structure of the lexeme. We consider all cases where the active perfect denotes a resulting state (rather than a plain state, an experience, or an extra-temporal property of the subject: see Section 2), and ask which types of events are represented. Throughout the discussion, it must be kept in mind that the middle perfect may have gained territory at the expense of the active.

## 5 The Material

We will first consider the entirety of the Homeric evidence<sup>37</sup> for active perfects with a subject matching that of a corresponding middle present and/or intransitive aorist.<sup>38</sup> After sifting through the data, we are left with a collection of 21 active perfects standing beside transitive active presents and/or aorists. For part of this evidence, previous authors (e.g. Chantraine 1927) already recognized that the transitive formation was formed as a secondary causative or factitive. We will first discuss and illustrate these findings, and then present a new analysis of some more stubborn examples of active perfects with passive meaning. In this way, a link between the possibility to form an active perfect and the absence of a prototypical semantic Causer role in the event structure will be established.

### 5.1 Anticausatives

First, a number of verbs denote spontaneous telic processes or transformations and have a factitive active: σήπομαι ‘rot’ (perf. σέσηπα ‘be rotten’); τήκομαι ‘melt, dissolve’ (perf. τέτηκα ‘be dissolved’); περιτρέφομαι ‘congeal’ (perf. περὶ [...])

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<sup>37</sup> We leave denominatives out of consideration because they were automatically assigned a middle perfect in early Greek. Moreover, the absence of perfects to denominative verbs in Indo-Aryan seems to imply that PIE did not have this possibility either.

<sup>38</sup> Cf. Chantraine 1927, 26–37 for a discussion of the Homeric evidence, and Chantraine 1927, 37–44 for the post-Homeric evidence. In the following discussion, we have left aside μέμονα ‘strive for, be keen at, be willing’ (which may belong either with μαίνομαι ‘rage’ or with μένω ‘wait’, cf. Willi 2018, 235, and therefore cannot be used in this discussion). We have also left aside perfect participles in -ηώς of the type βεβαρηώς (on the antiquity of this type, see Hackstein 1997–1998) because these are probably denominal in origin; κεκορηώς (cf. κορέσαι ‘satisfy’, Chantraine 1927, 31) is probably secondary for κεκορημένος.

τέτροφεν ‘has formed a crust’). The event structure of these verbs does not contain an inherent Causer role.<sup>39</sup> Indeed, the active of these verbs is generally rare, and in the case of σήπομαι it is not even attested in Homer. A special case is the perfect of τρέφω ‘raise, rear (etc.)’, τέτροφεν. In Homer, it occurs only once: πολλή δὲ περὶ χροὶ τέτροφεν ἄλμη (*Od.* 23.237) ‘a lot of brine has crusted on his skin’, denoting a spontaneous natural process.<sup>40</sup> This form (περὶ [...] τέτροφεν, in tmesis) belongs to the prefixed middle περιτρέφομαι, attested at *Od.* 14.477 (καὶ σακέεσσι περιτρέφετο κρύσταλλος ‘and a layer of ice settled on their shields’) and also at *Il.* 5.903 meaning ‘thicken, curdle’ (of a liquid), which is also the etymological meaning of the PIE root *\*d<sup>h</sup>reb<sup>h</sup>-*.

A number of other verbs have an (active or middle) root aorist with anticausative semantics, beside a secondary transitive s-aorist: δύομαι ‘enter’ (aor. ἔδυν, perf. δέδυκα); ἐγείρομαι ‘wake up’ (aor. ἡγρόμην, perf. ἐγρήγορα ‘to be awake’); ἵσταμαι ‘stand up’ (aor. ἔστην ‘stood up’, perf. ἔστηκα ‘stand’); ὀρνυμαι ‘rise, get up’ (aor. ὤρτο ‘arose’, perf. ὄρωρε ‘arises; has arisen’); φύομαι ‘grow’ (aor. ἔφυν, perf. πέφυκα).

That the active presents δύνω, ἐγείρω, ἵστημι, ὀρνυμι and φύω (and their transitive sigmatic aorists ἔδυσα, ἤγειρα, ἔστησα, ὤρσα, ἔφυσα) are secondary causatives or factitives is strongly suggested by two facts: first, when available, cognates in other IE languages show intransitive meanings (e.g. Skt. *tīṣṭhati* ‘stands’; OCS *byti* ‘be’; Lat. deponent *orior* ‘rise’, etc.). Secondly, this intransitive meaning also appears in the root aorists *\*(é-)steh<sub>2</sub>-t* (cf. Ved. Skt. *ásthāt*), *\*(é-)b<sup>h</sup>uH-t* (cf. Lat. *fuit* ‘was’, Ved. Skt. *ābhūt* ‘was’), *\*(é-)h<sub>3</sub>r-to* (cf. Skt. *ārta* ‘got moving’, Hittite *arta(ri)* ‘stands’).<sup>41</sup> For the perfect of PIE *\*h<sub>1</sub>ger-*, intransitive semantics can be reconstructed by comparing Gk. ἐγρήγορε ‘is awake’ and Ved. *jāgāra* ‘id.’.

A third group of verbs denote atelic spontaneous or mental processes (in Vendlerian terms, these are activities): δαίομαι ‘radiate’ (perf. δέδηα); ταραύσσομαι ‘be stirred’ (plupf. τετρήχει ‘was in upheaval’); ἔλπομαι ‘think; hope’ (perf. ἔολπα). In Homer, the factitive ἔλπω ‘give hope’ is rare (only in the repeated line *Od.* 2.91 = 13.380). Semantically, ταραύσσομαι/τετρήχει may denote both natural and mental processes. The event structure of this verb contains not a Causer, but a Stimulus. We may therefore assume that the active ταραύσω (aor. ἐτάραξα)

<sup>39</sup> The verbs expressing spontaneous processes are, from a typological perspective, a prototypical case of internally caused events (simple predicates), which means that their event structure lacks an Agent/Causer (Levin/Rappaport-Hovav 2005).

<sup>40</sup> In post-Homeric Greek, the perfect τέτροφε may belong to τρέφω ‘raise, rear’.

<sup>41</sup> For the etymology of the Hittite verb we follow Kloekhorst 2008 s.v. *ar-tta(ri)*. That the formation of the perfect ὄρωρε might be recent (assuming that ὄρωρε replaces *\*ōre* < PIE *\*h<sub>3</sub>e-h<sub>3</sub>or-e*) does not preclude this verb from having an old, inherited perfect.

is a factitive verb; this is also confirmed by its morphology (derived *yod*-present and *s*-aorist) and by the fact that it is often used for natural phenomena (the sea; horses). The active present δαίω, too, is mostly used as a factitive ‘cause to radiate’ (cf. Chantraine 1927, 28), as neatly illustrated by the following passage (cf. also *Il.* 5.4–7):

- (4) ἡνίοχοι δ' ἔκπληγεν, ἐπεὶ ἶδον ἀκάματον πῦρ  
 δεινὸν ὑπὲρ κεφαλῆς μεγαθύμου Πηλεΐωνος  
 δαιόμενον· τὸ δὲ δαΐε θεὰ γλαυκῶπις Ἀθήνη.

(*Il.* 18.225–227)

The charioteers were baffled when they saw the untiring, terrible fire over the head of the high-spirited son of Peleus, radiating; the goddess, grey-eyed Athena, made it glitter.

Interestingly, the radiation denoted by δαίωμα in passages like (4) often is caused by a divinity, and this is also true of the sea in the phrase ἐτάραξε δὲ πόντον (*Od.* 5.291 and 304), which is made rough by Poseidon and Zeus, respectively. The structural presence of (often explicitly mentioned) supernatural Causers is another indication that the active of these verbs is a causative.

Two remaining verbs do not fall in the above classification, but previous scholarship is in agreement that they are anticausatives, too. First, beside πείθομαι ‘obey, follow someone’s lead’ (aor. ἐπιθόμην ‘id.’; perf. πέποιθα ‘trust, rely on’), the active πείθω ‘persuade, convince’ (aor. ἔπεισα, etc.) is a causative.<sup>42</sup> Although synchronically the perf. πέποιθα might be considered an independent lexeme, it clearly aligns with the middle present/aorist. That the lexeme did not involve a Causer seems to be confirmed by the intransitive semantics of derived forms like πίστις ‘confidence’, πίσυνος ‘relying’.<sup>43</sup> Moreover, the same meaning as in πέποιθα is found in Lat. *fīdō* ‘trust’, with derivations like *fīdēs* ‘trust, loyalty’, *foedus* ‘treaty’, while the only other ascertained cognate verbs (in Germanic and Slavic, see *LIV* 71–72) continue an inherited morphological causative *\*b<sup>h</sup>oid<sup>h</sup>-eye-*. Secondly, δαῖναι ‘learn’ (reduplicated aor. δέδαε ‘teach, instruct’, perf. δεδάηκε ‘has learnt’, δεδαώς ‘able, learned’) has a morphological causative/factitive διδάσκω ‘teach, instruct’ that itself seems to be inherited from PIE. *LIV* 118–119

<sup>42</sup> Cf. Chantraine 1927, 33; *LIV* 71–72 with n. 1.

<sup>43</sup> Nominals and verbs of the same root, though differing in grammatical category, are nevertheless characterized by the same argument structure. Therefore, restrictions on nominalizations are a good test to corroborate the syntactic/semantic properties of a root (cf. Borer 2005).



gives the root meaning as ‘kundig werden’; the reduplicated aorist is analyzed as a factitive.<sup>44</sup>

## 5.2 Verbs of Destruction

The causative-anticausative alternation can also be observed with a couple of verbs of destruction. A first case is ἐρείπω ‘cause to crumble’, ἥριπον ‘collapsed, fell down’ (intr.), perf. act. κατερήριπεν ‘has crumbled’. The intransitive meaning of the active thematic aorist suggests an old intransitive verb (cf. also Chantraine 1927, 30 and the examples given in Section 5.1). Interestingly, whereas this aorist always qualifies things or persons falling to the ground, the three instances of the active thematic present ἐρείπω in Homer have the Achaean wall (or part of it) as an object. Here, the lexeme has a different meaning, ‘crumble’. Consider, for instance:

- (5) [...] προπάροιθε δὲ Φοῖβος Ἀπόλλων  
 ῥεῖτ' ὄχθας καπέτοιο βαθείης ποσσὶν ἐρείπων  
 ἐς μέσσον κατέβαλλε, γεφύρωσεν δὲ κέλευθον.

(*Il.* 15.354–356)

Before them, Apollo made the banks of the deep trench crumble with his feet, without effort, and casting it into the middle, he bridged a path.

This suggests that the basic meaning was intransitive: ‘crumble, fall apart, collapse, disintegrate’. This idea might be confirmed by the etymology of the Lat. cognate *rīpa*: a river bank is continuously subject to the natural process of erosion.<sup>45</sup> The active perfect κατερήριπεν could reflect this older meaning; the middle pluperfect ἐρέριπτο could be interpreted as a passive, ‘had been ruined’ *vel sim.*

In the case of ὄλλυμαι ‘perish’ (aor. ὠλόμην, ὀλέσθαι; perf. ὄλωλα), the active ὄλλυμι, ὤλεσα is a causative. This appears most clearly from the phrase πολὺν ὤλεσα λαόν ‘I have allowed many men to perish, have lost many men’ (said by Agamemnon at *Il.* 2.115; not \*‘I destroyed many men’). There is also a frequent formulaic use ὤλεσε θυμόν ‘he lost his life’ that seems to presuppose the same semantics (< ‘he allowed his life to be taken’, not \*‘he destroyed his own life’; the

<sup>44</sup> See Willi 2018, 64.

<sup>45</sup> Another cognate is the Germanic strong verb \**rīfan*- (Old Norse *rífa* ‘tear; be rent, give way’, Middle Eng. *riven* ‘tear’ etc., see *EDPG* s.v. \**rīfan*- ~ \**rīpan*-).

Agent in this construction is indicated in e.g. ὕφ’ Ἑκτορος ἀνδροφόνοιο, *Il.* 17.616).

As for (δια-)φθείρομαι ‘be wasted, perish’ (perf. διέφθορας), determining the etymological meaning of this verb is not without problems, but an interesting and promising attempt has been made by Jamison 1993, followed by the *LIV* (‘im Wasser dahintreiben’). Jamison argues that φθείρομαι in nautical contexts means ‘go off course, drift away’ (of ships), ‘be shipwrecked’ (of sailors), and connects this with the meaning of the Indo-Iranian root Ved. *kṣar*, Avest. *γžar* ‘flow’. She also points out that a meaning ‘go astray’ would excellently fit the only occurrence of the perfect διέφθορας ‘you have lost your senses’ at *Il.* 15.128. The occurrence of φθείρω at *Od.* 17.246 αὐτὰρ μῆλα κακοὶ φθείρουσι νομῆες may well have causative or permissive meaning: ‘bad herdsmen let their flocks go astray’, as stressed by Jamison.<sup>46</sup> Thus, again it seems that the intransitive (spontaneous process) use is oldest, and that active φθείρω is a secondary causative.

Furthermore, consider ἄγνυμαι ‘break, shatter’, aor. ἔαγη, perf. ἔαγε ‘is broken’. The perfect ἔαγε, though not attested in Homer (ἔαγη at *Il.* 11.559 is an intransitive aorist, cf. Chantraine 1958, 18), is found in Hesiod and Sappho and is therefore old. The presence of an intransitive aorist ἔαγη in Greek and of an intransitive verb in Tocharian *wāk-* ‘break (into pieces)’ both point to an old intransitive verb.<sup>47</sup> Moreover, the intransitive semantics is confirmed by the absence of derived agent nouns with this root. Thus, ἄγνυμι (aor. ἔαξα) is a productively formed causative.

Finally, consider φθίνω ‘perish, waste away’, root aor. ἔφθιτο, ptcpl. φθίμενος ‘dead’, perf. act. ἔφθιεν, plupf. med. ἔφθιτο. The perfect active is attested in Mycenaean as *e-qi-ti-wo-e* (TH Wu 75) and denotes swine that have apparently perished. Since the aorist ptcpl. φθίμενος is also resultative, García Ramón has discussed the ways in which it differs from the Mycenaean form *e-qi-ti-wo-e*; he argues that this active perfect form was superseded by φθίμενος, but that the perfect stem is continued in Homeric ἔφθιεν (*Il.* 18.446) and in some instances of the plupf. med. ἔφθιτο.<sup>48</sup> The middle root aorist suggests an old intransitive verb (cf. *LIV* 151 with n. 2). The active paradigm consists of pres. φθίνω, aor. ἔφθειςα, fut. φθείσω; it is sometimes causative, sometimes (like the middle) intransitive.

46 “While φθείρουσι can simply mean ‘ruin, destroy’, as it is usually taken [...], in fact what bad herdsmen really do is allow their flocks to scatter or get lost” (Jamison 1993, 249).

47 Cf. *LIV* s.v. \**meḥ₂g-* (“das gr. Perfekt spricht für fientive Grundbedeutung”).

48 García Ramón 1990, 13–15.

Other verbs of destruction (κτείνω, θείνω, etc.) do not have an active perfect in Homer. In Classical Greek, κτείνω has a perfect ἀπέκτονα that looks old from a morphological perspective; it is unclear whether the absence of this form in Homeric Greek is a coincidence, or whether it reflects the linguistic state of affairs.<sup>49</sup> For θείνω ‘slay’, only a middle perfect is attested, and the active perfect το βάλλω does not take part in the causative-anticausative alternation.

### 5.3 Verbs of Production

The following three verbs are semantically related in that they are (in some of their meanings, at least) verbs of production: πήγνυμι ‘stick into’, ἀραρίσκω ‘adjust’ and τεύχω ‘produce, make’.

In Homeric battle narrative, the verb πήγνυμι ‘stick into’ (aor. ἔπηξα; perf. πέπηγα ‘be stuck’) is normally transitive, indicating that an agentive subject causes a weapon to change position. In examples like παρὰ δ’ ἔγχεα μακρὰ πέπηγεν ‘and beside, long spears are stuck (in the ground)’ (*Il.* 3.135), the perfect indicates the resulting state corresponding to the transitive aorist πῆξε ‘he fixed, stuck’ (into the ground). This use is retained after Homer, e.g. [ξίφος] πέπηγεν ἐν γῇ πολεμίᾳ ‘[the sword] is fixed in enemy soil’ (*Soph. Aj.* 819). Thus, πέπηγα seems a convincing example of an active perfect denoting the resulting state of the Patient of a transitive verb.

Things are, however, not as clear as they seem. Another meaning, frequent with the medio-passive forms (including aor. ἐπάγην), is ‘become solid, stiffen, freeze, congeal’, denoting natural processes: γούνα πήγνυται ‘the knees get stiff’ (*Il.* 22.453); ἅλεις πήγνυνται ‘salt crystallizes’ (*Hdt.* 6.119.3, etc.). The perfect πέπηγε also aligns with this medio-passive use: πεπάγαισιν δ’ ὑδάτων ῥόαι ‘the streams are frozen’ (*Alc. fr.* 338.2 Voigt); ἄρθρα [...] πέπηγέ μου ‘my limbs are stiff’ (*Eur. HF* 1395); more examples in LSJ s.v. In this meaning, the active present and aorist forms are obviously secondary factitives.<sup>50</sup>

The main question now becomes how these two meanings are interrelated. Within Greek, the second meaning is broadly attested in lexicalized derivatives (e.g. πηγυλῖς ‘ice-cold’; πηγός ‘solid, thick, firm’ (*Hom.* +); παγετός ‘frost’), and is clearly old. On the other hand, the highly specific correspondence between Lat.

<sup>49</sup> More on the active perfect of transitive predicates in Section 6.1.1.

<sup>50</sup> In such cases the Causer is, again, often a divinity: cf. θεός [...] πήγνυσσι πᾶν ῥέεθρον ‘the god froze the entire stream’ (*Aesch. Pers.* 496); εἰ μὴ [...] τοὺς ποταμοὺς ἔπηξε ‘if he [Zeus] had not frozen the rivers’ (*Ar. Ach.* 139).

*pangō* ‘insert, fix’ (cf. the instrument noun *pālus* ‘stick’ < pre-Latin *\*pag-slo-*) and Hitt. *pāsk-* ‘plant, impale, insert a stick’ shows that the first, transitive meaning is old, too. Interestingly, the medio-passive and perfect stems are used to refer to missiles that get fixed into their target without a direct Causer: δόρυ δ’ ἐν κραδίῃ ἐπεπήγει ‘the spear was stuck in his heart’ (*Il.* 13.442), δοῦρα [...] ἐν σάκει [...] πάγεν ‘the spears got fixed in the shield’ (*Il.* 11.571–572), among many other examples. Thus, this meaning ‘stick, insert’ may also have started off as an intransitive ‘get stuck’; if so, this must have happened already in the proto-language. Subsequently, within Greek prehistory the use of the active perfect πέπηγα (originally denoting the result of a spontaneous process) may have been extended to cases where an Agent/Causer was present (i.e. it could then also refer to resulting states of the transitive ‘stick, insert’).<sup>51</sup>

A second, less complicated case is ἀραρίσκω, aor. ἤραρον ‘adjust, fit out (with)’, perf. ptcpl. ἀρηρώς ‘fitted out, fitting’; plupf. ἀρήρει. This verb is semantically related to the previous: both πηγ- and ἀρ- are used to denote the technical production of vehicles by carpentry (cf. ἀρματοπηγός ‘wheelwright’).<sup>52</sup> Synchronically, the verb usually indicates that a condition of being fit results from prior adjustment by a Causer. If this event structure were primary, the perfect ἀρηρώς would denote the resulting state of the object of a transitive event. There are sufficient reasons, however, to consider ἀραρίσκω and ἤραρον as original causatives, and the perfect ἀρηρώς (as well as the middle aor. ptcpl. ἄρμενος ‘adjusted, fitted out’) as original anticausatives. First, the indicative pluperfect ἀρήρει occurs in a formulaic phrase in which being fitting is *not* the result of adjustment: ἔγχος, ὃ οἱ παλάμῃσιν ἀρήρει ‘the spear that fitted his hands’ (*Il.* 3.338; *Od.* 17.4); cf. δοῦρε, τὰ οἱ παλάμῃσιν ἀρήρει (*Il.* 16.139). Secondly, the productive function of the reduplicated aorist is to create causatives (cf. Willi 2018, 69), and the present ἀραρίσκω is clearly secondarily based on aorist ἤραρον. It may therefore be assumed that ἀρ- was originally intransitive (with *LIV* s.v. *\*h<sub>2</sub>er-*, 270 n. 1: “das Perfekt verlangt den fientiven Bedeutungsansatz”), forming a middle root aorist and a perfect.

A final problematic case is τεύχω ‘produce, make’ (aor. ἔτευξα, perf. med. τέτυκται, perf. act. ptcpl. τετευχώς). The last-mentioned participle is a *hapax*,

<sup>51</sup> Another solution is chosen by *LIV* (461–462), which posits two originally different verbs, intransitive *\*peh<sub>2</sub>g-* ‘get solid, freeze’ vs. *\*peh<sub>2</sub>k-* ‘insert, fix’. Although this would allow to connect the Germanic verb *\*fōgjan-* (Dutch *voegen*, Germ. *fügen* ‘fit together’) to the group of Lat. *pangō*, Hitt. *pāsk-*, it would leave unexplained the complete merger of the two roots in Gk. πήγνυμι.

<sup>52</sup> The root πηγ- may also refer to pitching tents and building ships, types of construction in which wooden sticks or poles are inserted into a surface.

appearing only in the phrase βοὸς ῥινοῖο τετευχώς ‘made of cow’s hide’ (*Od.* 12.423). This form is usually compared to Myc. *te-tu-ko-wo-a* (of clothes, KN L 781.b; of wheels, PY Sa 682), allegedly meaning ‘finished’ or ‘well-made’. If these are old active participles to τεύχω, this would obviously present a considerable problem for our hypothesis,<sup>53</sup> since τεύχω has a complex argument structure: an external volitional Causer brings about a change of state. It is possible, however, to resolve this problem by reconsidering the actual attestations and the etymology.

Let us start with τετευχώς, which is usually considered to reflect an earlier *\*<sup>th</sup>et<sup>h</sup>uk<sup>h</sup>wōs* (cf. Mycenaean *te-tu-ko-wo-a*), but with a secondary full-grade τευχ- introduced after the disappearance of digamma.<sup>54</sup> It is worrying that τετευχώς occurs only once, and not in a passage that makes an archaic impression. The normal form in Homer, moreover, is the middle perfect τέτυκται, τετυγμένος, which occurs no less than 86 times. Furthermore, the construction τετευχώς + gen. is different from that of the Mycenaean form *te-tu-ko-wo-a* (which is used absolutely), but directly matched in Homer by the middle perfect in e.g. αἱ δὲ βόες χρυσοῖο τετεύχματο κασσιτέρου τε ‘the shields were made of gold and tin’ (*Il.* 18.574; cf. also *Od.* 19.226). In fact, several Homeric perfects that only appear as participles use the active and middle voice without semantic difference (e.g. τετιηότι θυμῷ beside τετιημένος ἦτορ),<sup>55</sup> and such cases may have served as a model for the creation of τετευχώς. It is therefore quite conceivable that τετευχώς is an artificial poetic creation.<sup>56</sup>

Another salient point is the etymology of τεύχω. It has long been noted that Homer also has a reduplicated aorist τετύκοντο ‘they prepared (for themselves)’ that is close in meaning. It is therefore possible that the root-final aspirate of τεύχω ‘produce’ is secondary, and that the Homeric verb was influenced by the root of τυγχάνω, ἔτυχον. A fitting Greek cognate for *\*τεῦκω* would be τύκος ‘hammer, axe’: by comparing OCS *tvkati* ‘weave’, aor. *tvče* ‘thrust’, it is possible to reconstruct a root PIE *\*teuk-* ‘fashion’ (by thrusting or hammering? Cf. *LIV* 640 with note 1a; cf. also 149 with note 1). That τεύχω represents a conflation of two roots becomes clear from further Homeric evidence: the reduplicated present τιτύσκομαι, with its dual meanings ‘prepare’ and ‘take aim’, clearly belongs not

<sup>53</sup> As remarked above (n. 31), on the basis of *te-tu-ko-wo-a* scholars like Ruijgh and Slings have claimed that the active perfect in PIE allowed for passive readings.

<sup>54</sup> See e.g. Ruijgh 2011, 286.

<sup>55</sup> Generally, cf. Hackstein 1997–1998 on this type of alternation.

<sup>56</sup> The direct model is not attested, but not difficult to imagine: the participial phrase might be an inflection/adaptation of an older βοὸς ῥινοῖο τέτυκται.

only with the aorist τετύκοντο, but also with ἔτυχον in the sense ‘hit (a target)’. This would clear the way for us to consider Myc. *te-tu-ko-wo-a* as belonging only to the second etymon, τυγχάνω, ἔτυχον < PIE *\*d<sup>h</sup>euǵh-* (cf. Gothic *daug* ‘is useful’, Skt. *duhé* ‘yields milk’). In both its attestations, *te-tu-ko-wo-a* qualifies a product, and ‘of high quality’ (*tauglich*, in German) would be a fitting translation. In fact, the Mycenaean form is reminiscent of Homeric phrases like τετυγμένος, οὐδὲν ἀεικής ‘an excellent mind, not at all unseemly’ (*Od.* 20.366), among many other examples: there, the participle does not qualify the object as the result of a production process (‘finished’), but denotes that it stands out *qua* quality and/or fulfils its function well. This may also help us understand the apparent ellipsis of \*εὖ in νόος [...] τετυγμένος and τυκτός (beside εὐτυχτός ‘well-made’).

We may conclude that the pairing of active perfects with verbs displaying a causative-anticausative alternation probably arose when causative eventive stems were secondarily formed, as Chantraine already argued. The main counterexamples, such as τετευχώς and πέπηγα, may be explained as secondary.

## 5.4 Active Perfect beside *Medium Tantum*

In this section we will briefly discuss the cases (9 in total) in which an active perfect attested in Homer corresponds to a deponent present.<sup>57</sup> We will ask, with Romagnolo 2005, to which extent these pairings may have arisen secondarily.

Beside ὄρομαι ‘oversee’, an active pluperfect ὀρώρει is attested once in ἐπὶ δ’ ἀνὴρ ἐσθλὸς ὀρώρει ‘a good man was supervising [the work]’ (*Il.* 23.112). The comparison with ἐπὶ δ’ ἄνδρες ἐσθλοὶ ὄροντο ‘noble men herd them [the flocks]’ (*Od.* 14.104) might show that ὀρώρει was created by artificial inflection of this verse-end (note that its formation presupposes psilosis, as the root is *\*ser-*). The middle diathesis of ὄρομαι (cf. already Myc. *o-ro-me-no*) is expected in a verb of perception denoting a volitional activity, accompanied by an experiential subject.<sup>58</sup>

The same holds for δέρομαι ‘look (at)’ beside δέδορκα ‘look’. The present δέρομαι is usually thought to be a secondary creation of Greek, because in Sanskrit the paradigm of the cognate root *darś* ‘see’, which appears in the aorist and perfect, is supplied in the present by *paśyati* (PIE *\*spek-*). In our view, this argument is not strong: δέρομαι might well be inherited because Greek preserves

<sup>57</sup> See Chantraine 1927, 26–37 for a discussion of the evidence, not all of which is of equal value.

<sup>58</sup> Cf. Allan 2003, 95–101; Migliori 2016, 37.

what seems to be the original root meaning ‘look’, denoting an activity. In Sanskrit the aorist of *darś* ‘see’ has taken over the place occupied in PIE by *\*wid-e/o-* (Gk. εἶδον ‘saw’). If δέρκομαι continues an old present, its middle voice is again understandable, being a verb of perception with volitional subject. The active voice was retained in the perfect δέδορκα because the subject of a state is non-affected by definition.

Concerning προβέβουλα ‘I prefer’ (*hapax*, *Il.* 1.112), the present βούλομαι may also be used as a stative with the same meaning. Moreover, morphologically the perfect looks secondary: as a root formation, one would expect *\*προβέβουλα*, and to assume that προβέβουλα arose by metrical lengthening of such a form (as is sometimes done) seems *ad hoc*. There was also a metrical incentive to create the perfect: the compound verb προβούλομαι could only be used in the hexameter by admitting Attic correption, which is still a rare and mainly lexically determined license in Homer.

In the case of the sound verbs μυκάομαι ‘bellow’ (*hapax*, *Od.* 10.413) and βρυχάομαι ‘roar’, the denominative formation of these presents betrays their recent origin compared to the perfects μέμυκε ‘groans’ and βέβρυχε ‘roars’;<sup>59</sup> moreover, these presents are all but absent from Homer.

For παροίχωκε ‘is over’ (*hapax*, *Il.* 10.252; post-Homeric also simplex οἶχωκα) beside παροίχομαι ‘pass by’ (οἶχομαι ‘be gone’), it has been observed that the formation was probably influenced by that of μέμβλωκε ‘has come’, which occurs in another passage dealing with the passing of time, *Od.* 17.190–191.<sup>60</sup> This could explain why an active (instead of middle) perfect is productively formed beside a deponent.

The middle present ιλάσκομαι/ιλάομαι ‘propitiate’ has a perf. subj. ἰλήκησι, as well as an imperative ἴληθι ‘be merciful’. The middle is clearly self-beneficiary, but underlyingly, it seems to reflect an oppositional causative to the perfect stem. The pairing of middle and perfect is therefore probably secondary.

The pairing of μείρομαι ‘obtain a share’ (imperat. μείρεο, *Il.* 9.616) with the perfect ἔμμορε ‘has a share’ is clear from the contexts: both occur in the same metrical slot, and both govern a genitive τιμῆς. Since μείρομαι cannot be productively derived from ἔμμορε (or vice versa), the pair must be archaic (*pace* Romagnolo 2005, 108).<sup>61</sup>

<sup>59</sup> See e.g. Willi 2018, 238 n. 80.

<sup>60</sup> Wackernagel 1902, 739.

<sup>61</sup> On the middle εἴμαρται, see Section 6.

The most problematic case is γίγνομαι ‘be born, become’, aor. ἐγένετο, perf. γέγονα ‘be born, be’. According to Romagno 2005, 107, this verb is not an old deponent because the active is attested in other IE languages (Lat. *gignō* ‘generate, beget’, Skt. *jānati* ‘id.’) and because an agent noun meaning ‘progenitor’ can be reconstructed for the proto-language on the basis of Gk. γενέτωρ, Lat. *genitor*, and Skt. *janitar-*. She therefore thinks that \**ǵenhi-* is an old causative. However, all other nominal derivatives of this verb in Greek have intransitive semantics; and lexically, ‘be born’ looks like a primary anticausative. It seems plausible that the formation in \*-*tor-* was created together with the causative active already in PIE times, and that Greek subsequently lost this causative (‘sire, beget’ is expressed in Greek by φύω or τίκτω). In any case, the intransitive perfect is a remnant from an older stage, when the root itself was intransitive.

To sum up, not all pairs of middle presents with active perfects are equally old, but μείρομαι beside ἔμμορε, γίγνομαι beside γέγονα, and δέρκομαι beside δέδορκα are probably relics of the PIE situation and resisted the tendency to create middle perfects beside deponents.

## 5.5 Middle Perfect beside *Medium Tantum*

Beside primary deponents, we normally find a middle perfect stem. At least the following 12 examples of this are attested in Homer:<sup>62</sup> ἀφικνέομαι – ἀφίγμαι ‘arrive’, δαίκνυμαι – δαίδεκτο, 3rd pl. δαιδέχεται ‘they welcome’, δέχομαι ‘receive, accept’ – δέδεγμα ‘expect, await’ (also unreduplicated δέγμα), δράσσομαι ‘grasp with the hand’ – δεδραγμένος, καίνυμαι – κέκασμαι ‘excel’, κτάομαι ‘acquire’ – ἔκτημαι ‘possess’, χράομαι ‘use, enjoy’ – κέχρημαι ‘desire; lack’, λανθάνομαι – λέλασμαι ‘forget’, μιμνήσκομαι – μέμνημαι ‘remember’, πατέομαι – πεπάσμεν ‘taste, take food’, πεύθομαι/πυνθάνομαι – πέπυσμαι ‘hear, learn’, πίλναμαι ‘approach’ – πεπλημένος ‘near’, ῥύομαι/ἔρυμαι – εἶρυμαι ‘protect’. Considering this list, we observe various semantic types of middles: mental activities, verbs of (body) motion, reciprocal middles, verbs of perception, etc. Semantically, there is no important difference between e.g. ἀφίγμαι or ἔκτημαι and active perfects like εἰλήλουθα and ἔμμορε. It is therefore attractive to assume that such middle

<sup>62</sup> Romagno 2005, 43 also mentions ἀλάομαι, ποτάομαι, χαρίζομαι, but as stated earlier, we leave denominatives out of consideration. Another possible case is λυαίομαι ‘desire, be anxious’ – λελημένος ‘eager’, if the etymological connection of these stems is correct. The appurtenance of πέπνυμαι ‘be wise/sensible’ to a present stem is uncertain, but it seems to belong with the mediopassive aorists ἔμπνυτο, ἐμπνύνη, ἐμπνύθη ‘regained his senses’.



perfects were adapted in voice to the other stems, in some cases even supplanting an older active perfect.

## 5.6 Middle Perfect beside (Transitive) Telic Verbs

A middle perfect also occurs with a number of transitive telic verbs (49 cases in Homer, not counting denominatives).<sup>63</sup> Considering their semantics, it becomes immediately clear that (nearly) all cases belong to one class: they indicate a change of state of some sort. This fact signals that the distribution of active and middle forms is not accidental, but reflects precise semantic requirements. More specifically, these predicates are telic, agentive (externally caused) and often resultative (expressing the state of the object), when occurring in the middle perfect. The verbs in question are classified in the table below.

**Tab. 1:** Change of state predicates

Change of location or position	Change of condition
ἀγείρω – ἀγήγερται ‘gather’	ἀρώ – ἀρήροται ‘plow’
ἀείρω – ἄωρτο ‘lift, raise up’	βάλλω – βέβληται ‘throw; hit’
δαίομαι – δέδασται ‘divide, distribute’ <sup>64</sup>	βλάπτω – βεβλαμμένος ‘disable’
δίδωμι – δέδοται ‘give’	δάμνημι – δέδημητο ‘subdue’
εἰλέω – ἐέλεμθα ‘shut in’	δέω – δέδεται ‘bind’
εἵργω – ἐέρχαστο ‘fence in’	διδάσκω – δεδιδάχθαι ‘teach’
ἐλάω – ἐλήλαται ‘drive away’	ἔδω – ἐδήδοται ‘eat’
ἐρείδω – ἡρήρειστο ‘press’	εἵλυσσ – εἵλυται ‘wrap in’

<sup>63</sup> It is noteworthy that various middle perfect participles are attested in Mycenaean. At least 10 Linear B perfect stems have an alphabetic correspondence: *a-pu-ke-ka-u-me-na* (κεκαυμένα, καίω), *a-ra-ro-mo-te-me-na* (cf. ἡρμοσμένα, ἀρμόττω), *a-ra-ru-ja/a-ra-ru-wo-a* (Hom. ἀραρυῖα, ἀρηρώς), *de-de-me-na* (Hom. δέδετο), *de-do-me-na* ‘given’ (Hom. δέδοται), *e-pi-de-da-to* (Hom. δέδασται), *e-qi-ti-wo-e* (Hom. ἐφθιεν, φθίνω), *e-ra-pe-me-na* (ἐρραμμένα, ῥάπτω), *me-ta-ke-ku-me-na* (Hom. κέχυται, μεταχέω), *te-tu-ko-wo-a* (Hom. τετυγμένα, τυγχάνω: see above). Without ascertained alphabetic correspondence are *a-ja-me-no* ‘inlaid’, *lde-di-ku-ja* ‘?’, *e-re-dwo-e* ‘?’ (cf. ἐρείδω ‘support?’), *ke-ke-me-na* ‘communal [land]’ (?), *ke-ke-tu-wo-e* ‘?’, *pe-pu-te-me-no* ‘?’ (cf. φυτεύω?), *qe-qi-no-to* ‘is decorated’ (cf. Hom. ἀμφιδεδίνηται?). With the exception of *e-qi-ti-wo-e* and *te-tu-ko-wo-a* (which have been replaced by middle perfects), the distribution between active and middle perfects matches that in Homeric and Classical Greek.

<sup>64</sup> This verb is a special case: the present is used both as agentive ‘divides’ (e.g. *Od.* 17.332) and passive ‘is divided’ (e.g. *Od.* 9.551). Since the middle has a self-beneficiary reading, the middle perfect is a normal passive to a transitive change-of-state predicate.

Change of location or position	Change of condition
ἐρύω – εἴρωται ‘drag, pull’	εἴρω – ἔερωτο ‘fasten together, string’
κλίνω – κέκλιται ‘lean’	ἐρείπω – ἐρέριπτο ‘tear down, crumble’
κρίνω – κερκίμενος ‘select, choose’	ἐπιτέλλω – ἐπὶ [...] τέταλται ‘command’
κρύπτω – κεκρυμμένος ‘hide’	λούω – λελουμένος ‘bathe’
λέγω – προλελεγμένοι ‘select’	λύω – λέλυται ‘release’
λείπω – λέλειπται ‘leave behind’	μίσγω (μείγνυμι) – μέμικται ‘mix’
ὀρέγω – ὀρωρέχεται ‘stretch’	νίζω – νένιπται ‘wash’
πορεῖν – πέπρωται ‘grant’	ὀρίνω – ὀρώρεται ‘stir’
τείνω – τέταται ‘stretch out’	παλάσσω – πεπάλακτο ‘soil, spatter’
τρέπω – τέτραπτο ‘turn, direct’	πείρω – πεπαρμένος ‘pierce’
χέω – κέχυται ‘pour out, strew’	πεφνεῖν – πέφαται ‘slay’
<b>Verbs of creation<sup>65</sup></b>	
βάζω – βέβακται ‘say’	πίνω – πέποται ‘drink’
εἴρω – εἴρηται ‘speak’	πίτνημι – πέπταται ‘spread out, open’
καλέω – κέκλημαι ‘call’	στόρνυμι – ἔστρωτο ‘smoothen, level’
τεύχω – τέτυγμα ‘make, produce’	τάμνω – τέτμηται ‘cut’
	τίω – τετιμένος ‘value’
	τύπτω – τετυμμένος ‘beat’
	φύρω – πεφυρμένος ‘drench’

Next to the verbs listed in the table, there are some cases in which a causative active present and/or aorist appears beside the middle perfect stem: ἀκαχίζω – ἀκάχημαι ‘grieve’ (psych-verb), ἐλέλιξε – ἐλέλικτο ‘shake’ (anticausative), παύω – πέπαυμαι ‘cease’ (anticausative), σεύω ‘chase’ – ἔσσυμαι ‘rush’ (body motion middle), φαίνω ‘show’ – πέφασμαι ‘appear’ (anticausative). As with the alternations discussed in Sections 5.1–3, these causative actives were secondarily formed.

## 6 The Perfect as a Simple Predicate

After having detected the verb types occurring with the perfect, it will now be possible to formulate a generalization concerning its formation. In order to do so, we will refer to the lexical semantics framework (cf. Levin/Rappaport-Hovav 2005), which puts the meaning of the lexicon at the centre of the faculty of language. The focus of this view is not on a specific language, but lexical items are assumed to have specific properties cross-linguistically. The main claim is that the meaning of a lexical item crucially determines its syntactic structure (in the

<sup>65</sup> Three of these forms are *verba dicendi*; their middle perfect has passive meaning.

case of verbs, their participant/event structure). Discussing the cases under analysis from this perspective will allow us to find a link connecting them. More specifically, it will be claimed that their semantic similarities also explain their specific structural characteristics.

## 6.1 The Simple vs. Complex Predicate Distinction and Its Relevance for the Homeric Perfect

Adopting the lexical-semantics framework, we will consider verb classes as sets of semantically related verbs sharing a number of properties, such as possible realizations of arguments and their corresponding interpretation. The ontological (semantic) properties of a root make it possible to distinguish two main types of classes: manner and result verbs. Manner verbs specify the way of carrying out an action, whereas result verbs express the result of an event. As a consequence, they also exhibit divergences in their argument realization: result verbs are quite limited in their range of options, whereas manner verbs have various possibilities of argument selection. Consider, for instance, the English examples below, in which the difference between run (a prototypical manner verb) and go (a prototypical result verb) are shown (data from Rappaport-Hovav/Levin 1998, 98):

- (6) – Pat ran. (activity)
  - Pat ran to the beach. (directed motion)
  - Pat ran herself ragged. (change of state)
  - Pat ran her shoes to shreds. (change of state)
  - Pat ran clear of the falling rocks. (directed motion)
  - The coach ran the athletes around the track. (causation)
- (7) – The students went.
  - The students went to the beach.
  - \*The jetsetters went themselves ragged.
  - \*The runner went his shoes to shreds.
  - \*The pedestrian went clear of the oncoming car.
  - \*The coach went the athletes around the track.

At the syntactic level, manner verbs have a simple structure, since they consist of a single event. They are often atelic and internally caused. Conversely, result verbs are characterized by a more complex structure; they are at least formed by

two sub-events: a causing sub-event and its result.<sup>66</sup> Both manner verbs and result verbs can be divided into a series of subclasses, according to the way in which the verb semantics determines the internal structure of the event (i.e. the number of participants and their relationship).

As for the Homeric perfect, we have seen above that its main characteristic is to express a non-dynamic event, i.e. a state. Interestingly, this generalization also holds for state verbs. In Section 2, we have already seen Berrettoni's interpretation of the difference between ἀλάομαι 'roam' and its perfect ἀλάλημαι. Let us now consider χολόομαι 'be angry',<sup>67</sup> a *verbum sentiendi* which displays some differences in usage, depending on aspect:

- (8) [...] Ποσειδάων γαιήοχος ἄσκελὲς αἰέν  
Κύκλωπος κεχόλωται, ὃν ὀφθαλμοῦ ἀλάωσεν.

(Od. 1.68-69)

Poseidon the Earth-Shaker is angry all the time about the Cyclops, whom he (Odysseus) blinded.

As guaranteed by the adverbial ἄσκελὲς αἰέν, the perfect κεχόλωται expresses a permanent state of anger of the subject, a so-called individual-level state.<sup>68</sup> When occurring in the present, however, the same verb seems to refer to a more concrete situation, as exemplified below:<sup>69</sup>

- (9) Ἥρῃ δ' οὐ τι τὸσον νεμεσίζομαι οὐδὲ χολοῦμαι.

(Il. 8.407)

I am not so much indignant with Hera, nor am I angry.

In this case, the verb expresses a so-called stage-level predicate, referring to a temporary property of the subject. The contrast between individual-level and stage-level predicates is determined by various characteristics, in particular by agentivity and dynamicity. Agentivity may play a role in the case of temporary states (in the sense of external causation, for instance), but not for permanent

<sup>66</sup> See e.g. Dowty 1991; Levin/Rappaport-Hovav 2005; Ramchand 2008.

<sup>67</sup> The verb ἀλάλημαι lacks the aorist form; therefore, another predicate has been chosen for exemplifying the present/aorist/perfect contrast in terms of dynamicity.

<sup>68</sup> Cf. e.g. Carlson 1981 for the terminology.

<sup>69</sup> Notice, however, that this is the only passage in Homer in which χολόομαι occurs in the present; when indicating a state it normally occurs in the perfect.

states. As for dynamicity, stage-level predicates have the feature [dynamic], while individual-level predicates do not (Carlson 1981). These properties indicate that stage-level states are structurally more complex than individual-level states. This shows that present and perfect differ from each other in their internal structure, even when they both express a state.<sup>70</sup> As for the aorist, when occurring with state predicates, it often indicates a change of state (cf. Napoli 2006, 162), as shown in (10) with an example of the same verb:

(10) τοῦ δ' Ὀδυσσεὺς μάλα θυμὸν ἀποκταμένοιο χολώθη.

(Il. 4.494)

Odysseus grew very angry at heart about this man's death.

Change of states are complex predicates, since they consist of at least two sub-events: a causing event and a resulting event (cf. e.g. Ramchand 2008). From this perspective, the contrast between dynamic and non-dynamic events can be formulated also in terms of complex vs. simple predicates: the former can optionally be related to (external) causation, while the latter cannot. In other words, the distinction between dynamic and stative predicates is linked to the internal (event) structure of a predicate together with its interaction with aspect. As for the Homeric perfect, its non-dynamicity has to do with the fact that it always expresses a permanent state, i.e. a state involving a single argument.<sup>71</sup>

Typologically, pure states can be classified within the group of simple events and relate, therefore, to the category of manner verbs.<sup>72</sup> In fact, if we look at active

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**70** An interplay between internal and external aspect can therefore be observed in that the semantic properties of the predicate interact with the aspectual specification for conveying different interpretations. The selection properties of predicates are also an example of this interaction: while a state verb like *χολόομαι* occurs in the present/perfect/aorist, other verbs do not because their precise meaning is not compatible with some aspects. Suppletivism is a clear consequence of this fact.

**71** Levin/Rappaport-Hovav 1998, 108.

**72** In the literature, a separate class for state verbs has been detected as well: these are simple predicates expressing the state of the main argument (Levin/Rappaport-Hovav 1998, 108). However, it has been noticed that state verbs often get an eventive interpretation, especially when expressing a change of state (Levin/Rappaport-Hovav 1998, 126). Moreover, within states a distinction has also been made between one-place states and two-place states, depending on the presence or absence of external causation. For these reasons, states will just be considered under the main classification presented here: one-place states (like 'to blossom') will be seen as simple predicates; two-place states (change-of-state verbs, like 'to break') are considered as complex predicates.

perfect forms in Homer, they appear to mainly belong to this class. As for result verbs, perfect forms can be formed as well, but crucially only when no Causer is present in the event structure. This means that, even though it is possible to observe a number of predicate types forming an active perfect in Homer, they all share the property of being one-place predicates.

The atelicity of manner verbs indicates the lack of a result element in their structure.<sup>73</sup> Moreover, in most cases the situation of the subject is internally caused. Recall, for instance, the predicates expressing atelic spontaneous or mental processes detected in Section 5, like δαίομαι ‘radiate’ (perf. δέδηα); ταρασσομαι ‘be stirred’ (plupf. τετρήχει ‘was in upheaval’); ἔλπομαι ‘think; hope’ (perf. ἔολπα). All these cases clearly lack an external Causer in their structure and a result element is absent as well. Conversely, result verbs are telic, which indicates the presence of an extra element in the structure. In both classes, the (resulting) state regards the subject. Moreover, it is relevant that both classes include both transitive and intransitive verbs. It seems likely to us that the core class of Greek active perfects were simple predicates, and that it was originally not possible to express a state with the perfect in the case of a complex predicate (result verb). One indication of this is that isolated perfect forms (e.g. ἔοικα, or sound verbs like λέληκα) only belong to this group, which seems to show their original incompatibility with a different event structure. Another significant fact is the absence of an active perfect with the high-frequency verbs ἵημι, δίδωμι, and τίθημι.<sup>74</sup> This apparently odd fact can be understood if we consider that ἵημι, δίδωμι, and τίθημι are prominent result verbs. These indications thus lead us to believe that active perfects were preferably formed to simple predicates. As will be shown in the next section, even when formed to a complex predicate, the perfect renders the event structure simple.

### 6.1.1 The Case of Transitive Perfects

We have already encountered a number of perfects formed to transitive roots. A question arises, then, regarding the internal structure of these cases and the role of perfect morphology in two-place predicates. This problem has already been discussed by Romagno 2005, who argues that the assignment of thematic roles in the perfect depends on the degree of transitivity of the predicate. With activities

<sup>73</sup> Cf. Ramchand 2008.

<sup>74</sup> Cf. already Wackernagel 1904, 3–4.

such as *κεῦθω*, the subject of the perfect usually corresponds to that of the eventive stem, but since the perfect denotes a state, the subject assumes an inactive role.<sup>75</sup> With resultative or transformative predicates such as *πήγνυμι/πέπηγε* in the sense of ‘fix, stick into’, where the perfect may indicate a resulting state, it selects a subject that corresponds to the Object/Patient of the corresponding eventive stem. Romagno explains this by noting that Subjects (Agents) of high-transitive events are incompatible with an inactive role, and therefore unable to appear as the subject of the perfect.<sup>76</sup>

In our view, Romagno’s analysis presents a number of problems. Firstly, it is problematic to assume that a single derivational formation combines two radically different functions: turning a dynamic event into a state, *and* changing the thematic role assigned to the Subject from active to inactive. Secondly, to reiterate the issue raised above, it remains difficult to understand why high-frequency transitive verbs like *τίθημι*, *δίδωμι*, and *ἵημι* have no old active perfect. It is true that the middle perfect of *τίθημι* could be supplied by *κεῖμαι* ‘lie’ and that *δίδωμι* has a middle perfect attested already in Mycenaean (*de-do-me-na*). However, *ἵημι* has no perfect at all until the 4th century BC, and one would surely expect an old active perfect of *δίδωμι* to be retained. Thirdly, Romagno admits (2005, 118–119) that the syntactic configuration of a perfect ultimately depends on the concrete nature of the predicate. For instance, within her scenario it remains difficult to substantiate why exactly *πήγνυμι* would behave differently from *λείπω*: both verbs are resultative predicates, but only *λείπω* forms a middle perfect (*λέλειπμαι* ‘be left, remain’) indicating the resulting state of the Patient. One could argue that *λέλειπμαι* is a later creation replacing an older intransitive use of *λέλοιπα*, but as we have seen in Section 5, there are no other secure cases of intransitive active perfects with passive semantics; in other words, the complement of an active perfect cannot be the Patient of a change of state.

75 “[L]a differenza fra il perfetto e il presente consiste nel diverso ruolo tematico assegnato al soggetto. Il perfetto configura il soggetto come sede di una qualità e, perciò, [...] sposta il ruolo tematico del soggetto verso il macroruolo dell’inattività. Il presente configura il soggetto come autore o iniziatore di un evento e colloca il suo ruolo tematico nel macroruolo dell’attività” (Romagno 2005, 115).

76 “Insomma, coi verbi atelici di attività, il perfetto converte un soggetto da attivo in inattivo, rappresentando l’attività come una proprietà metacronica, e perciò come uno stato [...]. Coi verbi telici, risultativi o trasformativi, invece, il perfetto converte in soggetto inattivo l’oggetto inattivo della costruzione transitiva” (Romagno 2005, 115–116).

### 6.1.2 Transitive Perfects: Antipassive Predicates?

Adopting a different perspective, we would now like to draw attention to a number of similarities between transitive perfects and antipassive constructions. Antipassives are found in many natural languages and have been studied both from a typological and from a formal perspective. In the literature, they are defined as

a clause (or the predicate therein) in which the logical object of a transitive (two-place) predicate is demoted to a non-core argument or a non-argument.

(Polinsky 2017, 310)

In other words, while in a passive structure detransitivization takes place via Agent demotion, in the case of an antipassive clause, it is the direct object which is demoted. Morphologically, antipassives vary cross-linguistically: they can be realized, for instance, by means of noun incorporation or by dedicated morphology.

In Homeric Greek, the active perfect of transitive roots can be compared with this type of structure. As a general observation, it can be said that in the active perfect the argument structure of the verb is retained. Being non-dynamic, the active perfect stem could not express a *change* of state of the object (in which case the present or aorist stem had to be used), but it could not be used either as resultative, as in the English present perfect *I've painted the wall green*.<sup>77</sup> Another relevant observation concerns the characteristics of the objects of transitive perfects: these have a low degree of affectedness.<sup>78</sup> Consider, for instance, the use of λέλοιπα in Homer. This perfect remains transitive on one of its three occurrences, but in this case the object is not affected by the verbal event:

- (11) ναὶ μὰ τόδε σκῆπτρον, τὸ μὲν οὐ ποτε φύλλα καὶ ὄζους  
 φύσει, ἐπεὶ δὴ πρῶτα τομὴν ἐν ὄρεσσι λέλοιπεν,  
 οὐδ' ἀναθελήσει· περὶ γάρ ῥά ἐ χαλκὸς ἔλειψε  
 φύλλά τε καὶ φλοιόν·

(Il. 1.234–237)

<sup>77</sup> This was, of course, stressed already by Wackernagel 1904 and Chantraine 1927, although the latter admitted βεβίηκεν as a singular counterexample. We agree with Willi 2018, 229 that Berrettoni 1972, 140–141 was right in viewing βεβίηκεν as a comprehensive perfect, summarizing a series of descriptive medio-passive perfects.

<sup>78</sup> Cf. Chantraine 1927, 6 for the observation that definite direct objects are excluded from the perfect stem and instead require an aorist or present.



(I swear) by this sceptre, which will not grow leaves and branches ever since it left its trunk in the mountains, nor will it blossom; for all around it the bronze has peeled off leaves and bark.

In this example, the object is not mentioned as the Undergoer of the expressed event, but merely as a location, the place of origin which the sceptre has left.<sup>79</sup> This meaning is also found at *Od.* 14.134 (ψυχὴ δὲ λέλοιπεν ‘the soul has left [the body]’) and *Od.* 14.213 (νῦν δ’ ἤδη πάντα λέλοιπεν ‘now all [virtues] have already left [me]’, Odysseus speaking as the Cretan). These passages unequivocally illustrate that the object is syntactically and semantically demoted, so that it can even be omitted. This means that the following properties are present: object indefiniteness; non-affectedness of the object; the non-argumental character of this element. The first two aspects are particularly significant in relation to the notion of transitivity, since they both indicate a very low grade (or absence) of transitivity in the clause (cf. Hopper/Thompson 1980, 252). The optional character of the object signals its behaviour as a non-core argument and, confirming the non-transitive character of the clause, clearly indicates the demotion of this element, which behaves more like an oblique complement.

Viewed from this perspective, λέλοιπε shows some interesting similarities with antipassive constructions: even though the argument structure of the predicate is kept intact, the active perfect corresponds to a clause in which the object is partially or completely neutralized, thus signalling a lower grade of agentivity. The middle perfect λέλειμμα, on the other hand, expresses the resulting state of the Patient of λείπω. Interestingly, the functional and formal distinction between λέλοιπα and λέλειμμα exactly matches that between the Ved. Skt. perfects *riréca* ‘has left’ (active) and *riricé* ‘is left’ (middle). This raises the question whether λέλειμμα in passive function is really a late replacement of an older use of λέλοιπα. It is equally possible, as we argue, that this passive use of the middle perfect was at the origin of the category. In this case, active and middle perfect forms would reflect two different means of deagentivization: object demotion in the first case, subject demotion in the second. Indeed, cross-linguistically it has been shown that the presence of antipassives in a language does not preclude that of passives, and vice versa;<sup>80</sup> in this sense, the Homeric Greek perfect would not be surprising.

<sup>79</sup> “Das Perfekt steht nicht, weil das Objekt im Moment des Sprechens noch die Wirkung der Handlung verspürte, sondern es kommt bloss auf den Zustand des Subjekts an, sobald es über das Schneiden hinaus ist” (Wackernagel 1904, 5).

<sup>80</sup> Cf. Polinsky 2017, 329.

In addition to λέλοιπα, a number of other transitive perfects in Homer display a non-affected object. Firstly, ἔοργα always occurs with an indefinite object (e.g. κακά, πολλά), as already exemplified in (3) above (ἐσθλὰ ἔοργε, *Il.* 2.272). Interestingly, the verb ἔρδω/ρέζω hardly occurs in the passive, which indicates the absence of prototypical transitivity. In the same way, κέχονδα/κέχανδα and κέκευθα (already inagentive in their semantics) are accompanied by generic objects in the neuter plural (θάλαμον [...] ὃς γλήνεα πολλά κεχάνδει ‘the bedroom which contained many valuables’, *Il.* 24.191–192; ὅσα τε πτόλις ἦδε κέκευθε ‘as much [treasure] as this city conceals’, *Il.* 22.118). Verbs like οἶδα and ὅπωπα often occur with an indefinite object, an indefinite temporal adverb or an embedded clause. All these cases show that, despite the transitive character of the root, their occurrence in the perfect displays a low degree of transitivity and a demoted (or eliminated) object.<sup>81</sup>

Finally, some words have to be dedicated to the verbs of consumption ἔδω and βιβρώσκω. These predicates can be grouped apart because they display a special behaviour: they can either be construed as intransitives, expressing an activity, or transitively, indicating an accomplishment.<sup>82</sup> In Homeric Greek, their perfect stem only occurs in the participle. In the *Iliad*, βεβρωκώς occurs once with an accusative object, but here too (as with other transitive predicates), the neuter plural signals indefiniteness: βεβρωκώς κακὰ φάρμακα ‘having devoured poisonous herbs’ (*Il.* 22.44). This participle occurs in a simile describing a lion; in this case the verb is clearly intransitive, because it governs a partitive genitive:

- (12) αἶματι καὶ λύθρῳ πεπαλαγμένον ὥς τε λέοντα,  
ὅς ρά τε βεβρωκώς βοὸς ἔρχεται ἀγραύλοιο.

(*Od.* 22.402–403)

Soiled with blood and gore, like a lion that comes from feeding on a cow on a farmstead.

As for ἔδω, the use of the perfect ptcpl. ἐδηδώς in the following comparison (in tmesis with the preverb κατά) makes sense because the object is an indefinite, generic bull whose further characteristics are irrelevant:

<sup>81</sup> As a side remark, it would not be prudent to extrapolate general conclusions concerning the admissibility of certain perfects from a limited corpus like the Homeric one. As for prototypically transitive verbs, for instance, most verbs of killing have no active perfect in Homer. Nonetheless, an example like Attic ἀπέκτονα stands a good chance of being old in view of its *o*-grade root. It may have been regularly used in phrases of the type *Have you ever killed in battle?*. If so, the perfect could demote the object even in the case of prototypical agentive predicates.

<sup>82</sup> For the internal structure of verbs of consumption, see Folli/Harley 2005.

- (13) ἄνδ' αὐτὸς ἔβαινε πόδας καὶ χεῖρας ὑπερθεῖν  
αἱματόεις ὥς τις τε λέων κατὰ ταῦρον ἐδηδώς.

(Il. 17.541–542)

He himself (Hector) mounted the chariot, his feet and hands on top all bloody, like a lion that has fed himself with a bull.

Therefore, also with verbs of consumption, the perfect takes a non-affected object, or it has no direct complement.

In conclusion, active perfect forms of transitives generally occur with a demoted object (when present). Although it would be incorrect to treat perfect morphology as antipassive marking *tout court*,<sup>83</sup> the analogy between the behaviour of active perfect forms of transitive verbs and antipassives is remarkable.<sup>84</sup>

## 7 Conclusion

In this paper, we have analyzed the relationship between active and middle perfect forms in Homeric Greek. With Chantraine, we have stressed the secondary nature of active present and/or aorist forms with most anticausative verbs. However, we have also shown that Chantraine's emphasis on the perfect as a part of the middle voice was a mistake. The possibility to create an active perfect in PIE depended not on the diathesis of a given present/aorist stem, but on predicate types. The perfect generally presents an event as non-dynamic. With intransitive result verbs, this meant presenting the event as a property of the subject; with transitive result verbs, however, there was no way to express the resulting state of the object. This possibility could be realized, however, in the middle voice after this had acquired passive meanings. As soon as that happened, it was possible to create medio-passive perfects beside middle presents. This means that verbs with

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**83** As shown above, the main function of the perfect was to denote a stative, therefore it would not be correct to make a generalization about perfect morphology in the terms of antipassives. However, it has been noticed in the literature that, cross-linguistically, antipassives often occur in the case of statives (cf. Hopper/Thompson 1980, 268; Willi 2018, 539). This fact establishes a relevant link between the main function of Homeric perfect forms and the cases displaying antipassive characteristics, supporting our hypothesis that the underlying structure of these apparently 'transitive' forms is not transitive at all.

**84** The presence of antipassive forms in Ancient Greek has also been noticed by Veksina 2017; this may substantiate our hypothesis that such constructions were present in this language. For a thorough discussion of this topic and its PIE correlates, see Willi 2018, 533–534.

a middle perfect are characterized by an event structure containing a result and an external Causer. As for the manner vs. result distinction, it can be observed that middle perfect forms occur in the case of transitive result verbs and that they express the state of the object. After it had come into being in this way, the middle perfect could usurp part of the roles of the active perfect, e.g. with deponent verbs.

## Bibliography

- Allan, R.J. (2003), *The Middle Voice in Ancient Greek: A Study in Polysemy*, Amsterdam.
- Allan, R.J. (2016), "Tense and Aspect in Classical Greek. Two Historical Developments: Augment and Perfect", in: S.E. Runge/C.J. Fresch (eds.), *The Greek Verb Revisited: A Fresh Approach to Biblical Exegesis*, Bellingham, 81–121.
- Berrettoni, P. (1972), "L'uso del perfetto nel greco omerico", in: *SSL* 12, 25–170.
- Borer, H. (2005), *Structuring Sense II: The Normal Course of Events*, Oxford.
- Carlson, L. (1981), "Aspect and Quantification", in: P. Tedeschi/A. Zaenen (eds.), *Tense and Aspect*, New York, 31–64.
- Chantraine, P. (1927), *Histoire du parfait grec*, Paris.
- Chantraine, P. (1953), *Grammaire homérique*, vol. 2: *Syntaxe*, Paris.
- Chantraine, P. (1958), *Grammaire homérique*, vol. 1: *Phonétique et morphologie*, 2nd edn., Paris.
- Clackson, J. (2007), *Indo-European Linguistics*, Cambridge.
- Comrie, B. (1976), *Aspect*, Cambridge.
- Daues, A. (2006), "On the Function of the Mediopassive Perfect in the Homeric Epics", in: E. Crespo/J. De la Villa/A.R. Revuelta (eds.), *Word Classes and Related Topics in Ancient Greek*. Proceedings of the Conference on Greek Syntax and Word Classes held in Madrid on 18–21 June 2003, Louvain-La-Neuve, 257–272.
- Debrunner, A. (1928), "Review of P. Chantraine, *Histoire du parfait grec* (Paris 1927)", in: *IF* 46, 287–290.
- Dowty, D.R. (1991), "Thematic Proto-Roles and Argument Selection", in: *Language* 67, 547–619.
- Folli, R./Harley, H. (2005), "Consuming Results: Flavors of Little-v", in: P. Kempchinsky/R. Slabakova (eds.), *Aspectual Enquiries*, Dordrecht, 1–25.
- Fortson, B. (2010), *Indo-European Language and Culture: An Introduction*, Chichester/Malden, MA.
- García Ramón, J.L. (1990), "Mykenisch *e-qi-ti-wo-e* /<sup>(h)</sup>*ek<sup>wh</sup>t<sup>h</sup>iwo<sup>h</sup>e(s)* / 'umgekommen, tot', homerisch ἔφθιται, ἔφθιεν, (ῥ)ἔφθιτο und das Perfekt von idg. \**d<sup>h</sup>g<sup>wh</sup>ei* - im Griechischen", in: *MSS* 51, 7–20.
- Hackstein, O. (1997–1998), "Sprachgeschichte und Kunstsprache: Der Perfekttyp βαβρηότες im frühgriechischen Hexameter (und bei späteren Daktylikern)", in: *Glotta* 74, 21–53.
- Haug, D.T.T. (2008), "From Resultatives to Anteriors in Ancient Greek: On the Role of Paradigmaticity in Semantic Change", in: P. Eyþorsson (ed.), *Grammatical Change and Linguistic Theory: The Rosendal Papers*, Amsterdam, 285–305.

- Hopper, P.J./Thompson, S.A. (1980), "Transitivity in Grammar and Discourse", in: *Language* 56, 251–299.
- Jamison, S. (1993), "Thornless Paths and Others: Vedic *anṛkṣara-* / Greek *φθείρω*", in: G. Meiser (ed.), *Indogermanica et Italica: Festschrift für Helmut Rix zum 65. Geburtstag*, Innsbruck, 237–251.
- Kloekhorst, A. (2008), *Etymological Dictionary of the Hittite Inherited Lexicon*, Leiden.
- Kratzer, A. (1996), "Severing the External Argument from Its Verb", in: J. Rooryck/L. Zaring (eds.), *Phrase Structure and the Lexicon*, Dordrecht, 109–137.
- Kümmel, M. (2000), *Das Perfekt im Indoiranischen*, Wiesbaden.
- Kuryłowicz, J. (1932), "Les désinences moyennes de l'indo-européen et du hittite", in: *BSL* 33, 1–4.
- Levin, B./Rappaport-Hovav, M. (2005), *Argument Realization*, Cambridge.
- Magni, E. (2017), "Pluractionality and Perfect in Homeric Greek", in: F. Logozzo/P. Poccetti (eds.), *Ancient Greek Linguistics: New Approaches, Insights, Perspectives*, Berlin/Boston, 325–344.
- Migliori, L. (2016), *Argument Structure, Alignment and Auxiliaries between Latin and Romance: A Diachronic Syntactic Account*, Utrecht.
- Napoli, M. (2006), *Aspect and Actionality in Homeric Greek: A Contrastive Analysis*, Milano.
- Perlmutter, D.M. (1978), "Impersonal Passives and the Unaccusative Hypothesis", in: *Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society*, Berkeley, 157–189.
- Polinsky, M. (2017), "Antipassive", in: J. Coon/D. Massam/L.D. Travis (eds.), *The Oxford Handbook of Ergativity*, Oxford, 308–331.
- Ramchand, G. (2008), *Verb Meaning and the Lexicon: A First-Phase Syntax*, Cambridge.
- Rappaport Hovav, M./Levin, B. (1998), "Building Verb Meanings", in: M. Butt/W. Geuder (eds.), *The Projection of Arguments*, Stanford, CA, 97–134.
- Reinhart, T. (2002), "The Theta-System: An Overview", in: *Theoretical Linguistics* 28, 229–290.
- Rix, H. (1992), *Historische Grammatik des Griechischen: Laut- und Formenlehre*, 2nd edn., Darmstadt.
- Romagno, D. (2005), *Il perfetto omerico: diatesi, azionalità e ruoli tematici*, Milano.
- Ruijgh, C.J. (1991), "Les valeurs temporelles des formes verbales en grec ancien", in: J. Gvozdanović/T.A.J.M. Janssen (eds.), *The Function of Tense in Texts*, Amsterdam, 197–217.
- Ruijgh, C.J. (2004), "Over de gebruikswijzen van het Griekse perfectum", in: *Lampas* 37, 24–45.
- Ruijgh, C.J. (2011), "Mycenaean and Homeric Language", in: Y. Duhoux/A. Morpurgo Davies (eds.), *A Companion to Linear B*, vol. 2, Louvain-la-Neuve, 253–298.
- Schwyzler, E./Debrunner, A. (1950), *Griechische Grammatik*, vol. 2: *Syntax und syntaktische Stilistik*, München.
- Slings, S.R. (1987), "Het perfectum van Griekse toestandswerkwoorden", in: S.R. Slings/I. Sluiter (eds.), *Ophelos: Zes studies voor D.M. Schenkeveld*, Amsterdam, 61–76.
- Stang, C.S. (1932), "Perfektum und Medium", in: *NTS* 6, 29–39.
- Veksina, M. (2017), "Coan ἀποβλήι and the History of Greek ἔβλην Again", in: *Glotta* 93, 213–231.
- Wackernagel, J. (1902), "Über Bedeutungsverschiebung in der Verbalkomposition", in: *Nachrichten von der Gesellschaft der Wissenschaften in Göttingen* 1902, 737–757.
- Wackernagel, J. (1904), *Studien zum griechischen Perfektum*, Göttingen.
- Watkins, C. (1969), *Indogermanische Grammatik*, vol. 3.1: *Formenlehre: Geschichte der indogermanischen Verbalflexion*, Heidelberg.
- Willi, A. (2018), *Origins of the Greek Verb*, Cambridge.