The development of the Imperfect in Ancient Greek from simple past to imperfective as a blocking phenomenon*

Ian Hollenbaugh
University of California, Los Angeles
ihollenbaugh@humnet.ucla.edu

Abstract

This article seeks to combine the viewpoints of formal semantics and pragmatics, typology, historical linguistics, and philology, in order to give a diachronic overview of the semantic and pragmatic changes observable for the Imperfect indicative within the recorded history Greek. Since its development does not adhere to typologically expected stages of semantic change, I provide a pragmatic account by taking into consideration not only the Imperfect but also the rest of the past-tense system of Greek, namely the Aorist and Perfect. With this holistic approach, I am able to motivate a development that is otherwise typologically anomalous.

Keywords

Ancient Greek verbs – diachronic semantics and pragmatics – tense and aspect – neutral aspect – imperfective/perfective systems – blocking

1 Introduction

Let me say straightaway that for all the acute and careful attention that has been paid to the use of the aorist and imperfect, we have yet to achieve a full understanding of them.

(Wackernagel 1926–1928 [2009]: 221)

1.1 Problematization

The Imperfect (Ipf.) in Ancient Greek is typically described as expressing imperfective aspect (ipfv.) in the past (e.g., Comrie 1976: 17 and passim; Ö. Dahl 1985: 83; Napoli 2006: 64–70), and it is said that it "characterizes the state of affairs as 'not completed"' (Rijksbaron 2002: 11). Such descriptions run into trouble, however, when it comes to data like that in (1), which shows the Imperfect in Homer characterizing states of affairs as complete and occurring side by side with Aorists (Aor.) in sequential past narration (cf. Delbrück 1879: 105–106). In all numbered examples of this paper the relevant verb and its translation are in boldface. Underlining is used for other contextual (mostly adverbial) information in the passage that helps motivate the particular interpretation of the verb that I favor, or which is relevant to the reading in some way but is not the primary focus of the example.

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(1) IMPERFECT CHARACTERIZING A STATE OF AFFAIRS AS COMPLETE

a. Ἀτρεὺς δὲ θνήισκων ἔλιπεν[AOR.] πολύαρνι Θυέστηι,
αὐτὰρ ὃ αὖτε Θυέστ᾽ Ἀγαμέμνονι **λεῖπε**[IPF.] φορῆναι (Hom. *Il.* 2.106–107).

'And Atreus, upon his death, left[AOR.] (the scepter) to Thyestes rich in flocks,
and Thyestes in turn **left**[IPF.] it for Agamemnon to bear' (ex. Wackernagel 1926–1928 [2009]: 235).[1]

b. **ὠιχόμεθ᾽**[IPF.] ἐς Θήβην, ἱερὴν πόλιν Ἠετίωνος,
τὴν δὲ διεπράθομέν[AOR.] τε καὶ **ἤγομεν**[IPF.] ἐνθάδε πάντα (*Il.* 1.366–367).

'We **went**[IPF.] to Thebes, the holy city of Eetion,
and then we sacked[AOR.] it and **led**[IPF.] hither all (its spoils)'.[2]

The use of the Imperfect to characterize states of affairs as complete continues into Classical Greek prose as well (cf. Rijksbaron 2002: 18–19, with examples, as well as (11)–(12) in §5.2 below and Appendix §A.2.6). To explain such uses of the Imperfect, where one might "expect" an Aorist, Delbrück (1879: 105) points out that, from an Indo-European perspective, "Das alte Tempus der Erzählung ist das Imperfectum und nicht der Aorist" ('The old tense of narration is the Imperfect and not the Aorist'), comparing the use of the Greek Imperfect's formal counterparts in Sanskrit and Iranian, which characterize states of affairs as complete almost invariably, very often ordering such events chronologically in sequential narration of the past. Wackernagel (1926–1928 [2009]: 235) concludes likewise, as follows:

> Often, *particularly in early Greek and later in the most polished prose*, to our way of thinking *imperfect and aorist are used completely interchangeably* in reports about the past… Homer has in fact many imperfects which serve as straightforward narrative forms, without depicting the action or the process any more than the corresponding aorist. We simply have to recognize, especially in view of comparison with related languages, above all Sanskrit, that *the imperfect was often the narrative tense*, just as later Herodotus and Thucydides generally use the imperfect in plain narrative. [emphasis added]

The problem, of course, is that perfective aspect (pfv.) is typically defined as characterizing states of affairs as complete (Comrie 1976: 18–20), whereas the imperfective aspect is supposed to depict events as incomplete. So, the Homeric Imperfect is at odds with the typical definitions of both perfective and imperfective aspect, in that it can be used to characterize states of affairs as either complete or incomplete. In view of its commonly supposed association with imperfective aspect, then, the question arises:

1. On this example, cf. Crespo 2014: 74: "The conclusion to be drawn is that the imperfect may refer to an action that is either simultaneous *or subsequent* to the action denoted by the aorist" (emphasis added). Some have made the (*ad hoc*) claim that the Imperfect is used here to indicate that the event has lasting effects, since Agamemnon is the one who remains in possession of the scepter at this point in the narrative (Chantraine 1953 [2015]: 224–225; cf. Rijksbaron 2002: 18–19). However, the *leaving* event is in every sense complete by this time (Thyestes is not in the process of leaving the scepter behind); what is still ongoing is the *bearing* event expressed by the Present (Pres.) infinitive φορῆναι. Agamemnon's continued bearing of the scepter is true independent of Thyestes' action of leaving it behind, which is an event located completely in the past. And if the continued effects of the *leaving* event were at issue, we might, if anything, rather expect an *Aorist* to be used (as, e.g., at *Il.* 10.406), signifying 'has left', since the Aorist is the form regularly used in Homer to refer to "result states," or states continuing as a result of a past action (see Appendix §A.1.3 and cf. Chantraine 1953 [2015]: 214; Schwyzer–Debrunner: 281–282; Wackernagel 1926–1928 [2009]: 227; Delbrück 1879: 107–108; 1897: 280–281). Cf. also Friedrich 1974: 10: "The imperfect, unlike the present [and] aorist…may not run into or include the time of the present speech situation." Further, many occurrences of the verb λείπω 'leave' in the Imperfect *do not* show continued effects, such as *Il.* 19.288: ζωὸν μέν σε ἔλειπον ἐγὼ κλισίηθεν ἰοῦσα 'I left you here alive when I went away from the shelter' (to a now dead Patroclus; cf. similarly *Od.* 4.112), while the Aorist can be used for *leaving* events that have permanent effects (e.g., *Il.* 16.410: πεσόντα δέ μιν λίπε θυμός 'and having fallen his spirit left him').

2. The linear order of the Aorist and Imperfect in (1a) and (1b) is not informative, as some have supposed, given that the opposite order is often attested as well, as in (24a) in Section 6.3.1 below (cf. also *Il.* 1.446–447).

How can the Imperfect represent an imperfective category if it is so regularly used to characterize states of affairs as complete? The most recent answer to this question, argued for in Hollenbaugh 2018, is that the Homeric Imperfect simply does *not* mark imperfective aspect and does not represent what in the typological literature is referred to as an "imperfective gram" (cf. n.4 below). Rather, the Homeric Imperfect is found to be neutral in aspect—permitting perfective- and imperfective-like interpretations of the verbal predicate—and is best classified as an instance of the cross-linguistic category called "simple past" (similar, for example, to the English Preterite). The Homeric Aorist, meanwhile, marks not perfective aspect simply but is found regularly to have a perfect-like value, especially resultative (i.e., indicating that the state resulting from the completion of the past event referred to by the verb still holds at the moment of utterance). So, the difference between the Imperfect and Aorist to the same verb in Homer, if any,[3] is typically that the Aorist can be used with a resultative value (cf. n.53 and n.57 below), as in (2a), while the corresponding Imperfect, when it refers to a completed state of affairs, is instead used to sequence events narrated in the past—a context in which the Aorist is also regular—as seen in (2b) (cf. Bianconi 2019: 177–179 on these examples).

(2) IMPERFECT VS. AORIST TO THE SAME VERB IN HOMER

a. Ἀτρείδη ποῖόν σε ἔπος **φύγεν**[AOR.] ἕρκος ὀδόντων; (*Il.* 4.350=14.83)

'Son of Atreus, what kind of word **has escaped**[AOR.] the fence of your teeth?'.

b. αὐτὰρ ἐγὼ σὺν νηυσὶν ἀολλέσιν, αἵ μοι ἕποντο[IPF.],
φεῦγον[IPF.], ἐπεὶ γίνωσκον[IPF.], ὃ δὴ κακὰ μήδετο[IPF.] δαίμων.
φεῦγε[IPF.] δὲ Τυδέος υἱὸς ἀρήϊος, ὦρσε[AOR.] δ᾽ ἑταίρους (Hom. *Od.* 3.165–167).

'But I with the crowded ships that were following[IPF.] me
took flight[IPF.], when I realized[IPF.] that a divinity was intending[IPF.] evil.
And the warlike son of Tydeus **fled**[IPF.] and urged on[AOR.] his companions'.

Thus it can be said that φύγε characterizes the action FLEE as complete in the past and occurs in contexts where the result state either persists at speech time ('has fled') or not ('fled'). The Imperfect φεῦγε, on the other hand, characterizes the action FLEE as either complete in the past ('fled') or incomplete in the past ('was fleeing, used to flee, etc.').

Assuming the account of the Aorist and Imperfect given in Hollenbaugh 2018 is correct for the Homeric language, the question remains open how these morphological categories are to be understood in the rest of Ancient Greek literature: in particular, *What, if any, changes in usage can be observed over time, and how can they be accounted for?* Problematically for the account of Hollenbaugh 2018, the Imperfect of the later authors *does* appear to be more "imperfective-like" (cf. Johanson 2000: 95, 98–99), in that it regularly characterizes states of affairs only as incomplete in the past and becomes less and less regular in contexts where the event is presented as complete in the past, where instead the Aorist is most common (or, in post-Classical Greek, sometimes the Perfect (Pf.)). This amounts to a diachronic change whereby the range of expression available to the Greek Imperfect is reduced over time (often called semantic "strengthening"), such that in Homer (Archaic Greek) the Imperfect regularly characterizes states of affairs as *either* complete or incomplete, but in the later language it regularly characterizes states of affairs only as incomplete. To account for this change ends up posing some difficulty given the state of typological studies on diachronic aspect shifts. In particular, the change observed for the Greek Imperfect does not conform to well-established paths of change described in the linguistic literature on tense–aspect systems.

3. Cf. their apparent synonymy in (1a) just cited, as well as pairs like Ipf. ἔπειθε ~ Aor. ἔπεισε, both of which are attested in Homer with the meaning 'persuaded', though the former can also have the conative value 'urged' (Wackernagel 1926–1928 [2009]: 235).

Two robustly attested grammaticalization pathways for tense–aspect gram types[4] are shown in (3) (cf. especially Bybee et al. 1994; Deo 2015b; Condoravdi & Deo 2014).

(3) GRAMMATICALIZATION PATHWAYS (ROBUSTLY ATTESTED ACROSS LANGUAGES)

a. stative-resultative » perfect » emergent perfective » perfective, simple past

b. progressive » general imperfective, simple present

These cross-linguistic grammaticalization pathways have in common that the range of expression available to a particular form tends to increase over time rather than decrease (or to "weaken" rather than "strengthen," to use a common metaphor). So in (3a), for instance, the perfective gram type has a broader range of contextual applications than does the perfect gram type, since (among other things) perfectives can be used to sequence events in past narration, while perfect grams typically cannot (Condoravdi & Deo 2014: 266).[5] At the same time, perfective grams are commonly found in resultative and experiential (i.e., "perfect-like") functions cross-linguistically. Taken together, this means that perfectives uniformly have a wider functional range than perfects, as they can be used in all the contexts that perfects can, plus some other contexts that are unavailable to perfect grams (id.). An example of the change from a perfect to an perfective gram is the French Passé composé, which originally had only "perfect-like" functions but now is functionally perfective, being used to sequence complete events in past narration, while still retaining its perfect-like uses as well (cf. Bybee et al. 1994).

Likewise, progressive grams (3b) tend to develop into general imperfectives (Deo 2015b): Though both can characterize an event as being in progress (type *was doing X*), only the latter can be used in generic-habitual or continuous-state values (respectively of the type *used to do X* and *knew X* (NB: **was knowing X*); cf. Deo 2015b: 4). The English Progressive may be an example of this change in progress (cf. Comrie 1976: 37–38; see Deo 2015b: 6–8 for examples from other languages). In this way, each gram type in (3) (explained in more detail below) can be seen to always have a wider range of application than the gram type(s) to its left, and the grams belonging to these gram types tend to change in linear order from left to right over time in the languages of the world, with changes in the opposite direction being scarce. So, for example, a general imperfective in a given language is predicted not to become restricted to use only as progressive at a later stage in the development of that language. Accordingly, these paths of change are observed to be "unidirectional" and "uniformly generalizing" by Condoravdi & Deo (2014: 261–262).

Given these typological facts, the development of the Greek Imperfect from being aspectually neutral in Homer to imperfective later on, if accurate, would pose a serious challenge to the generalizations in (3), in that its meaning seems to become more specific over time rather than more general (cf. Johanson 2000: 95, 98–99). The Greek Imperfect is thus, on the face of it, typologically aberrant and cannot be accounted for in terms of semantic "weakening" of the typical sort. Its development can therefore be better explained by a pragmatic account of the data, with reference to the entire Greek past-tense system, particularly the Imperfect's interaction with the Aorist and Perfect, whose semantic denotations *are* in flux along the trajectory in (3a). Pressures from these changing categories restrict the usage of the Imperfect in particular ways without affecting its semantic denotation until late in the history of Ancient Greek.

4. "Gram type" refers to a cross-linguistically motivated morphological category. A "gram" is any instantiation of such a category in a language or languages, irrespective of what the form happens to be called in that language's grammatical tradition. On these terms cf. Bybee & Dahl 1989 and Ö. Dahl 2000: 7. On the notion of cross-linguistic categories vs. comparative concepts cf. n.12 below. As is conventional (at least since Comrie 1976), I capitalize the names assigned to morphological categories within their own grammatical traditions, while lower case is used for gram types and distributive reference to grams across languages (e.g., "the imperfectives in Romance").

5. Concretely, Condoravdi & Deo (2014: 266) note that one cannot say *#John has iced the cake. He (then) went/has gone shopping* but must say instead *John iced the cake. He (then) went shopping.*

1.2 Structure of the paper

The rest of this paper is organized as follows: Section 2 restates the research question and proposal in straightforward terms. Section 3 establishes the typological and theoretical groundwork necessary for understanding the analysis put forth in the later sections. Section 4 lays out the assumptions of this paper in terms of linguistic stages of Ancient Greek, my methods of data collection and assessment of evidence, including discussion of the usage labels ascribed to the various functional categories, and an account of which forms are under consideration and which are excluded and why. Section 5 presents all of the readings regularly available to each functional category (= morphological form or "gram") at each stage, according as I have been able to determine on the basis of the procedures and evidence given in the appendix (on which see the next paragraph). Some discussion is given, with relevant examples, insofar as it establishes the overall trend in usage from one stage to the next. Once the facts of the three linguistic stages have been established in Sections 5.1–5.3, the diachronic development of the functional categories is examined in more detail in Sections 5.4–5.5. The analysis is presented in Section 6, which includes a formalization of each denotation for each functional category at each stage of development, such that exactly those readings observed to be available to each form in Section 5 are available under the denotations provided. Also included is discussion of the pragmatic processes that influence the change in usage observed for the Imperfect up to the post-Classical stage (Section 6.2) and its subsequent reinterpretation as an imperfective gram (i.e., semantic change) in the later linguistic stages of Greek (Section 6.1.4). The pragmatic processes at work in Ancient Greek are further explored in Section 6.2 and Section 6.3. Section 7 summarizes and concludes.

I have also created an appendix (§A) containing information and examples for all readings established in Section 5 (except pluractional and habitual readings), so that the reader can see on what bases the functional ranges assumed for each category rest. This is divided into three subsections, corresponding to Tables 8–10 and the three linguistic stages of Ancient Greek adopted here. It is available online as an essential supplement to this paper, and the reader is encouraged to consult it wherever questions arise regarding the various readings here discussed. To make such consultation easier, I give references to the appendix throughout, where applicable, by section number and example number (which always begin with the letter *A*).

2 Proposal

Following Hollenbaugh 2018, I assume that the Greek Imperfect started off (i.e., in its earliest attestations) as what in the typological literature is called a "simple past tense," which is aspectually neutral, while the Aorist was in Homer a kind of late-stage perfect, which I will call here *emergent perfective*.[6] Though descriptions of the Imperfect at later stages of Greek seem to suggest that its meaning strengthens over time (from simple past to imperfective; cf. Goodwin 1889: 7–8, 25), I argue that, in fact, its denotation remains stable, at least until the end of antiquity. Its apparent functional restriction over time is explained as a blocking phenomenon on the part of the Aorist (less so the Perfect and Pluperfect (Plpf.)), which demonstrably becomes more and more grammaticalized as a perfective gram within the attested history of Greek. In addition to accounting for the observed data, this pragmatic account maintains that Ancient Greek is, strictly speaking, not an exception to the typical *semantic* developments of (3).

6. This term is explained and defined in Section 6.1.1 below. On the category, see Laca 2010: 6–7 ("bad perfect") and Bybee et al. 1994: 78–81 ("old anterior").

3 Typological and theoretical preliminaries

There are basically three things one can mean when referring to "an imperfective," which I classify into three *Types* (capitalized to differentiate these from "gram types"), presented in Table 1. The pseudo-denotations in Table 1 are deliberately crude and greatly simplified, in order to give a "big picture" overview of the Types. Far more sophisticated formalisms and analyses are available, e.g., in Deo 2015b; Condoravdi & Deo 2014; Altshuler 2014; Arregui et al. 2014; Grønn 2008a, 2008b.

TABLE 1: Typology of imperfective grams

Types:	1. Allows $t_E \supset t_A$	2. Allows $t_E = t_A$	3. Allows $t_E \subset t_A$
Denotations:	$t_E \supset t_A$ [a]	$t_E \supseteq t_A$	$t_E \circ t_A$ [b]
Examples:	Central Semitic, Romance[c]	Eastern Slavic[d]	Sanskrit, Western Slavic[e]

[a] Cf., e.g., Klein 1994: 108; Arche 2006: 172–173; Grønn 2008a: 155, 157 (precise implementations vary).

[b] This is Grønn's (2004) and E. Dahl's (2010: 88) "neutral aspect," based on Smith's (1997: 77–81) "neutral viewpoints." Note, however, that Grønn (2008b: 127) defines the Russian Imperfective with a disjunction: $t_E \supseteq t_A$ *or* $t_E \subseteq t_A$, which he notes amounts to essentially the same thing as $t_E \circ t_A$.

[c] Grønn (2008a: 158) claims that the imperfectives in Romance must belong to what I call Type 2 ($t_E \supseteq t_A$) to allow for the "narrative Imperfect." This usage, however, occurs mostly to achievement predicates (Grønn 2008a: 159–161) and requires specific reference "to a definite point in time" (Arregui et al. 2014: 335).

[d] The "general-factual" Imperfective is taken to denote the coextension relation, $t_E = t_A$, which most often corresponds to "complexive" uses, as is clear from examples and discussion in Ö. Dahl 1985: 74–77; Altshuler 2014; Arregui et al. 2014: 330–334; Janda & Fábregas 2019: 699–708 (though it also has "experiential" perfect uses). Janda's (2019: 498) metaphor that the "Imperfective situation can fill whatever time is available" is thus captured quite nicely by this denotation. Note that complexive or "general-factual" uses of the Russian Imperfective "can never move the narration forward" (Grønn 2008a: 151), though this appears not to be true of the complexive uses in Greek.

[e] Dickey (2015; 2000; 1997: 90–115) shows that the Eastern Slavic group, including Russian, does not use the Imperfective in sequential narration (similarly Arregui et al. 2014: 335), while the Western Slavic group does. However, the Western Slavic Imperfect is, according to Dickey (1997: 102), "unsuitable to refer to single achievements in the past" (in contrast to the Sanskrit type), while the Eastern Slavic Imperfective allows this (Dickey 1997: 103).

In Table 1, t_E stands for an interval called "eventuality time." "Eventuality" refers to states and events taken together (Bach 1981, 1986), on which cf. n.18 below. t_A stands for "assertion time." Assertion time (Demirdache & Uribe-Etxebarria 2000) is also called "topic time" (Klein 1994: 36–58) or "reference time" (Reichenbach 1947), though precise notions vary (cf. Ramchand 2018: 106–107). Put simply, assertion time is the interval about which some claim is made (i.e., asserted), with respect to which the runtime of the eventuality is said to hold and may be assessed as either true or false. For instance, if I say, "What was your name again?" I do not typically mean to ask what your name was in the past and is no longer; rather, I am asking what it was that you told me your name is. The eventuality BE YOUR NAME in this case holds at the moment of my speech act, but the assertion time interval—the interval that is being asked about—is located in the past relative to my speech act, and so the past tense *was your name* is used. Tense is therefore defined (following Klein 1994: 4–5, 124) as a relation between the temporal parameters assertion time (t_A) and speech time (t_S, defined just below).[7] Counterintuitively, then, it does not matter for tense where the eventuality time interval is located with respect to speech time. Aspect, on the other hand—that is, "grammatical" or "viewpoint" aspect (as opposed to "Aktionsart" or "lexical aspect," cf. Smith 1997: 61 ff.)—is defined as a relation of the two temporal parameters eventuality time (t_E) and assertion time (t_A). Various specific aspect types and "readings" can be defined by the several relations that can hold between these two temporal parameters. Thus, t_E can include/properly include ($\supseteq$/$\supset$), be

7. Or, more precisely, tense is defined as a relation between assertion time (t_A) and the time of local evaluation (t_0), introduced below.

included/properly included in ($\subseteq$/$\subset$), coextend with ($=$), or overlap with ($\circ$) t_A. I will later introduce the precedence ($\prec$) and partial precedence ($\preceq$) relations as well (cf. n.50 below).

The denotation of Type 1 imperfectives in Table 1 says that eventuality time *properly includes* assertion time ($t_E \supset t_A$), meaning that the coextension of the two intervals is ruled out. In terms of "readings," Type 1 permits (i.e., may be interpreted in some context as) what are commonly called the progressive/continuous-state (e.g., *I was running/sleeping*) and habitual (e.g., *I used to run*) imperfective uses. I represent this in Figure 1. Here and below, t_S stands for "speech time" (also called "utterance time" or "time of utterance"): the point or interval at which the utterance or speech act is made (typically the "now" of the present moment). The speech time may be thought of as a special case of the broader term "evaluation time" (t_0), which technically does not need to coincide with t_S (it can be past or future "shifted") but most often does, as a kind of default case. The term *evaluation time* (t_0) will be more fully introduced in the denotations of Section 6.1 below (see n.42). The term $t_{0/S}$ is meant to be read "speech time or time of local evaluation," used to indicate that speech time is to be understood by default but that past or future shifting are not excluded from consideration.

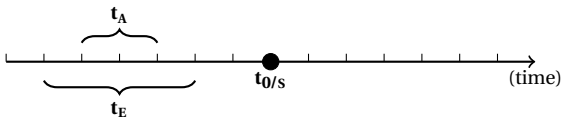


FIGURE 1: Progressive/continuous-state and habitual interpretations, past tense
(available to Type 1, 2, and 3 imperfectives)

It is sometimes assumed that the coextension relation $t_E = t_A$ with an event cardinality greater than 1 represents the habitual reading (e.g., E. Dahl 2010: 71–72). It is not uncommon, however, to regard the habitual reading as compatible with the proper inclusion relation ($t_E \supset t_A$), which I follow here (cf. Klein 1994: 108; Arche 2006: 173; Grønn 2008a: 155, 157). Others have proposed modal analyses for habitual readings (e.g., Boneh & Doron 2010: 343, 358–360, 362–363; Arregui et al. 2014: 317, 343). Such accounts of habituality seem quite attractive, and it is highly likely that more machinery is necessary to adequately account for habituality than I have represented here in my deliberately simplified denotations. I thus treat the habitual reading (artificially) as purely aspectual in nature, while acknowledging that this is not the whole story. For the purposes of this analysis, however, what matters is that the given denotations be *compatible* with all readings attested for the form in question. In this capacity, $t_E \supset t_A$ is sufficient to capture the readings available to Type 1 imperfectives.

The denotation of Type 2 imperfectives in Table 1, by contrast, says that eventuality time *includes* assertion time ($t_E \supseteq t_A$), allowing either total inclusion of t_A within t_E ($t_E \supset t_A$) or coextension of the two intervals ($t_E = t_A$). Type 2 thus permits a reading not permitted by Type 1, namely the "complexive" reading (e.g., *I slept all night*), which I take to be captured by the coextension relation $t_E = t_A$ and represent in Figure 2, showing how the entire span of t_A is saturated by t_E (as applied to a non-transformative eventuality like SLEEP).[8]

8. The term *transformative* refers to accomplishments and achievements taken together (cf. n.18 below), in contrast to *non-transformative*, which groups states and activities together (Ruipérez 1954). This terminology is more precise in referring to natural classes of situation types than the "telic" vs. "atelic" opposition, since telicity operates at the verb phrase (VP) level, including at least internal arguments of the verb (cf., e.g., E. Dahl 2010: 135 ff.), whereas the transformative/non-transformative contrast targets just the verb itself without its arguments. When verbal arguments are taken into account, the telic/atelic contrast is used. *Telic* refers to a predicate (VP) that has an inherent endpoint, such as *write a letter* or *walk to the park* (whose verbs are both non-transformative, the activities *write* and *walk*). *Atelic* refers to a predicate (VP) that lacks an inherent endpoint, such as *write letters* or *walk in the park*. For the various situation types/predicate types, see n.18 below (cf. Vendler 1957; Moens & Steedman 1988; Smith 1997: 27–90).

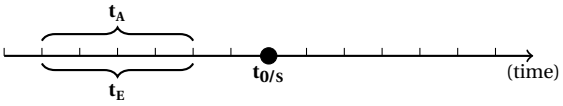


FIGURE 2: "Complexive" interpretation, past tense
(available to Type 2 and 3 imperfectives)

As for the Type 3 "imperfective" in Table 1, it requires only that the two intervals overlap ($t_E \circ t_A$), thus permitting the inclusion of either interval within the other (t_E includes t_A or t_E is included in t_A) and the coextension of the two intervals ($t_E = t_A$). The main difference between Type 3 and the other two types is that Type 3 permits a reading that I call "concentrative" ($t_E \subset t_A$),[9] so called in reference to its "concentration" of the event entirely within the bounds of the assertion time. The concentrative reading is regularly found in sequential narration, where eventualities are characterized as complete in the past (of the type *Mary ate the cake, then went to bed*).[10] While sequential narration is typically concentrative, the concentrative relation ($t_E \subset t_A$) may in fact hold even in isolated, non-sequential contexts, such as *Mary ate the cake* (and did nothing else of relevance) *while I was away*. Accordingly, a form that has concentrative as a use is not automatically preferred in sequential narration (as shown by post-Classical Greek, discussed below). I will therefore specify *sequential* or *concentrative-sequential* wherever a form is regularly used in sequential contexts, while *concentrative* is used where no such specification is necessary or relevant. I represent the concentrative reading in Figure 3.

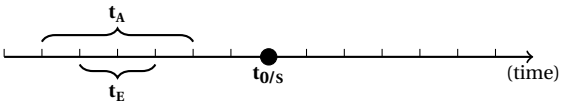


FIGURE 3: "Concentrative" interpretation, past tense
(available to Type 3 "imperfectives" (= simple pasts))

I thus distinguish in Figures 2 and 3 two main types of what I will call "terminative" readings, which are not *a priori* restricted to any particular morphosyntactic category. I use the term *terminative* to mean that the eventuality is 'bounded' by assertion time (cf. E. Dahl 2010: 73–76), designating the total set of readings compatible with the relation $t_E \subseteq t_A$. Terminative interpretations may be either concentrative ($t_E \subset t_A$) or complexive ($t_E = t_A$), depending on context and situation type of the predicate (activity, achievement, state, etc.).[11] Other subcategories of the terminative relation $t_E \subseteq t_A$ include the inceptive and

9. For the term *concentrative* (cf. Appendix §A.1.6) see Smyth 1956: 430–431 (though in a sense closer to what is here called "complexive"). The term goes back at least to Krüger (1873: 168) ("konzentrierte Erscheinung"), in reference to the "summarizing" use Aorist to atelic predicates. I use the term in a more restricted way, referring to *events* (i.e., non-states) and stage-level states (cf. n.18 below) for which the span of the eventuality time is fully included in the assertion time ($t_E \subset t_A$). Such a relation is not possible for individual-level state predicates (cf. n.18), which can be terminative only in the inceptive or complexive readings. The concentrative reading is variously known in the literature as "confective," "metaptotic," "completive," "eventive," "perfective," "momentary," "narrative," "resultative," "effective," and "episodic," with little consistency in what these labels actually refer to (cf., among others, Schwyzer–Debrunner: 260–261 and E. Dahl 2010: 76, 82).

10. Sequential narrative uses "represent the perfective reading *par excellence*" (E. Dahl 2010: 78).

11. *Complexive* (cf. Appendix §A.1.9) here refers to a terminative use in which a non-transformative eventuality (cf. n.8 above) is bounded not by its inherent situation type or telicity but by the limits imposed on it by the morphological form that takes it as an argument (cf. Bary & Egg 2012; E. Dahl 2010: 73–76, 82), such that t_E is coextensive with (=) t_A in the past ($t_A \prec t_0$). For the term see Smyth 1956: 430–431, though in a broader sense than what I mean by *complexive* here. The term "komplexiv" was apparently coined by Hermann (1927: 208). It is also called in the literature "constative" (Purdie 1898: 67–68; Jacobsohn 1933: 305–309), "terminative" (E. Dahl 2010: 73–76, 82), "concentrative" (Smyth 1956: 430–431), "factive" ("statement of fact"), "totalitarian" (cf. Schwyzer–Debrunner: 261), and a "phase interpretation" (Bary & Egg 2012: 113). It is often taken to include the iterative-pluractional reading, which I treat separately (cf. Jacobsohn 1933: 306–307; Schwyzer–Debrunner: 261). On Purdie's (1898) (broader) use of the term *constative*, see Appendix §A.1.9, n.65.

egressive readings (discussed below).

Typologically speaking, imperfective Types 1 and 2 are taken to constitute the imperfective gram type (cf. Ö. Dahl 1985: 69–79) and may be said to express imperfective aspect ($t_E \supseteq t_A$). Type 3, on the other hand, represents not the imperfective but the simple past gram type (Bybee et al. 1994: 84–85, 92–95; Klein 1994: 102; Comrie 1976: 53, 55, 58), which may be said to be neutral in aspect ($t_E \circ t_A$) (following Smith 1997: 77–81; Grønn 2004; E. Dahl 2010: 88). Accordingly, I will hereinafter refer to Type 3 "imperfectives" as *simple past* grams, since this is a more accurate characterization based on their functional range—i.e., expressing any sort of aspectual relation between t_E and t_A in the past (where *past* is defined as the relation $t_A \prec t_{0/S}$ (assertion time precedes speech/evaluation time)). The aspect expressed by a simple past tense will be referred to as *neutral aspect* (relation $t_E \circ t_A$).[12]

The contrast between imperfective Types 1 and 2 is exemplified by Janda & Fábregas (2019: 700), showing how Russian (like Eastern Slavic generally) uses its past Imperfective for sentences like *I read all night* (*čital vsju noč'*) where Spanish, like Romance generally, must use its "Preterite" or past perfective (*leyó toda la noche*). As is suggested by these examples, the perfective gram type ($t_E \subseteq t_A$) must also come in at least two varieties (Types): The "Spanish type" (Type 1, $t_E \subseteq t_A$) and the "Russian type" (Type 2, $t_E \subset t_A$). Perfective grams characteristically have concentrative as a use (cf. Figure 3 above), but it depends on the language whether a perfective gram is open to complexive interpretation (cf. Figure 2 above) or not. The former will be said to be a Type 1 perfective, such that $t_E \subseteq t_A$ (coextension permitted, has the complexive reading, as in Spanish); the latter will be said to be a Type 2 perfective, such that $t_E \subset t_A$ (coextension not permitted, lacks the complexive reading, as in Russian).

Putting the two Types of imperfectives together with the two Types of perfectives just discussed, we can observe a systematic difference across languages, as shown in Table 2.

TABLE 2: Aspectual systems differing by complexive use

	Imperfective	Perfective
Type 1: Spanish	$t_E \supset t_A$	$t_E \subseteq t_A$
Type 2: Russian	$t_E \supseteq t_A$	$t_E \subset t_A$

In other words, the Russian Imperfective is semantically slightly "weaker" (i.e., permits a broader range of interpretations) than the Spanish Imperfective, while the Spanish Perfective is slightly "weaker" than the Russian Perfective. Accordingly, Spanish encodes complexive readings by means of its Perfective morphology, while Russian does so with its Imperfective. Whichever form has the "stronger" denotation blocks the application of the semantically "weaker" form in just those contexts where the "stronger" form can apply.

This is also true in languages that have a simple past tense standing in contrast to a perfective, where the complexive use falls to the perfective (Dickey 2015: 30), which is the semantically stronger form, as shown in Table 3.

12. The notions of "imperfective aspect," "perfective aspect," "perfect aspect," "neutral aspect," etc., as specified by their respective denotations, may be taken to correspond roughly to Haspelmath's (2010) notion of "comparative concepts," whereby typological data is classified according to certain pre-defined (idealistic) categories. By contrast, the "gram types" correspond to cross-linguistic categories (as in Bybee & Dahl 1989) arrived at on the basis of observed cross-linguistic data, whereby "clusters" of (related or unrelated) languages showing similar behavior of their respective morphological forms can be said to possess the same "type" of morphological object (or "gram"). For each gram type thus identified, every gram belonging to it (i.e., across languages) will display a similar functional range (restricted to some observable threshold). I thus take an inclusive, "middle-way" approach to the ongoing debate about the validity of cross-linguistic categories vs. comparative concepts.

TABLE 3: Western Slavic aspect

	"Imperfective" (= simple past)	Perfective (Type 1)
Western Slavic	$t_E \circ t_A$	$t_E \subseteq t_A$

Similarly, as shown in Hollenbaugh 2018, Homeric Greek has an aspectual contrast of the type in Table 4.[13]

TABLE 4: Homeric aspect

	"Imperfect" (= simple past)	Aorist (= emergent pfv.)
Homeric Greek	$t_E \circ t_A$	$t_E \subset t_A$

As the Homeric Aorist does not appear to regularly permit the coextension relation, the complexive reading (i.e., coextension of t_E and t_A in the past) is regularly expressed only by the Imperfect in Homer, as (4) demonstrates.[14] Here, παννύχιος 'all night long' overtly indicates the bounds of the assertion time interval (t_A), and the actions of the verbal predicates (t_E) are asserted to last for exactly that long. Hence, the two intervals are coextensive, yielding the complexive reading.

(4) COMPLEXIVE IMPERFECT IN HOMER

παννύχιοι μὲν ἔπειτα κάρη κομόωντες Ἀχαιοί
δαίνυντο, Τρῶες δὲ κατὰ πτόλιν ἠδ᾽ ἐπίκουροι·
παννύχιος δέ σφιν **κακὰ μήδετο** μητίετα Ζεύς
σμερδαλέα κτυπέων· (*Il.* 7.476–479).

'Then, all night long the long-haired Achaeans
feasted, and the Trojans likewise throughout the city, and their allies;
and all night long Zeus, the counsellor, **plotted harm** against them,
thundering terribly'.

Homeric Greek thus resembles the "Western Slavic type" system (cf. Table 1 above), in that it shows a simple past tense gram (= Type 3 "imperfective"), namely the Imperfect, rather than an imperfective gram (of Types 1 or 2). As mentioned earlier, despite the fact that the relation $t_E \supseteq t_A$ is compatible with the coextension relation and so with the complexive reading, the Imperfect of Homer cannot represent a Type 2 imperfective, since it is also compatible with use in sequential narration (unavailable under the relation $t_E \supseteq t_A$, as Russian shows (cf. Table 1 note e)).

By the time of Classical Greek, however, the Aorist (i.e., past perfective) competes with the Imperfect in the complexive use (where $t_E = t_A$), as exemplified by (5).

(5) COMPLEXIVE AORIST AND IMPERFECT IN CLASSICAL GREEK

Ψαμμήτιχος δὲ **ἐβασίλευσε**$_{[\text{AOR.}]}$ Αἰγύπτου τέσσερα καὶ πεντήκοντα ἔτεα, τῶν τὰ ἑνὸς δέοντα τριήκοντα Ἄζωτον τῆς Συρίης μεγάλην πόλιν προσκατήμενος **ἐπολιόρκεε**$_{[\text{IPF.}]}$, ἐς ὃ ἐξεῖλε. (Hdt. 2.157.1).

13. The denotation of the Aorist is more complicated than what is relevant to show in Table 4. See (17) and accompanying discussion below for a more detailed account and full denotation of this "emergent perfective" gram.

14. So conclude Purdie (1898: 70 "constative") and Jacobsohn (1933: 307–309), with very few possible exceptions discussed in Appendix §A.1.9.

'Then Psammetichus **ruled**$_{[\text{AOR.}]}$ Egypt <u>for fifty-four years</u>, <u>for twenty-nine</u> of which he **besieged**$_{[\text{IPF.}]}$ Azotus, a great city in Syria, besieging it until he took it out' (ex. Basset 2009: 213–214).[15]

In addition, by the end of the Classical period and the beginning of the post-Classical period, the Imperfect is no longer regular in sequential narration, where the Aorist or Perfect are employed almost exclusively (cf. discussion in §5.3 below), and is much more restricted in concentrative function generally. The complexive function of the post-Classical Imperfect is also greatly restricted, again in favor of the Aorist. The Greek of later antiquity thus comes to resemble the "Eastern Slavic type" system (with differences of detail), in that it shows an imperfective gram (of Type 2), namely the Imperfect, standing in contrast to a perfective gram (in this case of Type 1), namely the Aorist, as shown in Table 5.

TABLE 5: post-Classical Greek aspect

	"Imperfect" (= Type 2 ipfv.)	Aorist (= Type 1 pfv.)
post-Classical Greek	$t_E \supseteq t_A$	$t_E \subseteq t_A$

The basic claim of this paper is that, in terms of usage, the "Western Slavic type" Imperfect found in Homeric Greek (Type 3 in Table 1) develops into an "Eastern Slavic type" (Type 2) at least by the end of the Classical period. This ends up as a "Romance/Semitic type" (Type 1) Imperfective in Medieval and Modern Greek, as shown in Table 6. These developments are indicated by the Imperfect's gradual dispreference for (STAGES II–III) and eventual loss of (STAGE IV) of its concentrative and complexive functions. Meanwhile, the Aorist undergoes semantic change along the typical grammaticalization pathway shown in (3a) above. Starting from an emergent perfective of Type 2 in Homeric ($t_E \subset t_A$) it develops into a Type 1 perfective thereafter ($t_E \subseteq t_A$), indicated by its gaining of regular complexive usage and significant decrease in "perfect-like" usage. In addition, by the time of Polybius (Plb.), the inceptive and egressive readings of the Aorist are restricted to prefixed forms of the verb (Purdie 1898). Table 6 has brief labels under each "mini-denotation," as a mnemonic to indicate, in practical, usage-based terms, how each semantic development is reflected in the functional rage of each category. Only the most important points are represented here, with the actual details being much more complicated and discussed in depth in the subsequent sections.

TABLE 6: Development of Greek aspect

	Stage I: Homeric	»	Stage II: Classical	»	Stage III: post-Classical	»	Stage IV: Medieval/Modern
Imperfect	$t_E \circ t_A$	»	$t_E \circ t_A$	»	$t_E \supseteq t_A$	»	$t_E \supset t_A$
Aorist	$t_E \subset t_A$	»	$t_E \subseteq t_A$	»	$t_E \subseteq t_A$	»	$t_E \subseteq t_A$[a]
	(Ipf. sequ./cplxv., frequ. pf. Aor.)[b]		(reg. cplxv. Aor.)		(losing sequ./cplxv. Ipf.)		(lost conc./cplxv. Ipf.)[c]

[a] Despite Hedin 2000: 227–228, cf. discussion in §6.1.1 below.
[b] Abbreviations: sequ. = sequential, cplxv. = complexive, frequ. = frequent, reg. = regular, pf. = "perfect-like" readings (viz. resultative, experiential, stative), conc. = concentrative.
[c] See Hedin 2000: 229, 232–233.

Table 7 substitutes the denotations of Table 6 with their associated grams at each stage of development. For completion, I include here the (synthetic) Perfect as well, which is lost after antiquity (cf. *BDF*:

15. Basset (2009: 213–214) notes that this text has an Aorist variant for ἐπολιόρκεε here, namely ἐπολιόρκησεν. The fact that the Imperfect precedes an 'until'-clause may be relevant as well (cf. *Od.* 14.290–291: μ᾽ ἄγε$_{[\text{IPF.}]}$…<u>ὄφρ᾽</u> ἱκόμεσθα$_{[\text{AOR.}]}$ / Φοινίκην 'he led$_{[\text{IPF.}]}$ me <u>until</u> we reached$_{[\text{AOR.}]}$ Phoenicia'). Cf. Janda & Fábregas's (2019: 705–707) treatment of the Russian Imperfective as licensed by "time until," where Spanish has the Perfective.

176). The "Types" (1 or 2) of each perfective and imperfective gram refer to those in Tables 1 and 2 above.

TABLE 7: Typological categories (i.e., "grams") in the diachrony of Greek aspect

	Stage I: Homeric	»	Stage II: Classical	»	Stage III: post-Classical	»	Stage IV: Medieval/Modern
Imperfect	simple past	»	simple past	»	imperfective[a] (Type 2)	»	imperfective[b] (Type 1)
Aorist	emergent perfective	»	perfective (Type 1)	»	perfective (Type 1)	»	perfective (Type 1)
Perfect[c]	stative-resultative	»	perfect	»	perfective	»	✗

[a] Browning (1983: 29, 34) says that by the time of the Koine the Greek aspectual system had become a genuine perfective/imperfective system, contrasting "polar opposites."

[b] Browning (1983: 64, 78, 124, 135) says that early (and late) Medieval Greek opposed "continuous and momentary actions," expressed by the Imperfective and Perfective (= Aorist) respectively, which continues into Modern Greek, with some variation according to dialect.

[c] For the diachronic stages presented here, see Gerö & von Stechow 2003. The form is moribund in Hellenistic Greek (Browning 1983: 30, 34), vestigial by the early medieval period (Browning 1983: 64), and completely gone (✗) in Modern Greek, except for εὕρηκα (as an Aorist) (*BDF*: 176).

The change in usage of the Imperfect summarized in Tables 6–7 does not, however, entail a change in its denotation during the Ancient Greek period, since at Stages 1–3 the Imperfect is never *incompatible* with terminative (i.e., concentrative and complexive) uses, permitting interpretations such that $t_E \subseteq t_A$ (i.e., "perfective-like" aspectual relations). Yet the *application* of the Imperfect in complexive or concentrative-sequential contexts becomes highly restricted in the Koine, being regularly blocked by the Aorist and Perfect in these functions. Thus, the Koine/post-Classical Imperfect may be understood as *semantically* identical to the Homeric/Archaic and Classical Imperfect ($t_E \circ t_A$), even if its range of application has been *pragmatically* restricted in the manner shown in Tables 6–7 (discussed in detail below). When, however, the blocking of the Imperfect by the Aorist in complexive and concentrative-sequential contexts becomes *categorical* at the Medieval stage, such that the Imperfect's compatibility with these interpretations is no longer recoverable to learners, then I consider it most straightforward to assume that the denotation of the Imperfect was reinterpreted to exclude its grammaticality in such contexts altogether. This last step amounts to genuine semantic change and yields the "Type 1" imperfective found in Modern Greek. The changes observed for the Aorist and Perfect (i.e., along the typical grammaticalization path of (3a) above) also constitute semantic change, which establishes the pre-conditions driving the pragmatic restrictions on the usage of the Imperfect over time, ultimately leading to its own semantic change. Thus, while the Aorist and Perfect display semantic change in the form of grammaticalization of a well-known sort, the Imperfect shows *pragmatically driven* semantic change that, while cross-linguistically atypical, is nonetheless entirely systematic in its development and explainable in these terms.

4 Methodology

4.1 Linguistic stages of Greek

As just discussed, this paper makes use of three main "stages" of Ancient Greek: Archaic (or "Homeric"), Classical, and post-Classical (or "Hellenistic"). These stages are, as all linguistic stages, a somewhat arbitrary means of tracking a particular change over time. As will be clear in what follows, both the stages and the observed changes should not be regarded as abrupt and absolute, nor entirely discrete and uniform across all dialects or even individual authors. It is simply the case that without defining stages of some

kind, one cannot clearly track a linguistic change. I have therefore adopted stages that have been used in other scholarship to track similar changes (e.g., Gerö & von Stechow 2003) and which can be defined by a set of independent linguistic criteria not directly related to tense and aspect. In addition to a thorough examination of the Ancient Greek stages, I provide more cursory remarks about the Medieval and Modern stages of the language for the sake of completeness, so that one may get a full picture of the trajectory of the relevant morphological categories in terms of their usage over time. These latter remarks are accordingly almost entirely based on observations of others found in the philological and semantic literature. I exclude Mycenaean Greek from consideration here because the nature of the documents, particularly as regards verbal usage, is far too uncertain to be adduced as evidence of historical change.

The first stage, Archaic/Homeric Greek, covers roughly 700 to 500 BCE and encompasses the epics of Homer (*Iliad* (*Il.*) and *Odyssey* (*Od.*)), the fragments of the Epic Cycle, the Homeric Hymns (*HH*), Hesiod (Hes.) (*Theogony* (*Th.*), *Works and Days* (*WD*)), the *Shield of Heracles* (*SH*) (Pseudo-Hesiod (Ps.-Hes.)), and archaic lyric (up to Pindar (Pind.)). However, given the nature and limitations of the lyrical genre, as well as the relatively small corpus size of Hesiod and the Homeric fragments, the epics of Homer have generally been found to be most informative in regards to the usage of the functional categories of this period. Wherever they are informative, though, I include discussion of the non-Homeric witnesses of the Archaic period in the appendix (§A.1). It should be noted, nonetheless, that remarkable differences in usage—especially of the Aorist—are observed between the Homeric epics and Hymns and the non-Homeric authors of the Archaic period (cf. discussion and Figures 4–6 in §5.4 below). Partly for this reason and partly for other considerations, I subgroup the non-Homeric authors of the Archaic period as "late Archaic" (i.e., all except the Homeric epics/fragments, Hymns, and the works of Hesiod/Pseudo-Hesiod), though for the purposes of tracking the changes in usage of the Imperfect this distinction is non-essential.

The second stage is Classical Greek, spanning approximately 500 to 300 BCE and including many Classical authors and a variety of genres (Attic drama (tragedy and comedy), history, dialogue, oration, etc.). Since the authors, genres, and dialects are inevitably more varied at this period than at the Archaic stage, I include discussion of the variety met with in the data wherever it is relevant to the present investigation (see especially Appendix §A.2). For instance, we find numerous occurrences of the so-called "tragic Aorist" in drama but few in prose. On the other hand, we find many examples of Imperfects used in sequential narration (i.e., concentrative use) in the histories of Herodotus and Thucydides but relatively few in (e.g.) the dialogues of Plato. Such differences are generally to be attributed primarily to stylistic influences based on genre. It should thus not be expected that every reading be attested in every author with equal frequency, nor is such uniformity required for piecing together the functional range of the morphological categories under investigation. Crucially, such variation has more to do with the relative frequencies of the occurrences of readings than with their presence or absence from the grammar outright. To the extent that "Classical Greek grammar" refers to a particular sphere of usage within a particular period of time, I therefore take readings like the "tragic aorist" (i.e., performative/reportive use) or concentrative-sequential Imperfect to belong to the general grammar of Classical Greek, despite their partial (but crucially not total) distribution by genre. To do otherwise would be to construct a separate grammar for each genre (or even for each author), which would fail to yield a coherent picture of the general diachronic developments of interest here. Hence, I consider all data available and regard a usage as marginal or absent from the grammar only when it is wanting *in general*, rather than in this or that roughly contemporaneous author or genre.

The third stage I refer to as "post-Classical" and take to include the Hellenistic Koine and the Greek of the Roman Empire (cf. Browning 1983: 19–52), spanning roughly 300 BCE to 400 CE. Due in part to its considerably longer time span (700 years as opposed to 200), I have relied extensively on discussions in grammatical treatments and their citations of the primary texts for my supposition of the readings available to the functional categories at this stage, somewhat more so than was necessary for the readings of

the prior stages. However, as with the previous two stages, there is no reading here supposed for which the relevant section of the appendix (§A.3) does not contain either a textual citation or reference to a handbook treatment containing such citations (or both). Key witnesses to the grammar of this period come from early Judeo-Christian literature (the *New Testament* (NT) and *Septuagint* (LXX), the Greek translation of the Hebrew scriptures), as well as scholarly and literary writings, such as the works of Polybius (Plb.) and Plutarch (Plut.). Of course, caveats similar to those given for the Classical period apply here as well. What emerges quite clearly, however, is that many uses attested marginally already in the Classical period are more firmly established in the post-Classical period. For example, though the Perfect is used in Classical Greek to refer to complete past events (i.e., concentrative) in a manner similar to the Aorist or Imperfect, the Aorist and Imperfect are strongly preferred to the Perfect in sequential narrative contexts. By the time of the Koine, however, the Perfect in sequential narration occurs quite regularly alongside Aorists in the same function (Browning 1983: 30), while the Imperfect is rarely so used. This is yet another testament to how gradual and gradient the changes observed here are—emergence at one stage leading to regularity at a later stage—though they necessarily appear abrupt when one looks only at the data for each stage separately (§5). Whether gradual or abrupt, however, the point here is that a clear and definable change can be observed between the usage of Classical authors and that of post-Classical authors. This paper aims only to track such developments, to assert *that* some change has taken place within the history of Ancient Greek, without making any firm claims about its rate of change or precisely how and when the first stirrings of the change arose or at what threshold they can be considered to have been fully grammaticalized. What is important is the mere fact of change, keeping in mind that this paper seeks to explain what developments gave rise to the palpable difference in usage of the Imperfect from the Archaic to the post-Classical stage.

So, though the generalizations made here cannot be hoped to be exceptionless at any stage, nevertheless their value will be clear in that they explain major changes in the *regular* functional range of the categories in question, helping to address the question at hand: Why does the Imperfect in Homer differ so markedly in its usage from that of later Greek, and how did this change come about?

4.2 Forms under consideration

I have chosen to consider only the Aorist, Imperfect, and Perfect/Pluperfect *indicative* in this investigation. There are several reasons for this. First and most important, these are the functional categories for which aspectual contrasts are most readily observable. It is a well documented fact that, across languages, aspectual contrasts are most robust in the past tenses of the indicative (see Comrie 1976: 71; Ö. Dahl 1985: 81–84; Napoli 2006: 25–26; *inter alios*). This is partly because perfective aspect does not typically operate in the present time (though there are exceptions to this, such as the performative/reportive and stative uses, discussed below) and therefore does not stand in direct contrast to the imperfective aspect in the indicative except in the past tense.[16] Moreover, it seems that present tenses tend to be somewhat "biased" toward imperfective-like meaning, regardless of whether they are built to what might be termed an imperfective gram or not, due largely to the fact that the present typically requires an event

16. The resultative, experiential, and universal readings of the perfective aspect are indeed presential. However, the first two are not common readings of the present (though the Greek Present can have such interpretations on occasion: e.g., resultative ἦ μέγα πένθος Ἀχαιΐδα γαῖαν ἱκάνει 'Truly great grief has come upon the land of Achaea' (*Il.* 1.254) and experiential σε πάρος περ / ῥύομ᾽ 'I have protected you before' (*Il.* 15.256–257)), while the universal reading is typically expressed by the Present in Greek (e.g., ἐκ τοῦ. . . ὁμιλέομεν Δαναοῖσιν 'since that (time) we have been fighting the Danaans' (*Il.* 13.779)). In addition, the Present can, like the Imperfect, be used to sequence events in past narration (after Homer (Chantraine 1953 [2015]: 191)) and, like the Perfect, regularly has continuous-state interpretations in the present time (cf. Appendix §A.1.1). So, while the functional range of the Present does overlap with the functional ranges of the three "past tenses" to some extent, it nevertheless does not do so to nearly the same degree as the Imperfect, Aorist, and Perfect/Pluperfect among themselves.

to be *ongoing* at the time of speech ($t_A \supseteq t_{0/S}$).[17] In this way, whether a morphological stem expresses imperfective or, say, neutral aspect is somewhat obscured in the present indicative. This, coupled with the fact that the perfective aspect contrasts with the imperfective aspect most prominently in the past, points to the Imperfect in Greek as the form maximally informative of the functional range of the Present stem in Greek, standing in clear contrast to the Aorist indicative in its various aspectual uses in the past time.

The Perfect is considered here as well, for reasons similar to those just described for the Imperfect and Aorist. In the oldest documented language, it represents a "stative-resultative" gram type, which shares at least two uses (stative and resultative) with the Aorist. Further, the Pluperfect, in its expression of states ongoing in the past, shares at least one reading in common with the Imperfect (in fact it shares many). As time goes on, the Perfect and Aorist come to overlap more and more in terms of their functional ranges, until the Perfect can be used in sequential narration alongside the Aorist in the post-Classical period (Browning 1983: 30). So, even though the Perfect is not properly past referring until at least the Classical stage, and is not regularly used in sequential narration until the post-Classical stage, it is included in this investigation because it shows clear interaction with the aspectual system of the other past-referring categories of Ancient Greek, namely the Imperfect and Aorist—competing with these in some uses, but also having several uses for which it is the preferred means of expression (e.g., experiential perfect). Moreover, all three of these functional categories in Greek belong to the same cross-linguistic grammaticalization pathway (see (3a) above), whereby stative-resultatives may become perfects, and perfects may become perfectives or simple pasts (sometimes called "aoristic drift"; cf. Willi 2018: 411–412). Note that, even though the Aorist and Perfect are, strictly speaking, not past tenses but respectively a perfect(ive) and a stative-resultative (later perfect, then perfective) gram, I will sometimes use the cover term "past tenses" to refer to the Imperfect, Aorist, and Perfect/Pluperfect together, simply as a shorthand for their more precise labels. These are also referred to throughout as "functional" or "morphological" categories.

As for the non-indicative forms of the verb (i.e., modal, participial, and infinitival forms), these are set aside for the purposes of the present investigation not because they do not show aspectual contrasts, but because these contrasts are far more difficult to form reliable philological judgments about. In the imperative mood, for instance, it is often impossible to feel confident in one's understanding of why an author has chosen to use the Aorist or the Present stem on any given occasion, such that any claims that might be made about them would be unreliable at best and virtually unfalsifiable. Moreover, the inclusion of such forms would stray too far afield from this paper's stated subject: the Imperfect, which is necessarily indicative, just as it is necessarily past in tense. Hence, I limit myself here to the three indicative "past tenses."

It remains only to be explained why, in a paper purportedly about the Imperfect, I bother discussing the Aorist and Perfect/Pluperfect at all. This is because much of what I observe in the development of the usage of the Imperfect is detectable only insofar as it contrasts with the other past-referring aspectual categories in the verb system. For example, the shift in preference from the Imperfect (in Homer) to

17. Present tenses tend to have progressive or continuous-state uses even where their past-tense counterparts do not, as in Early Modern English, which regularly uses its simple Present form in progressive contexts (e.g., "What do you read, my lord?" (*Hamlet* II.ii)) (Rissanen 1999: 221), while the Preterite tense, built to the same stem, most often refers to a complete or "bounded" (concentrative) past action in sequential narration (id.: 224). Similarly, the indicative Present in Sanskrit regularly has progressive or continuous-state interpretations (E. Dahl 2010: 163–165), despite the fact that its corresponding past tense, the Imperfect, which is built to the same morphological stem, does not (Whitney 1889: 201, 278). In some languages present tenses to stems that are distinctly *not* imperfective grams can be used to indicate imperfective aspect in the *past* in narrative contexts, as was probably the case in Middle English, where the simple Present tense was used to fill a functional gap of "past imperfective," since the periphrastic Progressive construction (BE + *-ing*) had yet to fully grammaticalize (Fischer 1992: 244–245). If non-imperfective present-tense forms can be put into service to designate imperfective aspect, then there must be something about the *tense* meaning of the present (rather than aspect) that is functionally "close enough" to the imperfective aspect so as to allow it to substitute for a genuine imperfective gram when a language lacks a better alternative.

the Aorist (in Classical and post-Classical) for the expression of complexive readings (see below) would be impossible to discover without recourse to the Aorist. In this way, observing a functional change belonging to the Imperfect crucially depends on consideration of morphological categories *other than* the Imperfect. Similarly, it requires looking at the entire past-tense system to observe the regular competition in sequential narration (concentrative use) that exists, on the one hand, between the Imperfect and Aorist at the Homeric and Classical stages, but between the Aorist and Perfect at the post-Classical stage. It is, therefore, a basic methodological assumption of this paper that aspectual forms are best understood as operating within a *system*. Accordingly, to understand the role of a single member of the aspectual system of a language, particularly in diachrony, it is essential to understand the roles of all other forms that stand in contrast to it within that system, in this case the Imperfect versus the other past-referring indicative forms of Ancient Greek, namely the Aorist and Perfect/Pluperfect.

4.3 Evidence and its assessment: A usage-based approach

The evidence for the claims of this paper is taken to be all the readings available to each of the tenses under investigation (Imperfect, Aorist, and Perfect/Pluperfect) at a given historical stage of Ancient Greek. In the next section (§5), I present this evidence in tabular form, with discussion of points relevant to the overall trajectory of observed functional shifts, highlighting how each subsequent stage differs from prior stages in terms of readings. The aim of collecting and presenting the readings in this way is as follows: I assume that changes in usage can be detected by taking the complete set of readings available to a given morphological category at STAGE A of a language and comparing it to the complete set of readings available to the descendant of that morphological form (assuming it survives as such) at STAGE B of the same language. Whatever differences are observed at STAGE B as compared to STAGE A with regard to losses or gains of individual readings for a particular form are taken to be innovations of usage at STAGE B. Whether changes in usage correspond to semantic change requires consideration of the rest of the verb system (*Is the change pragmatically motivated?*), as well as typological considerations (*Is the change likely when considering cross-linguistic tendencies or parallels?*). Thus, while an addition, subtraction, or modification to the set of readings for a given gram entails a diachronic change in *usage*, it does not necessarily indicate a change to the semantic *denotation* of that gram. Given this set of assumptions, I adopt the following procedure for tracing semantic/pragmatic change in diachrony: I first seek (in §5) to determine the changes in usage at each stage of Greek (as designated in §3 above). Then, in Sections 5–6, I seek to determine what may be attributed to pragmatic and what to semantic change, with a corresponding analysis for how these two types of change work and interact.

The readings are based, of course, on attestations in the primary Greek texts, as well as on reliable grammatical treatments (such as Kühner–Gerth or Schwyzer–Debrunner), which can be followed up by interested readers for further examples and discussion of particular usages. In order to maintain focus on the shift in *general* usage of these categories over time, however, I have elected to put the majority of the primary data and philological discussion in an appendix (§A) published as a supplementary document online. I emphasize that this is not done in order to downplay the importance of the primary texts. On the contrary, my claims fundamentally depend on the validity of the readings supposed at any given stage, for which primary attestation is indispensable. I have therefore included careful discussion of such attestations in the appendix, with references to standard handbooks and linguistic treatments where relevant.

In the appendix the reader will find examples of each reading assumed for each functional category at each stage of Ancient Greek, or else references to grammatical treatments containing such examples. In the first section of the appendix (§A.1), each reading is introduced and discussed with reference to semantic and typological literature, as well as each reading's status within the Greek grammatical tradition, including discussion of the often bewildering variation in terminology. The division of usage into read-

ings is necessarily somewhat arbitrary, of course, but I have aimed to give all the major readings that are commonly found in handbook treatments of Greek grammar, supplemented and refined by treatments in the linguistic literature. I have tried to make note of any significant departures from prior research (such as treating the recent past as a special case of the resultative reading, or the conative as a special case of the progressive). I have also had to make some decisions about what to call certain readings, which have a wide variety of labels in the literature, most especially what I call "complexive" and "concentrative." I aim in my choice of labels for transparency of meaning, insofar as this is possible, though I yield to the standard labels wherever they are firmly established, even if these are not particularly transparent (e.g., "experiential" or "intensive-frequentative"). In all cases, I explain my reasoning for adopting non-standard terminology in footnotes and/or the appendix, and define each reading in terms of temporal relations between assertion time and eventuality time (see Appendix §A.1), such that the precise meaning can be understood, even if the chosen label is found to be deficient.

In all sections of the appendix I try my best to give an accurate sense of how well or poorly attested each reading is at a particular stage of development (as near as can be determined) and whether any regular variation or deviation from an observed tendency occurs from author to author or genre to genre within that stage. Where there is a possible but unlikely example of a given use of some form, I present it with discussion of why its validity is in doubt. Throughout §A.3, besides detailed discussion of post-Classical usage, I indicate the status of each reading within the Medieval and Modern stages of Greek, to the extent that I have been able to determine from reference to available grammatical treatments alone. The focus of this paper being Ancient Greek, I have not conducted first-hand research to verify the assertions of the grammatical treatments regarding Medieval and Modern usage as I have done for the Ancient stages. Still, my cursory treatment of the non-Ancient periods should suffice to give a reasonably accurate sense of the later trajectory of the usage of the forms here considered.

It should be made clear that this is *not* a corpus study. There is no particular text sample that I have exhaustively investigated and prioritize as representative of a given stage of the language (though certain texts have, for various reasons, contributed more than others). This is because, for present purposes, what matters fundamentally is *whether* a particular reading is attested regularly, marginally, or never for a given form at a given stage. The exact frequencies of each reading are not of primary importance, nor could such information be acquired without careful reading of the whole of Greek literature, tracking each instance of, say, experiential uses of the Perfect or complexive uses of the Aorist. To my knowledge such an enterprise has not been carried out on a large scale. I have therefore pieced together what the results of this kind of investigation might yield, namely what readings are *available* to a particular form at a given stage. Though this approach cannot provide exact counts or frequencies, the grammatical treatments that we have are quite thorough in their descriptions and presentation of the data. These treatments are coupled with my own investigation of various Greek texts—for example, I *have* exhaustively charted the readings of these functional categories in the first book of the *Iliad* for Hollenbaugh 2018—in order to present what I believe is a reasonably thorough and complete characterization of the functional range of the three morphological categories here considered (viz. Imperfect, Aorist, and Perfect/Pluperfect) at each stage of their development.

To this end, I have made extensive use of various reference materials, including not only grammatical treatments but also dictionaries, concordances, digitized and searchable corpora, and, above all, *Perseus under PhiloLogic* (last accessed November 2, 2019). This has allowed me to search for various sequences of forms within range of some adverbial or other contextual element that tends to elicit a particular reading. For example, to confirm claims that the complexive use of the Aorist is lacking in Homer and Hesiod (cf. Jacobsohn 1933: 307–309), I searched for the Aorist indicative (ind.) alongside various adverbial expressions indicating extent of time, such as τρία ἤματα 'for three days' or παννύχιος 'all night'. This returned few and mostly doubtful results (enumerated and discussed in the appendix, §A.1.9). In contrast, a series of searches for the Imperfect with these same adverbials returned a remarkable number of

examples in Homer and Hesiod (discussed with many textual citations in the appendix, §A.1.9). Though of course these had to be read carefully to verify their complexive meaning, and though only a subset of the items returned by the search turned out to be genuinely complexive, there are nonetheless dozens upon dozens of complexive Imperfects that can be readily cited for this stage, beside just a few probable complexive uses of the Aorist. Conducting such searches—with the returned passages always checked manually to verify that they represent the reading under investigation—has thus helped me to confirm or deny the existence of a particular usage for a form at a given stage without reading through the entire set of corpora that each stage comprises. Further, this has served as an additional check on the assertions and denials of various readings as reported in the grammatical literature.

It bears emphasizing that readings are fundamentally sensitive to context and actionality (also called "Aktionsart" or "lexical aspect")[18] of the lexical item or predicate combined with a particular functional category. To clarify, "reading" (also "use," "function," "interpretation," or "(functional) value") is defined as follows: some interpretation within the semantic range of a particular morphological form that is available in certain contexts and/or with certain types of predicates (or situation types). In other words, the semantic contribution (or "notional content") of a particular functional category (for our purposes, the Imperfect, Aorist, or Perfect/Pluperfect) determines what sorts of contexts that form will be felicitous in and, therefore, what sorts of readings it can have. Accordingly, not only should one not expect every reading to be possible for every morphological category, but one should also not expect to find every reading available in all contexts or to all predicate types. Certain contexts license certain readings. For example, a verb meaning 'they ran away' in the context after a participle meaning 'having gotten scared' is likely to receive an inceptive interpretation: 'having gotten scared, they ran away (i.e., took off running)' (cf. Thuc. 2.12.3 in Appendix §A.2.8). This is a contextually determined reading of a form whose semantic range is sufficiently broad to allow it to occur in such contexts (viz. inceptive). If its semantics did not allow inceptive as a use, we would expect it to be ungrammatical in such contexts and therefore not to occur in them, or else to be coerced into some special interpretation in order to render the utterance grammatical. Similarly, many readings are sensitive to situation/predicate type, such that only certain types of verbs or predicates can yield certain readings in combination with a given morphological form. For example, the stative use of the Aorist at the Archaic stage (see (6) below) arises when the Aorist morphology is combined with a verbal predicate that is a state, such as φιλέω 'love'. This is also true of the complexive and inceptive readings of the Aorist. It is not true, however, for some of the analogous readings of the Imperfect: While the continuous-state reading of the Imperfect *does* require a state predicate (type 'he was sleeping'), just like the stative use of the Aorist, in its complexive and inceptive uses the Imperfect attests predicates of *all* types (mainly activities, accomplishments, and states, in Vendlerian terms), in contrast to the Aorist usage. Restriction of a certain reading to a certain situation/predicate type is thus in part a property of the morphological category that the lexical verb or verbal predicate combines with and, in this way, reveals something about the semantic range of that category. This kind of evidence has been indispensable in determining the denotations of the various functional categories at each stage of Greek. I therefore include information about the Vendlerian categories that license particular readings of functional categories in the summary tables of §5 below, enclosed in curly braces.

The total set of uses regularly available to a particular functional category indicates its *functional*

18. I operate here with the basic "Vendlerian" situation types (or "predicate types"), namely states (e.g., *know, be happy, sleep*), activities (e.g., *run, write, eat*), accomplishments (e.g., *write a letter, eat up, strip down*), and achievements (e.g., *die, finish, fall asleep*). "States" are contrasted with the other situation types, which are collectively referred to as "events." The reader is referred to Vendler 1957; Moens & Steedman 1988; Smith 1997: 27–90 for fuller explanation of these categories. There is sometimes need to distinguish "stage-level states" from "individual-level states" (cf. Kratzer 1995). The former refers to impermanent states like BE HAPPY or SLEEP, which tend to behave similarly to events. The latter refers to permanent states like BE TALL or KNOW, which often behave quite differently from other kinds of eventualities (e.g., they cannot be combined with the Progressive in English: **was being tall*, **was knowing*).

range, which must be permissible under the semantic denotation associated with that form (as formalized in §6 below). The functional range for a given form is thus discerned on the basis of what readings we find actually attested for that form. Any sufficient formalization of the denotation of a given form must capture exactly this functional range (i.e., how broad or narrow its semantics must be) and be neither too "weak" nor too "strong" as to permit more or fewer readings for that form than are actually available to it.

This paper is structured so as to develop a synchronic analysis of functional categories at each stage of their development, then observe the changes from one stage to the next, thereby achieving a diachronic analysis. The synchronic component proceeds in the following way: First, the functional range of each form at each stage is determined on the basis of attested usage (§5). Once its functional range has been determined, a denotation for each form is formulated in Section 6 in such a way that it permits exactly the functional range observed for that form, and so is compatible with just those readings regularly attested for the form in question. Additionally, pragmatic matters are discussed and explained, involving the interaction of the various functional categories with one another, which limits their usage in predictable ways and depends on the synchronic grammar operative at a given stage of development.

Because it is the total set of regularly attested readings that determines a form's functional range at a given stage, no particular function is regarded as more important or "central" to establishing the form's denotation than any other. This approach contrasts strongly with the assumptions of many standard grammatical treatments and even prior theoretical treatments down to the present day: See, e.g., Chantraine's (1953 [2015]: 220) notion that the Imperfect (and Present) expresses basically "duration," or Smyth's (1956: 423) generalization that it "represents an action as still going on…in the past". More recently, Bary & Egg (2012) take an extreme approach of this kind in assuming that there is one particular reading that is essential to the Aorist (viz. concentrative, of the type 'received in that moment'), and one that is essential to the Imperfect (viz. past continuous state, of the type 'was king at that time'), and that all others must be explained by means of various "coercion operators." These "coerced" readings include, remarkably, the inceptive ("ingressive") and complexive ("phase interpretation") uses of the Aorist and the progressive, iterative, and habitual uses of the Imperfect.[19] By contrast to these approaches, I assume instead that all regular uses of a form operate essentially on the same "footing," so to speak. Accordingly, a form's denotation must be formulated in such a way as to accommodate *all* of its regular functions, rather than just one or another reading that receives some special status in the (inevitably arbitrary) view of the analyst.

However, that is not to say that there are not certain readings that help us home in on a particular diachronic change more than others. In this analysis, the complexive and concentrative readings may appear to have some special status over and above the other readings for determining the aspectual value of a functional category at a given stage. Yet this is only because it is precisely with respect to these readings that the most significant changes have been observed—and can thus be tracked over time—for the Imperfect and Aorist. So, while it is not the case that the complexive use is more "essential" to the Aorist's denotation than any other reading available to it at the post-Classical stage, it can be truly said that the functional range of the Aorist at this stage differs most notably from that of the Homeric Aorist precisely with respect to this reading, and so its post-Classical denotation is formulated as permitting the coextension relation ($t_E \subseteq t_A$) that its denotation at the Archaic stage had excluded ($t_E \subset t_A$). In this way, a particular reading may emerge as especially important to the diachronic analysis in a non-arbitrary (and non-circular) way, simply from examination of the data, without having been artificially endowed with this privileged status by the analyst. In conducting my analysis in this way, I hope to have avoided

19. Napoli's (2006: 64) conclusion that the Imperfect (and Present stem generally) "views the internal structure of the situation" is much closer in spirit to the approach of this paper, though I think her identification of this functional category with imperfective aspect assigns to it a semantics too narrow (or "strong") to account for all the uses of the imperfect that we find attested, especially in Homer.

undue confirmation bias and, above all, to have hit as near the mark as possible in understanding the full functional range of these forms at each stage in terms of their attested usage.

4.4 The notion of regularity

In the tables of Section 5 below, I have summarized the readings available to each of the three functional categories at each stage of development, based on my investigation of the data detailed in the appendix. The point is to determine the *regular* functional range of each category at each stage, so that I can then assign to it a semantics (or *denotation*) that accounts for this functional range in Section 6 and, finally, explain the observed shifts from one stage to the next in these terms, taking into account both semantic and pragmatic factors.

I distinguish in this treatment the notion of regularity of usage from that of commonality or frequency of usage. Crucially, just because a usage is regular does not entail that it will occur frequently, though high frequency of occurrence can ordinarily be taken to imply regularity. This is because there are many cases in which one would consider a certain usage to be part of a form's regular functional range and yet find that it occurs with less frequency than other uses regularly available to that form. For instance, the inceptive use of the Imperfect is certainly of rarer occurrence than, say, its habitual or characterizing uses, simply because the kinds of discourse contexts that elicit the inceptive reading tend to be more specific than for the other uses, typically requiring that something has just occurred in the immediate discourse which leads to the initiation of a related action in the Imperfect (cf. Rijksbaron 2002: 17–18). Yet, if the inceptive use occurs less frequently than the habitual, still it is met with on nearly every page of, say, Herodotus or Thucydides, and good examples of it are, in my experience, much easier to come by than truly solid examples of the Imperfect's progressive use, which most assume to be fundamental to the meaning of the Imperfect (e.g., Smyth 1956: 423). Therefore, ordering readings on a sliding scale of frequency of occurrence is problematic at best, and it is futile to attempt to determine at what critical threshold one should consider a usage "legitimate" or "illegitimate."

Partly to avoid the problems brought on by notions of relative frequency, I have instead attempted only to determine what usage is *regular* for a form at any given stage. By "regularity of usage" I mean something similar to the notion of regularity met with in other areas of linguistics, such as regularity of sound change. This has two properties of interest to us here: (i) A regular sound law may or may not actually apply to very many forms, so long as (ii) it applies everywhere it *can* apply. Any historical linguist will be familiar with regular sound laws that are used to explain only a handful of data (or sometimes even a single form, so long as no counterexamples exist). So with regularity of usage, a form may be regular without being frequent. There are a number of factors that contribute to relative frequencies, such as the kinds of discourse contexts that give rise to particular readings (just mentioned) and, most tellingly, categorical or partial *blocking*. Just as a regular sound law applies wherever it can but may be blocked (or "bled") from applying by some other rule that precedes it, so, analogously, a regular synchronic usage of a form will apply in every context that it can, though its application may meet with interference due to competition with another form in the same function. Given this assumption, it follows that, when two forms compete for the same semantic space, the semantically stronger form will apply in those cases where its particular functional range is most appropriate, not because the other form cannot express that nuance, but because the more specific form must apply in all instances that it can. Since the more specific form applies in a subset of the contexts that the less specific form does, it will block the application of the less specific form in exactly those contexts.

Whether this blocking is partial or categorical depends on numerous other factors of the particular verb system, but either variety can be overridden by lexical or other considerations. For example, the English Preterite cannot have past progressive interpretations. Yet it would be rash to conclude on this basis that the Preterite is *semantically* incapable of expressing these shades of meaning. On the contrary,

the English Preterite is generally regarded as a simple past gram (e.g., Bybee et al. 1994: 85; Denison 1998: 133), neutral in aspect, which we know in earlier forms of the language—when the Progressive construction was not fully grammaticalized—was used to characterize states of affairs as complete *or* incomplete in the past (Fischer 1992: 245–246; Rissanen 1999: 226). Further, even in Present-day English the simple Preterite is regular and even required for certain state predicates characterized as ongoing in the past, where the Progressive is impossible, as in *Mary knew (*was knowing) the answer*. It is thus inaccurate to say that the English Preterite does not regularly characterize states of affairs as incomplete or ongoing in the past. Rather, the event-in-progress readings that *could* apply to the Preterite (and used to do so) are categorically blocked in Present-day English by the Progressive construction (cf. Deo 2015b: 5), which applies in all contexts where it can apply, namely to charatcerize events as being in progress, in preference to the semantically more general Preterite (simple past gram). Such is the effect of blocking that readings which are well within the semantic scope of a form are not actually realized with complete freedom, since another form in the verb system that is more highly specified for use in those contexts blocks the application of the more general form. Still, such readings may be realized by the more general form in a restricted domain, applying wherever the more specific form cannot, as in the case of state predicates in English that do not readily build Progressives, such as KNOW, where the Preterite is used instead. Thus, all regular uses of a functional category will apply in all contexts that they can apply in, though these contexts of application are often restricted by interaction with other forms in the same verb system.

And so, I understand a reading or set of readings to be regular when it is *compatible with the denotation* of a particular morphological category at a given linguistic stage. Empirically, a usage of a form is taken to be regular if: (a) it is very common and virtually unrestricted lexically, syntactically, or pragmatically; or (b) it is not very common or is even uncommon and of restricted occurrence, but the restrictions on its application are definable and predictable, whether in terms of lexicon (predicate types), syntax, discourse context, or blocking relations with other functional categories in the verb system (pragmatics). When there is no good reason to suppose that a usage that is marginal or completely lacking in secure attestation for a verb form at a given stage comes by its scarcity due to regular pragmatic or other restrictions along the lines of (b), then the usage is considered not to be regular for that form at that stage.

It is possible for a usage to meet this definition of regularity but never actually be attested for a particular form, but crucially *only if* its lack of occurrence is regular and definable as the result of a blocking relation with another form in the verb system. Such is very nearly the case of the resultative-perfect use of the Imperfect in Homer, which has only a few plausible attestations. One way of analyzing its near absence could be to include a stipulation in its semantic denotation against applying this form in a resultative function. But since the Aorist is systematically applied in resultative contexts, the more economic approach is to view the lack of resultative uses of the Imperfect as due to blocking on the part of the Aorist in the appropriate contexts, rather than as an entailment inherent in the meaning of the Imperfect itself (cf. the categorical blocking of event-in-progress readings of the Preterite in English by the Progressive, discussed just above). This allows us to suppose that the Imperfect denoted "neutral aspect," which can explain its extremely wide functional range, without stipulating more than is necessary or appropriate, since taking blocking into account gets this restriction, as it were, "for free," while also rendering the few possible instances of resultative Imperfects in Homer semantically unproblematic.

By contrast, sporadic, unsystematic, and unpredictable uses are considered not to be regular. In such cases, no particular lexical restriction on the usage can be identified, no predictable syntactic or discursive environment can be pointed to as eliciting the reading across occurrences, and no regular blocking relation with another form in the verb system can be observed. There are some cases where an especially marginal or dubious reading of a form is found in a particular syntactic environment or discourse context, but, crucially, these environments or contexts cannot be generalized in order to *predict* where the form will occur when one looks at similar contexts in other utterances, because other forms are found

there instead. Such cases must not be regarded as "regular" under the definition put forth here. An example of this is the English Perfect, which is ordinarily banned in contexts of definite past time deixis (the so-called "present perfect puzzle"; cf. Klein 1994: 208), as in **I have seen him at three o'clock yesterday*. Nonetheless, there are occasions in which one will hear or produce the Perfect in contexts of this kind, as I once did when writing an email to a professor, saying, "I have already taken Ling 200A last fall." Clearly the use of the Perfect with definite time reference to the previous fall, added at the end, was triggered by a special set of circumstances at the discourse level: I wanted to make clear that I already had the prerequisite filled for the upcoming course (hence the experiential perfect) but also wished to specify when that prerequisite had been completed (hence the definite time adverbial). Yet we cannot use this one-off example to make reliable predictions about where the Perfect can and cannot occur in English, or even in my own idiolect of English. In fact, when we look at similar contexts in other utterances, we find the simple Preterite almost invariably (of the type *I took it last fall*). So it would be unreasonable to suppose that the denotation of the English Perfect is such that it regularly permits co-occurrence with adverbials of definite past deixis.

Still, such sporadic occurrences can, over time, lead to *changes* in regularity. In fact, it is thought that one of the mechanisms driving the grammaticalization of a perfect gram to a perfective or simple past is its over-application, extending into contexts where it could not previously be applied (cf. Deo 2015a: 193). Eventually, this usage becomes part of the form's denotation (i.e., semantically regular). Thus, sporadic, contextually or pragmatically motivated over-extension in usage can lead to systematic, regular usage at a later stage. It is therefore important to keep the two notions distinct to the extent possible. This concept will be relevant in what follows, as (e.g.) I deem the complexive uses of the Aorist in Archaic Greek to be irregular, even though they *are* attested a few times at this stage, since their occurrence is in no way predictable on the basis of their attestations or on regular interactions of the Aorist with the verb system at large (similarly, cf. the marginal concentrative use of the Perfect at this stage). At the same time, however, I take these sporadic early occurrences as evidence of the type of over-extension of usage just described, which I assume led to the regularity of such uses in the later stages of the language: The complexive use of the Aorist and the concentrative use of the Perfect are clearly regular at the Classical and post-Classical stages, so it is unsurprising that we should find an occurrence or two at an earlier stage (Archaic Greek), when these uses were first emerging.

4.5 Presentation of the data

In the tables that follow in Section 5, I summarize the functional ranges of the three "past tense" categories (Aorist, Imperfect, and Perfect/Pluperfect) at each of the three stages of Ancient Greek defined above (Archaic, Classical, and post-Classical). In each cell of a table a functional label (i.e., a "reading") may or may not be found. If a functional label appears in a cell and is unadorned, without further marking, it means that I take that reading to be part of the regular functional range of the category to which it is assigned (i.e., in the corresponding column). If, instead, the symbol "×" appears (without further adornment), it means that that particular functional slot finds no attestation in the data for that category at that stage of the language. As discussed above, lack of attestation may or may not correspond to a semantic entailment against that particular usage. In the case of the Imperfect, for instance, lack (or near lack) of attestation can in several cases be straightforwardly attributed not to limitations entailed by its semantic denotation but to restrictions imposed on it by pragmatic interaction with the Aorist, called *categorical blocking*. In the case of the Aorist, on the other hand, pragmatic conditions preventing certain uses that it could hypothetically have cannot readily be established, so a semantic account is more reasonable, wherein the denotation of the Aorist is taken to be such that it entails that the Aorist's application in certain contexts is not regularly admissible. The lack of regular attestation of the Aorist in such contexts is thus explained, in general, as a limitation imposed under its particular functional range,

rather than by interaction with another form in the verb system (via blocking). In any case, the symbol "×" in the tables that follow is meant to be silent about this distinction, with the matter of whether a certain absence of attested usage is to be attributed to semantics or pragmatics taken up in the following section (§6).

The rows of each table group readings according to functional similarity (if not absolute identity) across morphological categories (columns). Thus, if the symbol "×" appears in a particular cell, the reader must look to its right or left to see what the overall character of that row is like, in order to understand what sort of reading is unattested for the form in question. For example, the first "×" in the Aorist column of Table 8 falls in a row including the progressive-conative use of the Imperfect and the intensive-frequentative use of the Perfect/Pluperfect. This row thus groups readings that refer to an event in progress at evaluation time. Therefore, the "×" in the Aorist cell can be understood to mean that the Aorist does not attest any secure examples of a progressive use (or occur in progressive-like contexts) at the Archaic stage.

When a row would otherwise consist entirely of "×" symbols, thereby rendering the row's intended functional parameter opaque, but its inclusion in the table is relevant with respect to diachrony, the intended funtional label is enclosed in square brackets. This notation is identical in meaning to the "×" symbol, except that it additionally indicates information about what functional parameter is meant to be reflected in the whole row (the rest of which will contain "×" symbols), as seen in row 11 of Table 8.

In addition to this basic contrast between a usage that is regularly attested (indicated by an unadorned usage label in the relevant cell) and one that is entirely unattested (indicated by "×" or a usage label enclosed in square brackets), there are several other notational strategies that I have adopted, in order to indicate various degrees of attestation, as this can often be quite complicated when one looks closely at the data and the grammatical literature written about it. Some of these are practical, such as the use of square brackets to indicate the functional parameter of a row (no different in meaning from "×"), while others have distinctive meanings. I summarize all of these notations in the following list.

Unadorned usage label (e.g., "stative"): The stated reading is *regularly attested* for the form in question at the linguistic stage indicated. Boldface type (e.g., "**universal**") indicates an innovation of usage from the immediately preceding stage (i.e., an addition to the form's functional range). Boldface type also applies for uses that have become regular or ceased to be rare or questionable (see below) since the time of the immediately preceding stage (e.g., the universal and complexive uses of the Aorist and the resultative use of the Perfect in Table 9).

× (unadorned): The reading proper to this cell of the table (as indicated by the row to which it belongs) is *unattested* for the form in question at the linguistic stage indicated, without an indication of whether this lack of attestation is semantically or pragmatically motivated (clarified in §6). The boldface equivalent is "**✗**," which indicates a loss in attestation compared with the immediately preceding stage.

Usage label enclosed in square brackets (e.g., "[performative/reportive]"): The stated reading is *unattested* for the form in question at the linguistic stage indicated, without an indication of whether this lack of attestation is semantically or pragmatically motivated (clarified in §6). The "×" is avoided because the row in question would otherwise consist only of "×" symbols, in which case it would not be clear what manner of usage was being referred to. A row of null attestation is included for its interest to diachrony. Labels of this kind may be put in boldface to indicate an innovation from an immediately preceding stage (e.g., "**[performative/reportive]**").

Usage label with question mark (e.g., "resultative?"): The reading is of *uncertain regularity, productivity, or legitimacy*. In the face of doubt, the reading *is* considered to belong to the regular functional range of the form in question at the linguistic stage indicated. In all such cases, the available ev-

idence, its treatment in the handbooks, and reasons to doubt its legitimacy are discussed in the relevant portions of the appendix. The question mark may be put in boldface to indicate a change in security of attestation or certainty of regularity from the immediately preceding stage (e.g., "stative**?**").

Usage label enclosed in square brackets with question mark (e.g., "[complexive]?") The stated reading is deemed *not* to belong to the regular functional range of the form in question at the linguistic stage indicated. Such readings *may be attested*, however, whether dubiously or securely, but not *regularly*. That is, no rule can be established governing or predicting the reading's occurrence—whether semantic (entailed by denotation), lexical (predicate types it combines with), syntactic (adverbial or clausal environment), contextual (discourse), or pragmatic (blocking). Discussion of readings so labeled is always included in the appendix, where the motivations leading to the adoption of this label are explained, and the evidence and its treatment in the grammatical literature are carefully assessed. This label may be put in boldface (e.g., "**[sequential?]**") to indicate an innovation (loss) from an immediately preceding stage.

Usage label in boldface with strike-through line (e.g., "~~**complexive**~~"): Indicates that the stated usage has become *restricted in its occurrence*, though it is securely attested, for the relevant form in comparison with the immediately preceding stage of the language. This is to be attributed (in §6) to *pragmatic interference* (partial blocking) on the part of another form in the verb system. Motivations for such a notation in any given case are discussed in the body of the text in Sections 5–6 and in greater detail with citations in the relevant portions of the appendix.

"(rare)" after an otherwise unadorned usage label (e.g., "resultative (rare)"): Indicates that the use in question, while regular, is not of frequent occurrence for the relevant form at the stage indicated. This label may be put in boldface to indicate an innovation in scarcity of occurrence from an immediately preceding stage (e.g., "futurate**? (rare)**"). Various other stipulations or qualifications may be added to it (e.g., "(**rare unless prefixed**)").

"(drama)" after a usage label (e.g., "stative**? (drama)**"): Indicates that possible examples of the use are only found in Attic drama, so far as I am aware or have been able to determine from the grammatical treatments and my own investigation of the data (see Appendix *ad loc.*).

Predicate type label in curly braces following one of the above labels (e.g., "{states}"): Indicates the predicate type(s) (cf. n.18 above) for which the reading in question is available for the relevant form at a given stage, as discerned from its attestation. So, for example, the Aorist attests stative uses in Archaic Greek only when it is built to state predicates. When the restrictions on predicate type change from one stage to the next, the predicate type label is put in boldface in the table of the later stage (e.g., "{**non-achiev.**}"). Where the predicate type restrictions remain unchanged from a prior stage, however, I omit its label from subsequent tables. *Events* is the cover term used to pick out all non-state situation types (viz. achievements, accomplishments, and activities). *Transformative* (= achievements and accomplishments) is abbreviated "transfm."; *non-transformative* (= states and activities) is abbreviated "non-transfm." (cf. n.8 above). When all but one situation type is available for a reading but does not form an established natural class, I simply put "non-" in front of the excluded situation type (e.g., "non-activities" picks out states, accomplishments, and achievements). *Accomplishments* is abbreviated "accomp."; *achievements* is abbreviated "achiev."

(Plpf.): Designates readings not available to the Perfect but only to the Pluperfect at the stage indicated. Note that the Pluperfect matches the Imperfect almost entirely in its functional range, particularly at the Archaic stage (cf. Appendix §A.1.6).

Various other qualifiers (e.g., "'attained state' only") will be sufficiently transparent to the reader in consideration with the discussion accompanying each table, supplemented by the relevant portions of the appendix.

5 Data

5.1 Archaic/Homeric Greek (c.700–500 BCE)

In overview, the readings available to the three "past tenses" in Archaic Greek are presented in Table 8. For an explanation of the notation, see Section 4.5 just above. For philological and theoretical details motivating the readings assumed in this and subsequent tables see the appendix. "CF" stands for *counterfactual*.

In the appendix (online supplement) the reader will find discussion of every reading in Tables 8–10 *except* the generic, gnomic, habitual, and pluractional uses (iterative and distributive). The decision to exclude these readings from the appendix was made late in the drafting of this paper and solely for considerations of space, since these groups of readings do not significantly affect the findings here presented and, though interesting in many ways, do not vary much from stage to stage in ways relevant to the current investigation. The denotations in Section 6 have been made with these readings in mind, however, such that the habitual reading of the Imperfect, for instance, is fully compatible with the semantics assigned to the Imperfect at all stages (i.e., either $t_E \circ t_A$ or $t_E \supset t_A$). In other words, these readings are assumed to be part of the functional ranges of their respective morphological categories (as shown in the tables), even though they are not explicitly discussed.

TABLE 8: Attested readings of the ARCHAIC GREEK Aorist, Imperfect, and Perfect/Pluperfect ind.

	AORIST	IMPERFECT	PERFECT/PLUPERFECT
1.	stative {states}	continuous state {states}	stative {non-activities}
2.	×	progressive-conative {events}	intensive-frequentative {events}
3.	resultative/"hot news" {transfm.}	resultative? (rare) {transfm.}	resultative (rare) {transfm.}
4.	experiential {any}	experiential? (rare) {any}	experiential {any}
5.	present universal? {any}	(present/past) universal {any}	universal {any}
6.	concentrative-sequential {events}	concentrative-sequential {events}	[concentrative]? {events}
7.	counter-sequential {events}	counter-sequential {events}	(Plpf.)
8.	inceptive {states}	inceptive {non-achiev.}	(Plpf.)
9.	[complexive]? {states}	complexive {non-transfm.}	(Plpf.)
10.	past CF {any}	past CF {any}	(Plpf.: past CF)
11.	[performative/reportive]	×	×
12.	futurate? {transfm.}	×	×
13.	egressive (rare) {accomp.}	×	×
14.	pluractional {any}	pluractional {any}	×
15.	gnomic {any}	past habitual {any}	generic uses {any}

The rows of Table 8 correspond to groups of similar "readings" or interpretation types (i.e., uses) across morphological categories. So, for example, row 2 column 3 reflects the traditional label for the use of the Perfect designating an event (not a state) ongoing at speech/evaluation time, namely *intensive-frequentative*. This is qualitatively not very far from the progressive-conative uses of the Imperfect (row 2 column 2), though the former has present reference and the latter has past reference, and so I place them in the same row of the table. The progressive and conative are grouped together because I take the cona-

tive reading to be a special case of the progressive (e.g., 'was persuading' but had not yet accomplished the persuasion, and hence 'was *trying to* persuade'), though nothing depends on this assumption.

To take another example of a natural class of readings from Table 8, row 1 has to do with states that are ongoing at or before speech time (or local evaluation time, cf. n.42 below), a use which outside the perfect and perfective aspects is called "continuous state" (vel sim.) in the semantic literature (cf., e.g., Deo 2015b: 4, of the type *was standing*). I maintain this distinction to differentiate the use of the Imperfect from that of the Perfect. In this use, the Imperfect designates states that are ongoing in the past and does not imply an event preceding the state that resulted in the state's holding true. This is what I call "continuous state" (type οὐκ. . . ἤνδανε 'was not pleasing'). The Perfect, on the other hand, can designate both "attained states" (to transformative predicates, type τέθνηκε 'is dead') *and* continuous states (to state predicates, type ἔολπα 'I hope'). Attained states differ from continuous states in that they imply a preceding event that has resulted in the state holding true at speech time (or time of local evaluation). Hence, I use the broader term "stative" to refer to this reading of the Perfect.[20]

The Aorist can also, though in a much more limited way, combine with state predicates to refer to a state ongoing either in the past (e.g., *Il.* 9.481, *Od.* 8.63) or, unlike the Imperfect, at speech time (cf. (6) below). I refer to this use of the Aorist as "stative" as well, but for a different reason than that of the Perfect. Whereas the label is used of the Perfect to account for its vagueness as to what kind of stative is meant (attained or continuous), the corresponding use of the Aorist is called "stative" here due to a lack of complete understanding (given the limited data available) about its nature and function (whether attained or continuous or neither), such that the unmarked term seems best (see the appendix §A.1.1 for a full discussion). Moreover, while the Aorist in its stative function can refer to present *or* past time, the Imperfect refers only to the past, so it is desirable that the two usage labels not be identical. Of course, the Aorist to state predicates may have other readings as well, such as inceptive (see below).

In most other rows, the usage labels are identical or nearly identical across morphological categories. This reflects a functional similarity of these readings across categories, though again distributional details and restriction according to predicate type may vary. Again, the reader is referred to the appendix for a full account of what is meant by each reading label, references to discussion in the grammatical and linguistic literature, and citations from the Greek texts. Note that the readings here presented are not necessarily mutually exclusive. For instance, an experiential perfect reading may at the same time be iterative (e.g., *I have read that book many times*), and so forth.

Though accounts of aspectual usage inevitably focus on the *differences* between functional categories, there is in Greek, from the Archaic period on, a remarkable amount of overlap in terms of usage across categories. I have everywhere sought not to suppress functional overlap of this kind, which I take to reflect semantic overlap (i.e., similarity in the denotations of different morphological categories), but to let the data speak for itself. I have thus drawn my conclusions about the functional range of each category solely on the basis of its attested usage (rather than, say, received wisdom about what that category "should" or "should not" be capable of doing).

We shall return to the sets of readings in Table 8 when we come to the Classical period in Section 5.2, in order to compare the two and observe any diachronic changes. For now, it is enough to emphasize two uses particularly characteristic of the Homeric stage. The first of these is the stative use of the Aorist. Though the Aorist is typically interpreted as having eventuality time (t_E) *precede* speech time ($t_{0/S}$), (6) shows that, in Homeric at least, the Aorist could also be interpreted as having eventuality time *overlap with* the time of speech (or evaluation), such that it can be felicitously used to refer to states that are

20. Of course, many lexical states may inherently imply an earlier event that led to that state (e.g., given the truth of a verb like *sleep* I can logically infer that some event of falling asleep has taken place). States of this kind may be built to the Imperfect, but the inference of a preceding event is simply a product of the world knowledge that many kinds of states are not eternal but have to have begun at some point in the past. In contrast to the Perfect, such inferences are inherent to the states built to the Imperfect (or Aorist) and do not arise from the notional content of the verbal morphology itself (cf. Appendix §A.1.1).

ongoing in the present (or past, where t_0 is "past shifted"). In (6), where Aphrodite is addressing Helen, the Aorist must be read simply as 'I love' and cannot be interpreted otherwise in such contexts without violence to the text (cf. Chantraine 1953 [2015]: 214).

(6) STATIVE USE OF THE AORIST INDICATIVE IN HOMER

μή μ᾽ ἔρεθε σχετλίη, μὴ χωσαμένη σε μεθείω,
τὼς δέ σ᾽ ἀπεχθήρω ὡς νῦν ἔκπαγλ᾽ **ἐφίλησα**$_{[\text{AOR.}]}$ (*Il.* 3.414–415).[21]

'Don't provoke me, stubborn woman, lest having been angered I cut you loose,
and I come to despise you so terribly as I currently **love**$_{[\text{AOR.}]}$ you'.
[NB: #'have come to love/been loving']

Another use of particular prominence in Homer is the concentrative-sequential Imperfect (Goodwin 1889: 7–8, 25), referring to an Imperfect used to characterize events as complete in the past, such that eventuality time is fully contained in assertion time ($t_E \subset t_A$), which is often employed to sequence events chronologically in past narration, relative to other Imperfects or Aorists in the local discourse. Examples of the Imperfect used concentratively in sequential narration have been given in (1) above (cf. Appendix §A.1.6 for further discussion), where they are coordinated with likewise concentrative-sequential Aorists (cf. Wackernagel 1926–1928 [2009]: 235). Another example is (24a) in Section 6.3.1 below.

As shown above in (4), the Imperfect is also regular in the complexive function in Homer, rather than the Aorist (cf. Appendix §A.1.9), which is quite rare in this use (and lexically restricted) until the later stages of Greek (Purdie 1898). This is an important point to which we shall return in the next section.

Thus, the Imperfect of Homer shows a very wide range of aspectual uses, some of which are not typically considered to belong properly to the notion of "imperfective aspect," particularly the concentrative-sequential and complexive uses, both of which involve the imposition of "boundaries" (i.e., the upper and lower limits of the assertion time interval) on whatever predicate they are built to (respectively transformative/telic and non-transformative/atelic), such that $t_E \subseteq t_A$. For this reason, I have identified the Imperfect not as a past imperfective gram (which would entail $t_E \supseteq t_A$) but as a simple past, which is neutral in aspect ($t_E \circ t_A$) and therefore compatible with $t_E \subseteq t_A$ as well as $t_E \supseteq t_A$.

The Aorist, meanwhile, is rather more restricted in its use and is found regularly in a number of "perfect-like" functions, such as resultative, experiential, and stative (cf. Kiparsky 2002: 113 on the association of these readings with the perfect aspect). While some of these uses remain available to the Aorist in the later language, their frequency of occurrence in Homer sets them apart from later usage (cf. §5.4 below), and the stative use in (6) is virtually restricted to the Archaic period (with some exceptions in Attic drama). Moreover, the Aorist does not regularly have complexive as a use at this stage, suggesting that it does not yet permit the coextension relation, which would impose an upper and lower "boundary" on a state predicate (of the type 'reigned for twelve years'), so it must not denote the relation $t_E \subseteq t_A$, but rather $t_E \subset t_A$.[22] This predicts that when combined with a state predicate[23] the Aorist will not yield a complexive reading but will instead coerce an event of entry into the state in question (inceptive reading), such that $t_E \subset t_A$ can be true. Putting these facts together has led me to conclude that the Aorist was at the Archaic stage an "emergent perfective," showing a high degree of "perfect-like" behavior and lacking, as yet, a full range of "perfective-like" uses (e.g., the complexive reading or serving as the default tense of sequential past narration). Its full denotation is given in Section 6.1.1 (17) below.

21. See Appendix §A.1.1 for further examples and discussion of this use.

22. For possible exceptions within the Archaic period see Appendix Section A.1.9 (cf. also §A.1.5 on the universal Aorist).

23. At least individual-level states (cf. n.18). Stage-level states, such as δείδω 'be afraid' or ἄω (ἰαύω) 'sleep', act at once like states and events, such that in the Aorist they often have inceptive interpretations (e.g., *Il.* 1.33) but can sometimes be used concentratively (e.g., *Od.* 3.151: νύκτα. . . ἀέσαμεν 'that night we slept') (cf. Appendix §A.1.6). Neither sort of state is used complexively in the Aorist at the Archaic stage, however.

The Perfect is a stative-resultative gram at this stage, showing a strong preference for stative usage (type τέθνηκε 'is dead'), as well as the "intensive-frequentative" use (type βέβρυχε 'roars, keeps roaring'), which is generally assumed to be archaic. Still, it shows some early signs of a shift along the grammaticalization pathway of (3a) above, moving toward being a full-fledged perfect gram, as it is not uncommonly found in the experiential use, as well as in a few cases of resultative and universal uses (cf. Appendix §§A.1.3–A.1.5).

5.2 Classical Greek (c. 500–300 BCE)

In overview, the readings available to the three "past tenses" in Classical Greek are presented in Table 9. See Section 4.5 above for an explanation of notation; cf. the appendix (§A.2) for details about individual readings.

TABLE 9: Attested readings of the CLASSICAL GREEK Aorist, Imperfect, and Perfect/Pluperfect ind.

	AORIST	IMPERFECT	PERFECT/PLUPERFECT
1.	stative**? (drama)**	continuous state	stative
2.	**[conative]?** {transfm.}	progressive-conative	intensive-frequentative**?** (drama)
3.	resultative/"hot news"	resultative? (rare)	**resultative/"hot news"**
4.	experiential	**(present) experiential** {any}	experiential
5.	**present universal** (rare)	(present/past) universal	**universal**
6.	concentrative-sequential	concentrative-sequential	**concentrative[-sequential?]** {events}
7.	counter-sequential	counter-sequential	**counter-sequential** {events}
8.	inceptive	inceptive	**inceptive** {any}
9.	**complexive** {states}	complexive {**non-achiev.**}	(Plpf.)
10.	past(/present) CF	**present**/past CF	(Plpf.: **present**/past CF)
11.	**performative/reportive** {events}	×	×
12.	**futurate** {transfm.}	×	**futurate** {events}
13.	**egressive** {accomp.}	×	×
14.	pluractional	pluractional	(Plpf.)
15.	gnomic	past habitual	generic uses

Beginning with the AORIST column, we see that the stative use of the Aorist is only marginally attested in the Classical language, occurring only in a few isolated examples in Attic drama (cf. Appendix §A.2.1). Universal perfect usage of the Aorist is attested at this stage (type 'have been (in some state) since some time ago and continuing up to or into the moment of utterance'), and the complexive use of the Aorist to state predicates has become regular (see below). In addition, we now find clear performative/reportive usage of the Aorist (Bary 2012), which is especially common in (but not restricted to) Attic drama, as shown in (7).

(7) PERFORMATIVE AORIST IN CLASSICAL GREEK

τὴν ἐμὴν ψυχὴν **κατώμοσ᾽**$_{[\text{AOR.}]}$, ἣν ἂν εὐορκοῖμ᾽ ἐγώ (Eur. *Or.* 1517).

'I **swear**$_{[\text{AOR.}]}$ by my soul, for which I would keep my oath'.

There is also (very dubiously) said to be a "conative" Aorist usage (see Appendix §A.2.2). This is probably better classed with the well attested "futurate" use of the Aorist indicative (Appendix §A.1.12), which is typically used where English or Latin would have a Future or Future Perfect (Wackernagel 1926–1928 [2009]: 228), as shown in (8). In this example, the 'accomplishment' in question has yet to occur and so

is located in the future, but it must logically precede its being 'ascribed' to Xerxes and so is construed in the Aorist (rather than the Present or Future), thus yielding a "future perfect" sort of value.

(8) FUTURATE (≈ "FUTURE PERFECT") USE OF THE AORIST IN CLASSICAL GREEK

ἢν καταστρέψηται. . . σὸν τὸ ἔργον, ὦ δέσποτα, γίνεται[PRES.] · οἱ γὰρ σοὶ δοῦλοι **κατεργάσαντο**[AOR.] (Hdt. 8.102.2).

'If he (Mardonius) subdues (all that he says he will), then the achievement will be ascribed[PRES.] to you, Sire; for your slaves **will have accomplished**[AOR.] it [i.e., it will be your slaves who have wrought it]' (ex. and tr. Wackernagel 1926–1928 [2009]: 228).

The egressive interpretation of the Aorist is of clear regularity at this stage. It arises when only the culmination of an action is focused on, rather than its preparatory phase(s), which are typically expressed by the Imperfect (Gildersleeve & Miller 1900: 94). We shall return to the egressive use later on (§6.3.2), with an example in (26) below. Lastly, the Aorist's use in sequential narration has expanded (Delbrück 1879: 114; Purdie 1898: 68), while its use in "perfect-like" contexts has diminished (see §5.4 below). Given this functional range, the Aorist must minimally express the relation $t_E \subseteq t_A$, representing the a fully grammaticalized (Type 1) perfective gram (to be treated more fully below, §6.1.1).

In the IMPERFECT column, we see most notably that the Imperfect is now regularly used for the expression of counterfactuality referring to the present time (though it may occasionally still have past reference under certain circumstances, particularly when the hypothetical event is imagined as ongoing in the past, on which see Smyth 1956: 518). Present counterfactuality is, according to Iatridou (2000: 239, 244–245), a characteristic function of imperfective aspect. Thus, the Imperfect of the Classical period, in terms of usage, better aligns with cross-linguistically paralleled uses of imperfective aspect than does the Homeric Imperfect. Though its denotation cannot have changed fundamentally from the Archaic period, as shown by its continued use in sequential narrative contexts (see below), it can be said to be losing functional "ground" to the Aorist (Delbrück 1879: 114), which is now preferred in a number of contexts previously favored by the Imperfect, such as complexive and inceptive to state predicates and concentrative-sequential (to all types of predicates). This pragmatic restriction favoring certain usages over others, without rendering any readings outright ungrammatical (and so not yet reflecting a change in the domain of semantics *per se*), shows early signs of what must have led to the eventual reinterpretation of the Imperfect as a grammaticalized imperfective gram within (or at least by the end of) the post-Classical stage.

Finally, the PERFECT/PLUPERFECT column shows evidence of a now fully grammaticalized perfect gram, regularly expressing not only stative-resultative but also universal and experiential readings (see full discussion and analysis in Gerö & von Stechow 2003). In addition, it is occasionally found in the concentrative use, though not yet in clear sequential narrative contexts. The Perfect (in addition to the Pluperfect) may now also be used in anterior/counter-sequential contexts (Rijksbaron 2002: 77; Smyth 1956: 435), in competition with the Aorist, and it is on occasion found in inceptive and futurate uses as well (see Appendix *ad loc.*).

Despite the fact that the Classical Greek Imperfect and Aorist share several of the same uses, there is partial complementary distribution according to situation type, at least for some of these functions. In general, the Aorist has inceptive uses only to state predicates (Smyth 1956: 430; Rijksbaron 2002: 20–21). The same appears to be true of the complexive use of the Aorist (cf. Basset 2009: 214), as shown in (9).

(9) COMPLEXIVE AORIST IN CLASSICAL GREEK: βασιλεύω 'BE KING'

καὶ **ἐβασίλευσε**[AOR.] ἔτεα δυώδεκα, Σαδυάττεω δὲ Ἀλυάττης (Hdt. 1.16.1).

'And he (Sadyattes) **reigned**[AOR.] for twelve years; then from Sadyattes Alyattes (received the kingship)'.

By contrast, the inceptive use of the Imperfect may occur with any situation type (with the possible exception of achievements, for practical rather than grammatical reasons, since achievements refer only to a culmination without its preparatory phase) (Hollenbaugh 2020b). The same is true of the Imperfect's complexive uses, as shown in (10), which has an activity predicate (or possibly an accomplishment, if κομίζω is understood to mean basically 'bring home'). Here one may contrast the Aorist to the same verb in the concentrative function.[24]

(10) COMPLEXIVE IMPERFECT IN CLASSICAL GREEK: κομίζω 'TRANSPORT, CARRY AWAY, BRING HOME'

οἴκημα μουνόλιθον ἐκόμισε[AOR.] ἐξ Ἐλεφαντίνης πόλιος, καὶ τοῦτο **ἐκόμιζον**[IPF.] μὲν ἐπ᾽ ἔτεα τρία… (Hdt. 2.175.3).

'He (Amasis) transported[AOR.] from Elephantine a house made of a single stone, and they **transported**[IPF.] it for three years…' (ex. and tr. Wackernagel 1926–1928 [2009]: 234: "i.e. they were occupied with its transport for three years").

The two complexive constructions can be seen side by side in (5) above, which shows a complexive Aorist to a state predicate beside a complexive Imperfect to an activity predicate.

The Imperfect in terminative uses (viz. concentrative and complexive) remains common until the end of the Classical period. The use of the Imperfect in sequential narration is, in fact, *preferred* to the Aorist in history (Rijksbaron 2019).[25] Examples are given in (11) and (12), the latter of which shows coordination with the Aorist in the same function (just as in Homer; cf. (1) above).

(11) SEQUENTIAL (AND COUNTER-SEQUENTIAL) IMPERFECT IN CLASSICAL GREEK

οὕτω δὴ μουνωθέντες Λακεδαιμόνιοι καὶ Τεγεῆται… **ἐσφαγιάζοντο**[IPF.] ὡς συμβαλέοντες Μαρδονίῳ καὶ τῇ στρατιῇ τῇ παρεούσῃ. καὶ οὐ γάρ σφι **ἐγίνετο**[IPF.] τὰ σφάγια χρηστά, **ἔπιπτον**[IPF.] δὲ αὐτῶν ἐν τούτῳ τῷ χρόνῳ πολλοὶ καὶ πολλῷ πλεῦνες **ἐτρωματίζοντο**[IPF.]· φράξαντες γὰρ τὰ γέρρα οἱ Πέρσαι **ἀπίεσαν**[IPF.] τῶν τοξευμάτων πολλὰ ἀφειδέως… (Hdt. 9.61.2–3).

'In just this way, having been left alone, the Lacedaemonians and the Tegeans… **offered sacrifice**[IPF.] for the benefit of their joint attack on Mardonius and the army that was with (him). For their sacrifices **did** not **turn out**[IPF.] favorable, and in this time many of them **fell(-dead)/died**[IPF.] and by far more **got/were wounded**[IPF.]; for the Persians, having barricaded with their shields, **(had) shot out**[IPF.] an abundance of arrows unsparingly'.

(12) SEQUENTIAL IMPERFECT (AND AORIST) IN CLASSICAL GREEK

ἐκεῖθεν δὲ τῇ ὑστεραίᾳ **ἔπλεον**[IPF.] οἱ Ἀθηναῖοι ἐπὶ Κύζικον. οἱ δὲ Κυζικηνοὶ τῶν Πελοποννησίων καὶ Φαρναβάζου ἐκλιπόντων αὐτὴν **ἐδέχοντο**[IPF.] τοὺς Ἀθηναίους· Ἀλκιβιάδης δὲ μείνας αὐτοῦ εἴκοσιν ἡμέρας καὶ χρήματα πολλὰ λαβὼν παρὰ τῶν Κυζικηνῶν, οὐδὲν ἄλλο κακὸν ἐργασάμενος ἐν τῇ πόλει ἀπέπλευσεν[AOR.] εἰς Προκόννησον. ἐκεῖθεν δ᾽ ἔπλευσεν[AOR.] εἰς Πέρινθον καὶ Σηλυμβρίαν (Xen. *Hell.* 1.1.19–20).

'From there (*Proconnesus*) the Athenians (*with Alcibiades*) **sailed**[IPF.] on the next day against Cyzicus. The Cyzicenes, now that the Peloponnesians and Pharnabazus had evacuated the city, **admitted**[IPF.] them. There Alcibiades stayed for twenty days, and obtained a great deal of money

24. Citations from Herodotus of complexive uses of the Imperfect according to situation type are as follows: activity (2.175.3, 5.68.2), accomplishment (7.20.1), and state (1.18.1–3, 1.46.1, 1.106.1, 1.166.1, 2.140.2, 4.95.4, 4.158.1, 5.55.1).

25. Delbrück (1879: 103) even asserts that "ist der Aorist der Griechen nie ein Tempus der Erzählung gewesen" ('the Greek Aorist has never been a tense of narration'; cf. also Wackernagel 1926–1928 [2009]: 235), though in fact the Aorist is not uncommonly used in sequential narration at all stages of Greek (Rijksbaron 2002: 13; Hollenbaugh 2018: 30–31, 33, 44; *BDF*: 166).

from the Cyzicenes, but without doing any further harm in the city, he sailed back$_{[\text{AOR.}]}$ to Proconnesus. And from there he sailed$_{[\text{AOR.}]}$ to Perinthus and Selymbria' (ex. and tr. Emde Boas et al. 2019: 429).

5.3 Post-Classical Greek (Hellenistic Koine and Roman-Greek) (c. 300 BCE–400 CE)

In overview, the readings available to the three "past tenses" in post-Classical Greek are presented in Table 10. See Section 4.5 above for an explanation of notation; cf. the appendix (§A.3) for details about individual readings.

TABLE 10: Attested readings of the POST-CLASSICAL GREEK Aorist, Imperfect, and Perfect/Pluperfect ind.

	AORIST	IMPERFECT	PERFECT/PLUPERFECT
1.	**[stative]?**	continuous state	stative **("attained state" only)**
2.	✗	progressive-conative	✗
3.	resultative/"hot news"	✗	resultative/"hot news"
4.	experiential	✗	experiential
5.	**universal**	**past (only)** universal	universal
6.	concentrative-sequential	~~**concentrative-sequential**~~	concentrative-sequential
7.	counter-sequential	counter-sequential	counter-sequential
8.	inceptive **(rare unless prefixed)**	inceptive	inceptive
9.	complexive {**any**}	~~**complexive**~~ {**states**}	(Plpf.)
10.	past CF	present/past CF	(Plpf.: past/present CF)
11.	**[performative/reportive]**	×	×
12.	futurate	×	futurate**? (rare)**
13.	[egressive]**? (prefixed only)**	×	×
14.	pluractional	pluractional	×
15.	gnomic	habitual	generic uses

By the time of post-Classical Greek, the experiential and resultative readings of the Imperfect are no longer found, which suggests categorical blocking on the part of the Aorist and Perfect in these contexts and a further push of the Imperfect toward imperfectivity.[26]

Also by the post-Classical period (and perhaps even beginning in the late Classical), the Imperfect in concentrative use is virtually restricted to verbs of communication, above all ἔλεγεν/-ον 'said' (*BDF*: 169–170; Wallace 1996: 541–542; Robertson 1923: 882–884), as still in Modern Greek (Hedin 2000: 256–258). However, there are some occasional occurrences that seem genuinely sequential, as in (13).[27]

(13) SEQUENTIAL IMPERFECT IN POST-CLASSICAL GREEK (RARE)

ἄλλα δὲ ἔπεσεν$_{[\text{AOR.}]}$ ἐπὶ τὴν γῆν τὴν καλὴν καὶ **ἐδίδου**$_{[\text{IPF.}]}$ καρπόν (Mt. 13:8).

'But other (seed) fell$_{[\text{AOR.}]}$ onto good soil and **produced**$_{[\text{IPF.}]}$ a crop'.

Yet examples of this kind are quite rare, such that we may observe a far more limited application of the concentrative interpretation of the Imperfect at this stage than at the Classical and Archaic stages, seeing as it is restricted to a high degree by lexical item (mostly to verbs of communication) and syntactic/discursive environment (strongly dispreferred in sequential narration).

26. Particularly of Type 1 ($t_E \supset t_A$), since Type 2 imperfects and simple past grams (Type 3) are known to permit experiential readings (cf. Appendix §A.2.4).

27. This differs from the even more restricted (lexically and syntactically speaking) "narrative" use of the Imperfects found in Modern Greek and Romance (cf. Hedin 2000: 255–256, 262–263).

The complexive use of the Imperfect has also essentially disappeared by this period, having been taken over by the Aorist (Purdie 1898), except to verbs lacking an Aorist stem, such as εἰμί 'be' (Ipf. ἦν), which is common in this function, as in (14a). A possible exception is (14b), where a non-copular state predicate shows complexive function in the Imperfect.

(14) COMPLEXIVE IMPERFECT IN POST-CLASSICAL GREEK (VERY RARE APART FROM ἦν 'WAS')

a. καὶ **ἦν** ἐν τῇ ἐρήμῳ τεσσεράκοντα ἡμέρας πειραζόμενος ὑπὸ τοῦ Σατανᾶ, καὶ ἦν μετὰ τῶν θηρίων, καὶ οἱ ἄγγελοι διηκόνουν αὐτῷ. (Mk. 1:13).

'And he **was** in the desert for a forty days being tempted by Satan, and he was among the beasts, and the angels attended/were attending him'.

b. καὶ **κατεγινόμην** ἐν τῷ ὄρει τεσσαράκοντα ἡμέρας καὶ τεσσαράκοντα νύκτας (Deu. 9:9).

'And I **stayed** on the mountain for forty days and forty nights'.

With these two near losses—admitting regular exceptions, as in the case of ἦν 'was', and sporadic others—the Imperfect effectively loses its terminative functions (viz. concentrative and complexive), becoming practically restricted to use in "canonical" imperfective (i.e., non-terminative) contexts, namely those uses compatible with the relation $t_E \supset t_A$. Still, given the existence of the attested concentrative and complexive uses of the Imperfect at this stage, it seems best to view this restriction as pragmatic in nature, rather than semantic, such that the denotation of the Imperfect remains that of an aspectually neutral simple past gram ($t_E \circ t_A$), thus predicting the grammaticality of sentences like those in (13) and (14) above, while admitting that such sentences have come to be dispreferred in favor of alternative constructions involving the Aorist or Perfect. Due to the pragmatic limitations on the use of the Imperfect in terminative contexts at the post-Classical stage, I suggest that its denotation as aspectually neutral became unrecoverable to learners at a later stage, and so the Imperfect was ultimately reinterpreted as semantically imperfective ($t_E \supset t_A$), as it remains in the Modern language.

As for the Aorist, it now seems to be freely used in the universal-perfect function, whether past or present, as shown in (15) (cf. Appendix §A.3.5 for further discussion). I take this innovation of usage to be due to the fact that the Perfect is no longer functionally a perfect gram and so no longer takes precedence over the Aorist in universal contexts (cf. discussion in §6.1.1 below).

(15) UNIVERSAL AOR. IN POST-CLASSICAL GREEK: PRESENT (a–b) OR PAST (c) REFERENCE

a. καθὼς **ἠγάπησέν** με ὁ πατήρ, κἀγὼ ὑμᾶς **ἠγάπησα**, μείνατε ἐν τῇ ἀγάπῃ τῇ ἐμῇ (Jn. 15:9).

'As the Father **has loved** me, so **have** I **loved** you. Remain in my love'.

b. μετὰ Λαβαν **παρῴκησα** καὶ **ἐχρόνισα** ἕως τοῦ νῦν (Gen. 32:4).

'I **have been residing** with Laban and **have been spending time** (there) until now'.

c. καὶ συνετέλεσεν ὁ θεὸς ἐν τῇ ἡμέρᾳ τῇ ἕκτῃ τὰ ἔργα αὐτοῦ ἃ **ἐποίησεν** (Gen. 2:2).

'And on the seventh day god finished the work that He **had been doing**'.

In addition, the Aorist has taken over the complexive use to *all* predicate types (cf. Appendix §A.3.9), rather than just states as it had in Classical Greek. Examples are given in (16), which shows the Aorist built to state predicates (16a) *and* event predicates ((16b)–(16d)) in complexive value. The event predicates range from activities (16b) to accomplishments (16c) and even achievements (16d).

(16) COMPLEXIVE AOR. IN POST-CLASSICAL GREEK: STATES (a) AND EVENTS (b–d)

a. ἐκεῖ **ἔμειναν** οὐ πολλὰς ἡμέρας (Jn. 2:12).[28]

28. Other complexive Aorists built to state predicates at this stage include: Acts 20:6, Job 2:13, Ezk. 3:15, Jdg. 3:11, Ps. 95:10, Heb. 3:9–10, 3:17

'They **stayed** there for a few [lit. 'not many'] days'.

b. **ἐπορεύθη**. . . τεσσαράκοντα ἡμέρας καὶ τεσσαράκοντα νύκτας (1 Kings 19:8).[29]

'He **traveled** for forty days and forty nights'.

c. καὶ **ἐπλήρωσαν** αὐτοῦ
υνδτεσσαράκοντα ἡμέρας οὕτως γὰρ καταριθμοῦνται αἱ ἡμέραι τῆς ταφῆς
καὶ **ἐπένθησεν** αὐτὸν Αἴγυπτος ἑβδομήκοντα ἡμέρας (Gen. 50:3).[30]

'And (the physicians) **embalmed** him for forty days, for thus were the days allotted for burial. And Egypt **mourned** him for seventy days'.

d. καὶ **ἐγένετο** ὁ ὑετὸς ἐπὶ τῆς γῆς τεσσαράκοντα ἡμέρας καὶ τεσσαράκοντα νύκτας (Gen. 7:12).[31]

'And the rain **occurred/came about** on the earth for forty days and forty nights'.

This change completes a fundamental shift in the means by which Greek expresses the complexive reading: from Homer's regular use of the Imperfect and exceptional use of the Aorist in complexive contexts to Classical Greek's use of the Aorist for state predicates and the Imperfect elsewhere to the post-Classical Greek situation, wherein the Aorist is regularly complexive for all predicate types and the Imperfect is exceptional. This development is summarized in Table 11, with parentheses enclosing forms used marginally at a given stage (see Appendix for details).

TABLE 11: Development of the regular means of expressing the complexive reading in Greek

	STATE PREDICATES	ELSEWHERE
I. Archaic	**Imperfect**(/Aorist)	**Imperfect**
II. Classical	**Aorist**(/Imperfect)	**Imperfect**
III. post-Classical	**Aorist**(/Imperfect)	**Aorist**

Meanwhile, according to Purdie (1898), what had been the inceptive and egressive functions ("perfective" in Purdie's (1898) terms) of the simplex Aorist have been largely taken over by the Aorist with various prefixes, while the simplex Aorist is practically restricted to the complexive and concentrative readings (Purdie's (1898) term is "constative," a category which overlaps partly with my *complexive* and partly with my *concentrative*; cf. n.65 in Appendix §A.1.9). Accordingly, the Aorist is at this stage used in sequential narration to the near exclusion of the Imperfect (Delbrück 1879: 114; Purdie 1898: 68). Thus, as the Aorist comes to be more and more "perfective-like" in terms of its functional range (conforming to the cross-linguistic grammaticalization pathway in (3a) above) the Imperfect comes to be increasingly "imperfective-like" in its usage, in what appears to be a sort of "push-chain" effect.

5.4 "Aoristic Drift"

The diachronic change in usage of the Imperfect, I claim, depends crucially on interaction with the Aorist (and to some extent with the Perfect). Due to its semantic change along the lines of the grammaticalization path in (3a) above (so-called "aoristic drift"), the Aorist comes to be preferred to the Imperfect in contexts where it had not been previously (such as complexive) or to be predominant in contexts that had previously admitted of a high degree of variability between the Aorist and Imperfect (such as

29. Other complexive Aorists to activity predicates at this stage include: Neh. 9:21, Deu. 9:9, 18, 25.

30. Other complexive Aorists to accomplishment predicates at this stage include: Ezr. 6:22, Neh. 8:18, and cf. especially ἐποίησαν 'celebrated (for seven days)' at 2 Chron. 7:8, 30:21, 35:17.

31. Other complexive Aorists to achievement predicates at this stage include: Jdg. 6:1, 13:1.

concentrative-sequential). Thus, to explain the observed changes of the Imperfect, it is necessary first to explain the changes observed for the Aorist. This section explains how the grammaticalization path in (3a) above applies to the Greek Aorist and provides some further evidence for its taking place within the historical stages under investigation here. I will then suggest how these changes interact with the Imperfect to bring about its own functional changes observed in the data.

As seen above, in the course of Ancient Greek the Aorist loses its stative function,[32] while the complexive and futurate readings become more common over time. The conclusions of Hollenbaugh 2018 suggest that the Aorist in Homer expresses perfect aspect more readily, at least, than in later Greek.[33] This is why the Homeric Aorist has been identified here as an "emergent perfective" gram, which is a cross-linguistically motivated category (gram type) that expresses perfect aspect (showing readings typically expressed by perfect grams) that also has uses properly belonging to the perfective aspect (typically expressed by perfective grams) (cf. below §6.1.1). The respective functional ranges of the Aorist summarized in Tables 8 and 9–10 above suggest a diachronic change from the Homeric Aorist as an emergent perfective gram—expressing perfect aspect but regularly compatible with "perfective-like" uses—to the Classical and post-Classical Greek Aorist as a perfective gram—expressing perfective aspect, which is compatible with some "perfect-like" uses.[34]

One way to check this claim and track its validity over the history of Greek is to search for Aorist forms in contexts that are especially conducive to "perfect-like" interpretations, including especially the resultative and experiential readings. The most reliable adverb that evokes such readings is νῦν 'now', since it is practically restricted to present time reference, such that $t_A \supset t_{0/S}$ (accordingly, it is almost never found scoping over the Imperfect; cf. Hollenbaugh 2018: 45). This differs from other Greek adverbs meaning 'now', such as ἤδη 'already, (by) now', that allow use in past narration (such that $t_A \prec t_{0/S}$), not uncommonly co-occurring with the Imperfect in the sense 'was already/by now doing X'. νῦν is also favorable in that its use in the meaning 'now' spans the whole of documented literary Greek (to the present day), unlike other adverbs of currency, which are confined to one period or another, such as πω 'yet' (Homeric, cf. Hollenbaugh 2018: 43–45) or ἄρτι 'just, now, presently' (post-Homeric, at which time it occurs only rarely with the Aorist, as expected under the analysis put forth here).

Figure 4 shows the occurrence of νῦν followed within 5 words by an Aorist indicative, per 10,000 words (to account for differing corpus sizes), in rough chronological order by author (or text in the case of the Homeric works, their "authorship" being uncertain).[35] Though this method necessarily includes a considerable amount of data in which νῦν does not actually scope over the Aorist (i.e., they just so happen to be within 5 words of one another), in the vast majority of cases the data points *do* represent genuine

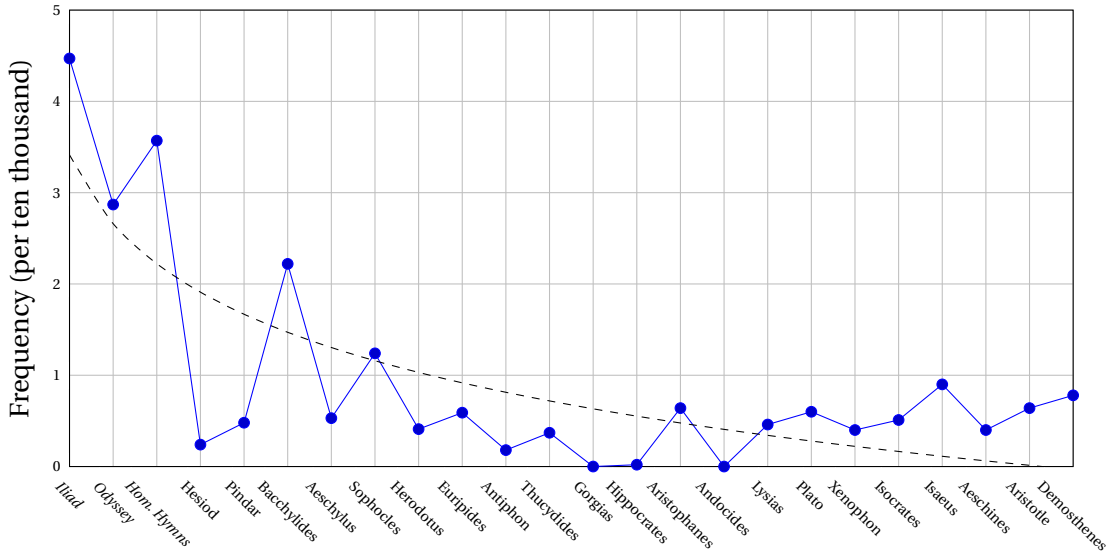
32. On the stative reading as a function of the *perfect* aspect, see Kiparsky 2002: 113. Importantly, the stative use found in the oldest Greek literature differs from superficially similar uses found later on, in that the Archaic Greek stative Aorist is built only to state predicates, which are characterized as ongoing in the present without presupposing a change-of-state event from which that state has resulted (type ἐφίλησα 'I love'). This is a fundamentally "*perfect*-like" reading (compare the similar use of the Archaic Greek Perfect built to state predicates, discussed in Appendix §A.1.1). Later (cf. Appendix §A.3.1), the Aorist built to change-of-state (i.e., transformative) predicates can yield an "attained state" reading (type 'I have come' and so 'am here'), which is a reading typically expressed by perfect *or* perfective grams across languages (including the Perfect in Ancient Greek and the Perfectives, e.g., in Arabic and Russian).

33. That this "perfect-like" function of the Aorist is inherited is confirmed by comparison to Indo-Iranian and Old Russian, among others (see Schwyzer–Debrunner: 277, 281–282).

34. Recall that, cross-linguistically, the functional range available to the perfect aspect is a strict subset of the functional range available to the perfective aspect, so perfectives can typically apply in a wider range of contexts than perfects, including in contexts where perfects characteristically occur, such as resultative contexts. Still, there is a difference between a perfect gram that admits of perfective uses, which I call an "emergent perfective" gram (cf. §6.1.1 below), and a fully grammaticalized perfective gram, which definitionally entails at least some "perfect-like" uses (resultative and often experiential, and sometimes universal and/or stative for "attained states"). This difference is made explicit in Section 6 below and is meant to capture and account for the difference in the functional ranges available to the Aorist at the Archaic stage vs. the Classical stage, as reflected in Tables 8 and 9.

35. Data retrieved from *Perseus under PhiloLogic* November 2, 2019.

examples of an Aorist under the scope of νῦν. In Homer, where the occurrences are by far the most frequent, I have checked the data returned by *Perseus under PhiloLogic* against my data collected "by hand" for Hollenbaugh 2018 and have found that nearly all of them not only represent genuine examples of an Aorist under the scope of νῦν but also have a clearly resultative (or sometimes experiential) value.

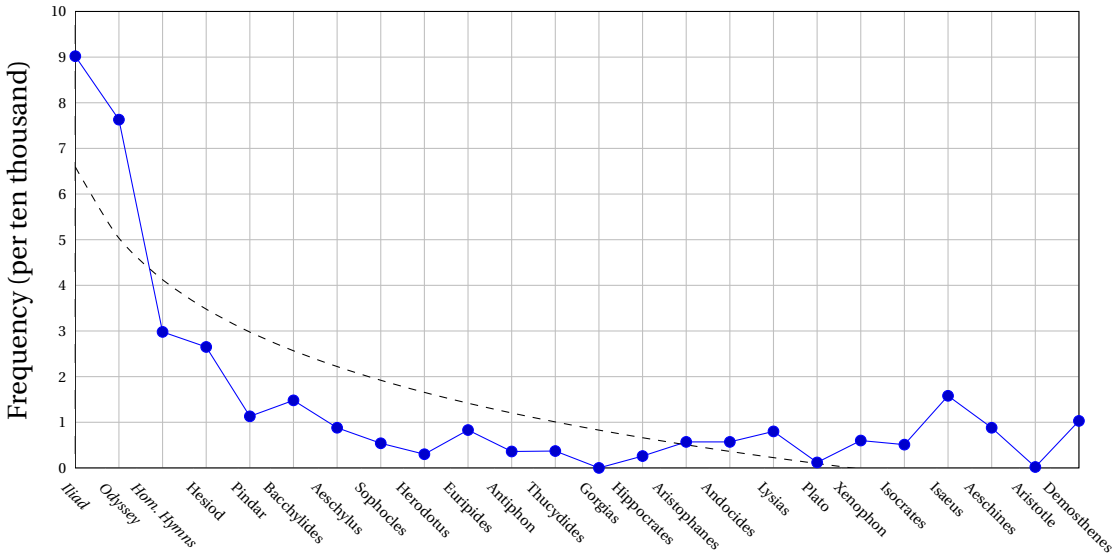


$r(22) = -0.776395689$, $p < .001$

FIGURE 4: νῦν 'now' within 5 words preceding the Aorist indicative

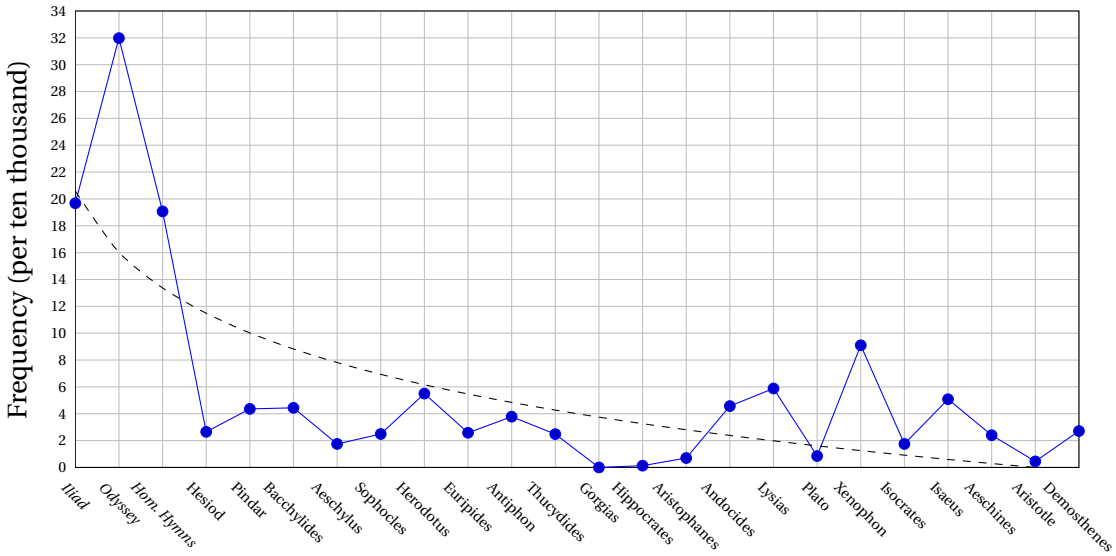
As can be seen in Figure 4, there is a general downward trend in the frequency of the Aorist indicative under the scope of νῦν 'now', which has resultative (or experiential) perfect readings 'have (as of) now done/been X'. This is shown plainly by the logarithmic regression line (i.e., the curving dashed line) trending downwards from Homer to Demosthenes (chosen as an arbitrary cutoff within the Classical period, the trend line leveling off by this point). Authors/texts are ranked by time from most ancient to least ancient. The statistical hypothesis tests—namely the probability value (*p*-value) and the Pearson correlation coefficient (*r*-value)—given below the chart indicate a strong correlation between the two variables, viz. time (*x*-axis) and frequency of the co-occurrence of the Aorist with νῦν (*y*-axis): As time goes on, the collocation νῦν + Aorist becomes less frequent. This trend is expected if the Aorist is indeed becoming more "perfective-like" over time, such that its resultative and experiential uses become less central to its functional range.

A similar trend can be observed for the Aorist in anterior/counter-sequential contexts (also called "relative past," of the type 'had done X'; cf. Appendix §A.1.7), which are characteristic of perfect aspect and essentially equivalent to the resultative or experiential readings shifted into the past (cf., e.g., *I have tried sushi → Once I had tried sushi, I realized I loved it*). To verify this, I have conducted searches, using *Perseus under PhiloLogic*, for the Aorist within 5 words following the conjunctions ὅτε and ἐπεί(δή), both meaning 'when', in the same Greek authors as above. The results of these two searches are summarized in Figures 5 and 6. The same sort of downward trend line seen in Figure 4 is seen in each of these figures as well, again shown to be statistically significant by the results of the hypothesis tests (*r*- and *p*-values) below each figure, indicating a strong correlation between variables.



$r(22) = -0.831374552, p < .001$

FIGURE 5: ὅτε ‘when’ within 5 words preceding the Aorist indicative



$r(22) = -0.721238917, p < .001$

FIGURE 6: ἐπεί(δή) ‘when’ within 5 words preceding the Aorist indicative

The data suggests that the Aorist is used less and less in characteristically “perfect-like” contexts over time (though it never becomes *incompatible* with such contexts). This is, no doubt, in part due to the fact that the morphological Perfect is also moving along the same “perfect(ive) cline” seen in (3a) above (as demonstrated already by Gerö & von Stechow (2003)), grammaticalizing into a perfect gram by the Classical period and so partially blocking the application of a number of uses formerly expressed more typically by the Aorist, particularly its resultative and counter-sequential/relative past functions. This seems to have contributed to limiting the Aorist’s application largely to terminative contexts, namely

concentrative-sequential[36] and complexive (cf. Purdie's (1898) "constative"). This, in turn, puts pressure on the Imperfect *not* to be used in sequential narration or complexive contexts.[37] Thus, the Aorist becomes more and more the default tense for complexive use and for sequencing events in past narration (concentrative), in preference to the Imperfect.[38] This distribution, beginning already in Homer, is categorical by the time of post-Classical Greek (cf. Browning 1983: 29, 34)—a diachronic development explicitly observed by Delbrück (1879: 114): "Es ist…gezeigt, dass das Imperfectum das altüberlieferte Tempus der Erzählung ist, dass aber im Griechischen der Aorist demselben immer mehr Terrain ab hat" ('It is shown that the Imperfect is the ancient tense of narration, but that in Greek the Aorist gains more and more ground from it').

5.5 Local summary: Trends conspiring to bring about the simple past to imperfective shift

To summarize, the inceptive Aorist and Imperfect become increasingly common in the Classical stage (Hollenbaugh 2020b; Friedrich 1974: 10; Wallace 2006; Jacobsohn 1933: 308–309),[39] as does the complexive Aorist (Jacobsohn 1933: 305–310; Schwyzer–Debrunner: 281), even being built to event predicates in the post-Classical stage.[40] In other words, the Aorist indicative is built to state predicates—which is the only predicate type that regularly gives rise to inceptive and complexive readings of the Aorist in Classical Greek—with increasing frequency after Homer.

The Imperfect, meanwhile, is not used for present counterfactual conditions until after the Archaic stage, when it becomes the *regular* means of expressing present counterfactuality. As mentioned above, this is in line with a cross-linguistic observation of Iatridou's (2000: 239, 244–245) that past-tense imperfectives tend to express counterfactuality only for the present time (type 'if she were doing X…'). That the Homeric Imperfect lacks this use is therefore unsurprising only if it was not yet an imperfective (semantically or pragmatically) (cf. Hollenbaugh 2018: 2, 32). The post-Homeric Imperfect is thus more in line with a canonical imperfective (Type 1 or 2) than was its ancestor in Archaic Greek.

By the post-Classical stage the complexive use of the Imperfect virtually disappears[41] (which may be related to the loss of its experiential use at the same stage), and the concentrative-sequential function has fallen almost entirely to the Aorist. In this way, there come to be fewer and fewer contexts in which the Imperfect is favored outside of its "backgrounding" functions in a discourse (such as its progressive and habitual readings), as the Aorist and Perfect emerge as *the* forms for characterizing events as com-

36. "The perfect was dropped in later Greek…after it had earlier competed in vain with the aorist as a narrative tense" (*BDF*: 176).

37. That the concentrative-sequential Imperfect is inherited into Greek is strongly supported by comparison to Indo-Iranian, Anatolian, Slavic, and other IE languages (see, e.g., Wackernagel 1926–1928 [2009]: 235; Schwyzer–Debrunner: 276–277; Hollenbaugh 2018; cf. Kühner–Gerth: 144). Rijksbaron (2019), Basset (2009: 218–219), and Delbrück (1897: 103–106) view the Imperfect as *the* (unmarked) tense of sequential narration in Classical Greek, while the Aorist always contributes some other nuance (cf. nn.25, 53, and 57).

38. On the sequential-narrative use of the Aorist as a secondary development of Greek, see Purdie 1898: 68.

39. For instance, to βασιλεύω 'reign' I find only one inceptive in Homer, which is Imperfect (*Od.* 19.179: ἐννέωρος βασίλευε 'he started ruling at nine years old'), despite Jacobsohn's (1933: 309) denial of such an example. The Aorist ἐβασίλευσε in a complexive function becomes common only later. Further, of the pair ἴσχυσαν (Aor.) and ἴσχυον (Ipf.), respectively meaning, according to Jacobsohn (1933: 308), 'they gained power' and 'they came to power', the earliest inceptive example is the Aorist at Dem. 9.23 ('gained some authority'). Its Imperfect does not occur in clearly inceptive meaning, as far as I can see, until *Septuagint* (Ex. 1:12, 20) and the *New Testament* (Acts 19:20).

40. Purdie (1898: 152–153) concludes that the complexive use (which she calls "constative") is rare in Homer but becomes "the main one pertaining to the Aorist in later Greek," beginning already in Classical and categorical by the time of Polybius (post-Classical). She comes to this conclusion despite having a more permissive definition of complexive (her "constative") than the one I have adopted here, thus leading her to adduce a greater number of possible examples of complexive Aorists in Homer (cf. n.65 in Appendix §A.1.9).

41. Despite Jacobsohn 1933: 305, the Imperfect of βασιλεύω 'reign' *never* occurs with ἔτη 'years' (confirmed by a *TLG* search), though its Present infinitive does (see (23) below and cf. Basset 2009: 215, 217).

plete or "bounded" in the past, whether complexive, inceptive, or concentrative-sequential.

Nonetheless, although the terminative uses (i.e., concentrative-sequential and complexive) of the Imperfect become more and more restricted both lexically and in frequency of use, at no period from Homer to the Hellenistic Koine is the Imperfect *incompatible* with terminative contexts (i.e., canonical "perfective" contexts), as Wackernagel (1926–1928 [2009]: 235) is careful to observe, and as is evident from their sustained attestation into the post-Classical stage (however infrequent). Therefore, a sufficient analysis must account for the *grammaticality* of terminative uses of the Imperfect at the post-Classical stage, while simultaneously explaining their *restricted application* in terminative contexts at this stage.

I accomplish this in the next section (§6) by supposing that the semantic denotation of the post-Classical Imperfect permits terminative readings (since it remains aspectually neutral) but that the realization of the Imperfect in contexts that would elicit terminative readings is partially blocked (pragmatically) by interaction with the Aorist and Perfect, whose perfective denotations make them preferred in terminative contexts. I further include in my analysis an account of how the post-Classical situation must have emerged out of the earlier two stages, in which the Imperfect was not averse to (and was even favored in) terminative functions. Finally, I suggest that the blocking of the Imperfect's application in terminative contexts by the Aorist eventually became *categorical*, such that its semantic compatibility with terminative uses would no longer have been recoverable to learners. As a result, the Imperfect must have at last undergone genuine semantic change by the beginning of the Medieval period, being reanalyzed as *denoting* imperfective aspect ($t_E \supset t_A$), rather than simply being compatible with it, as it had been in the Ancient stages (I–III) under its "neutral" denotation ($t_E \circ t_A$).

6 Analysis

6.1 Semantic denotations: Specifying the stages

The denotations at the various stages of development outlined in Section 3 above are in need of some refinement in order to adequately account for exactly those readings regularly available to each functional category at each stage of development as presented in Section 5.

6.1.1 Semantics of the Aorist

As shown in Table 8 above, in Archaic Greek the Aorist must be compatible with readings typical of perfect aspect, including the stative use, while also being compatible with the concentrative use *but not* the complexive use. The affinity of the Archaic Aorist for readings more typical of stative-resultative or perfect grams suggests that it is not yet fully grammaticalized as a perfective gram, but neither does it fit the profile of a perfect gram, since perfect grams typically lack concentrative as a use. Technically speaking, then, the Homeric/Archaic Aorist is best understood as an *emergent* perfective (for details and comparative evidence, see Hollenbaugh 2018). The term "emergent perfective" is my (hopefully more intuitive) relabeling of a category with a variety of confusing names in the typological literature on aspect ("bad perfect" in Laca 2010: 6–7, "old anterior" in Bybee et al. 1994: 78–81). By this label I simply refer to a gram type that exists in the *synchronic* grammars of some languages (including the language of Homer) and has properties of both the perfect and the perfective gram types but cannot be adequately characterized as either one. From a diachronic perspective, this represents an intermediate stage between a perfect and perfective gram on the grammaticalization pathway shown in (3a) above. Yet it has real, synchronic status as a grammatical category, which can be defined semantically, as shown in (17) below.

In concrete terms, I take the difference between the perfect gram type and the emergent perfective gram type to be that the perfect requires that assertion time (t_A) include speech time (t_S) or local evalua-

tion time (t_0),[42] while the emergent perfective does not.[43] The difference between the emergent perfective and fully grammaticalized perfective gram types is that the former requires that eventuality time at least partially precede speech/evaluation time ($t_E \preceq t_{0/S}$), while the latter does not (cf. (18) below). The simple past gram type (neutral aspect) requires only an overlap relation between eventuality time and assertion time ($t_E \circ t_A$) and that assertion time at least partially precede speech/evaluation time ($t_A \preceq t_{0/S}$), which is to say that it is past in tense. The change from perfect to emergent perfective to perfective or simple past over time is what is meant by "aoristic drift" (cf. Willi 2018: 411–412), which corresponds to the grammaticalization pathway (or "cline") in (3a) above. Each subsequent stage on this cline shows a "weakening" (or broadening) of the semantics associated with the form in question (in this case the Aorist), as will be clear from the denotations here presented.

Archaic Greek Aorist:

Based on the data summarized in Table 8 in Section 5.1 above, at the earliest attested stage the Greek Aorist can be identified as an emergent perfective gram, whose denotation is in (17). Here and below, for ease of comparison, I put in boldface the part(s) of the denotation that are most important with respect to the diachronic developments of interest to this analysis (such as those most relevant to the grammaticalization path of (3a) above). Note that "t_e" denotes the runtime or temporal correlate of the eventuality instantiating the eventuality description *P*. That is, it corresponds to what I have been notating as "t_E" so far. The lambda operator (λ) may be taken to abstract over the variables (P, t_A) and to ensure that they pick out exactly the right set of referents.

(17) EMERGENT-PERFECTIVE DENOTATION OF THE AORIST IN ARCHAIC GREEK

$[\lambda P.\lambda t_A.\exists e(\mathbf{t}_e \subset \mathbf{t_A} \wedge \mathbf{t}_e \preceq \mathbf{t_0} \wedge P(e) = 1)]$

For some eventuality *e*, **eventuality time t_e is properly included in assertion time t_A, and the eventuality time at least partially precedes the local evaluation time t_0** (by default equal to speech time), and the eventuality description *P* applied to the eventuality *e* is true (1).

Since nothing is said in (17) about the relation between assertion time (t_A) and speech/evaluation time ($t_{0/S}$), assertion time is free to precede the evaluation time (i.e., $t_A \prec t_0$), which corresponds to past tense (following Klein 1994: 124). This, coupled with the fact that (17) requires eventuality time to be fully included in assertion time, is what permits the various "preterital" uses associated with the Aorist, as enumerated in Table 8, above all the concentrative-sequential reading (represented in Figure 3 above).[44] This is also what sets the Archaic Greek Aorist apart from plain perfect grams, which typically are not

42. For "local evaluation time" (t_0) see von Stechow 1995: 369 and E. Dahl 2010: 56, also called "perspective time" (cf. Kiparsky 1998: 38; 2002: 115). Unless "past shifted" (e.g., narrative present) or "future shifted" (e.g., present for future), t_0 coincides with speech time (t_S). Evaluation time is used in the formal semantic denotations of this paper rather than simply speech time, since it is technically a more precise term in that it allows denotations to be more readily generalizable to all contexts than does a system which operates with speech time alone.

43. So, to be precise, the denotation of perfect aspect is: $[\lambda P.\lambda t_A.\exists e(t_e \subseteq t_A \wedge t_e \preceq t_0 \wedge t_A \supseteq t_0 \wedge P(e) = 1)]$. Contrast this with the emergent perfective denotation in (17), which is slightly "weaker" in that it lacks the requirement that $t_A \supseteq t_0$. My formulation of perfect aspect amounts, in a manner of speaking, to a sort of Neo-Reichenbachian version of the Extended Now (XN) framework (McCoard 1978; Dowty 1979), with t_A representing the XN interval. Yet my framework allows for this interval (t_A) to be used consistently across the denotations of *all* aspect types, rather than being something peculiar to the perfect aspect alone.

44. On the inceptive reading, see now Hollenbaugh 2020b and cf. §A.1.8 in the appendix to this paper. This paper does not attempt to solve the perennial problem of the gnomic Aorist, which I have addressed elsewhere (Hollenbaugh 2020a). I will say here only that the denotations presented in this section are no less compatible with the gnomic reading of the Aorist than any other proposals that have (to my knowledge) been put forth. Various other readings of the Aorist at this and subsequent stages, such as the "pluractional" uses or the "past counterfactual" pose no problem for the denotations presented here but are also not of particular interest for the aims of this section and are accordingly passed by in silence (cf. Appendix §A.1.10).

compatible with the temporal relation $t_A \prec t_0$ (cf. n.43 above), and distinguishes it as an emergent perfective (permitting but not requiring that $t_A \supseteq t_0$).

However, the denotation in (17) is also compatible with the relation $t_A \supseteq t_0$, which yields the present perfect readings of the Aorist (resultative, experiential, and stative), as represented in Figure 7. The perfect aspect readings, in general, come in four different varieties, for which the reader is referred to the appendix for full discussion. By way of example, the resultative reading is of the type *Look how far we've come* (result state still holds at $t_{0/S}$), the experiential reading is of the type *I have been to Paris* (consequent state still holds at $t_{0/S}$), the stative reading is of the type *I've got something to tell you* (the eventuality is itself a state that holds at $t_{0/S}$), and the universal reading is of the type *I've lived in LA for six years now* (i.e., the eventuality proceeds from some point in the past and continues up to the present of $t_{0/S}$). A consequent state is one that follows necessarily from the mere fact of an event's having taken place. It is a property of a time such that it is preceded by a time which contains an eventuality of a particular sort, such as GO TO PARIS. A result state is the target state of a change-of-state predicate. Given that the target state of *come* is BE HERE, the result state implied by *We've come* is WE ARE HERE.

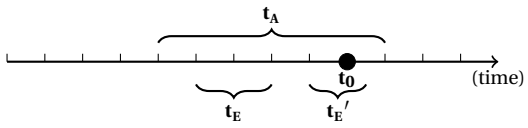


FIGURE 7: PERFECT aspect: resultative/experiential (t_E) and stative (t_E') readings

Where the assertion time (t_A) includes the speech/evaluation time ($t_{0/S}$) (as admitted by (17)), if the eventuality time (t_E) fully precedes $t_{0/S}$ (as also admitted by (17)) but is also included in t_A (as required by (17)), this gives the sense of the "continued relevance" of that eventuality at speech/evaluation time. This configuration, represented by t_E in Figure 7, may be interpreted as implying either that the result state of the eventuality continues to hold at speech/evaluation time (resultative perfect reading) or that its consequent state does (experiential perfect reading), the choice between the two being based on various factors, including pragmatic ones, whose details do not concern us here (factors such as context, predicate type, usage conventions in competition with other forms, and so on).

The relation $t_E \preceq t_0$ in (17) requires only that t_E at least *partially* precede t_0. Because this precedence needs only to be partial, (17) permits a relation such that t_E *properly includes* t_0. I take cases of this sort to give rise to the stative perfect use of the Aorist of the type seen in (6) above (i.e., $t_e \supset t_0$, where the eventuality *e* is a state predicate), which is represented by t_E' in Figure 7. In this use, the state expressed by the Aorist is "ongoing" at speech/evaluation time in that its runtime includes that of the speech time or some contextually salient "past-shifted" evaluation time (cf. Appendix §A.1.1). On this reading of perfect aspect cf. Kiparsky 2002: 120–121.[45]

Crucially, (17) excludes the complexive reading, such that eventuality time and assertion time must not be coextensive ($t_E \neq t_A$). Like the complexive reading, the universal perfect reading is also practically ruled out at this stage by the requirement of (17) that eventuality time (t_E) be properly included in assertion time (t_A), since the two intervals must be coextensive (or nearly so) in order to give rise to the

45. Condoravdi & Deo's (2014: 280–281) treatment of Sanskrit *–tá-* as not only an aspectual operator but also a lexical operator accounts nicely for its "purely stative" use (type 'The cave is hidden by foliage'). However, it is not clear to me how such an analysis might apply to other languages whose perfect(ive) morphology has no obvious origin as a "lexical stativizer," as we find in Greek (Aorist and Perfect) or Russian (cf. Comrie 1976: 58). I set aside the intriguing details (and mysteries) of this "purely stative" reading for future research, content here simply to allow for its possibility, such that the eventuality time interval is permitted to overlap with the speech time. Note that the speaker does not necessarily commit to the state ending even though it is included in t_A, since nothing actually requires that t_A have an upper limit, and so t_A can in principle extend indefinitely into the future, which in the case of the present stative interpretation is reasonable, since a speaker has no definite knowledge about the future from the perspective of the present.

universal perfect reading (i.e., $t_E = t_A \wedge t_A \supset t_0$).[46] As noted above and discussed in the appendix (§A.1.5 and §A.1.9), both of these readings are found extremely marginally in Archaic Greek. I formulate the denotation of the Aorist in (17) so as to regularly exclude these readings (but, with a somewhat different treatment of the universal reading, see now Hollenbaugh 2021: §4.5). However, under certain syntactic or pragmatic conditions, it seems that these readings (or, at least, readings resembling these ones) could occasionally arise even at this early stage. This is unproblematic, given that a basic assumption of grammaticalization adopted in this analysis is that an interpretation that is irregularly associated with some morphological category (such as the Aorist) only when triggered by an especially salient context (syntactic and/or discursive) at one stage of a language is often reinterpreted as part of the notional content expressed by that morphological category at a later stage of the same language. So, if we find that the Aorist at the Classical stage regularly attests complexive uses (as we do), it is assumed that its association with such interpretations must have come from *somewhere*, in order to have been available for reinterpretation as part of the notional content of the Aorist in the first place. In this way, I take grammatical "leakage" at one stage (i.e., contextually driven exceptional interpretations of a form) to give rise to grammaticality at a later stage (cf. Deo 2015a for discussion of how grammaticalization may proceed).

The futurate use of the Aorist is restricted by the requirement in (17) that $t_E \preceq t_0$, such that t_A (which includes t_E) cannot follow the evaluation time (future tense being typically defined as $t_0 \prec t_A$). This is desirable, since examples of futurate Aorists at the Archaic stage are few and isolated (Wackernagel 1926–1928 [2009]: 228–229; cf. Appendix §A.1.12, (A24) and (A25)). However, the few occurrences of futurate Aorists that we do find in Homer may be explained as "future shifted", whereby t_0 is located not at speech time but at some point after speech time, and thus, under particular pragmatic conditions, t_A (which includes t_E) may be located in the future with respect to speech time (cf. discussion in Appendix §A.1.12). Because the futurate reading is licensed only under special circumstances, all of the Homeric examples occur in a context of some salient future reference point, expressed by a verb in the Future tense.

The relation $t_E \preceq t_0$ additionally rules out the performative/reportive reading for the Aorist at this stage. Following Bary (2012) and Lloyd (1999), I take the performative/reportive reading of a perfective gram to arise when eventuality time is coextensive with speech time (i.e., $t_E = t_{0/S}$). Since the relation $t_E \preceq t_0$ excludes the possibility that the two intervals be coextensive (i.e., t_E must *at least partially precede* t_0), the performative/reportive reading is not available. In these ways, (17) captures exactly those readings observed to be regularly available to the Aorist in Archaic Greek, while predicting the absence (or near absence) of those readings which are not regularly available to it at this stage.

Classical Greek Aorist:

Moving now to Classical Greek, we observe, based on the data summarized in Table 9 in Section 5.2 above, that the Aorist has acquired complexive as a regular use ($t_E = t_A$) when combined with a state predicate (e). The Aorist is also now regularly compatible with the futurate interpretation ($t_0 \prec t_A$), which is thus of less restricted occurrence at the Classical stage than it had been in Homeric (cf. Wackernagel 1926–1928 [2009]: 228–229). A maximally permissive perfective denotation is accordingly assigned to the Aorist in (18) for the Classical stage, in order to regularly permit these additional uses.

(18) PERFECTIVE (TYPE 1) DENOTATION OF THE AORIST IN CLASSICAL GREEK

$[\lambda P.\lambda t_A.\exists e(\mathbf{t}_e \subseteq \mathbf{t_A} \wedge P(e) = 1)]$

46. Of course, the universal reading of the Present indicative (cf. Smyth 1956: 422–423) is available at all stages of Greek (and is consistently the most common strategy for its expression), since the Present not only allows t_E and t_A to be coextensive but also for t_E to include t_A ($t_E \supset t_A$), thus allowing the eventuality to begin in the past and extend up through speech time (t_0), provided the right syntactic environment or discourse context.

For some eventuality *e*, **eventuality time t_e is <u>included</u> in assertion time t_A**, and the eventuality description *P* applied to the eventuality *e* is true (1).

This constitutes a weakening of the semantics of the Aorist and a shift along the grammaticalization path of (3a) from an "emergent perfective" to a fully grammaticalized perfective (of Type 1 in Table 2 above). In accordance with the grammaticalization path of (3a) being "uniformly generalizing," all readings available to the Aorist at the previous stage remain available to it in Classical Greek. However, the loss of the entailment that eventuality time be *properly* included in assertion time ($t_E \subset t_A$) means that the two intervals may now be coextensive, thereby permitting the complexive reading of the Aorist (i.e., $t_E = t_A \wedge t_A \prec t_0$).

Admitting the coextension of t_E and t_A also technically renders the universal perfect reading available to the Aorist,[47] which had not previously been the case, or at least not clearly so. The structural configuration for the universal reading is one in which the eventuality time (t_E) begins some way back in the past (relative to t_0) and extends all the way up to (or through) speech/evaluation time ($t_{0/S}$), partially overlapping with or including it (i.e., $t_E \supseteq t_0$). This is captured by assuming that, in the universal reading of the Aorist, assertion time and eventuality time are coextensive (or nearly so) and that assertion time includes the speech/evaluation time (i.e., $t_E = t_A \wedge t_A \supset t_0$). However, in actual usage the universal reading of the Aorist is extremely marginal. This I take to be a blocking effect brought on by its competition with the Perfect (now a fully grammaticalized perfect gram) and the Present indicative, which are strongly preferred to the Aorist in universal contexts (cf. Gerö & von Stechow 2003: 273–274), conforming to a robust cross-linguistic tendency wherein the universal perfect is expressed by means of present or perfect grams rather than perfective ones (cf. Laca 2010), even though perfectives strictly *allow* (i.e., are not semantically incompatible with) the universal interpretation (cf. Condoravdi & Deo 2014: 266). Further support for this view comes from the fact that later, at the post-Classical stage, when the Perfect has also grammaticalized to a perfective gram (see §6.1.2 below), the Aorist is more commonly met with in universal contexts than it had been at the Classical stage (cf. (15) above), being now on roughly equal footing with its nearest semantic competitor, the Perfect.

Further, the loss of the relation $t_E \preceq t_0$ in the denotation of the Aorist means that the eventuality time interval is no longer obliged to be located at least partially before the time of speech or local evaluation, thus allowing the Aorist to have uses that regularly refer to future time. The loss of this relation also allows the t_E and t_0 to be coextensive, thereby permitting the performative/reportive use of the Aorist, which had not been available to it at the Archaic stage (cf. above), such that $t_E = t_{0/S} \wedge t_A \supseteq t_{0/S}$. It should be noted, however, that despite the regularity of these non-past uses at this stage, the Aorist continues to be most strongly associated with past tense. This preference for past time reference can be attributed to its perfective aspect, since cross-linguistically perfective aspect is known to correlate with past time reference (Ö. Dahl 1985: 81–84), even if the perfective gram is unmarked for tense (e.g., in Arabic, on which see Comrie 1976: 78–81), due to the fact that, under normal circumstances, the representation of an eventuality as complete will imply that it is complet*ed*, insofar as events that are complete are most typically located in the past relative to speech time. Yet past reference is, crucially, only an implicature or correlate of perfective aspect and not an entailment.

Hence, the change in denotation (and corresponding gram type) from Archaic to Classical Greek reflects exactly the changes in usage observed in Section 5.2.

Post-Classical Greek Aorist:

At the post-Classical stage, we observe, based on the data summarized in Table 10 in Section 5.3 above, that the stative and performative/reportive uses of the Aorist are no longer attested. The former is likely due to categorical blocking on the part of the Perfect, which continues to allow stative as a use (for "at-

47. On the relationship between universal and complexive readings cross-linguistically, cf. Iatridou et al. 2003: 171.

tained states"), rather than genuine semantic change (i.e., "strengthening").[48] The denotation capturing this is in (19), which is the same as (18) except that it disfavors the inclusion of speech/evaluation time in the eventuality time. Since this probably represents a pragmatic restriction rather than a semantic one, I enclose it in curly braces in (19) to indicate that it is likely not to be part of the truth conditional content of the form. I include it in the denotation of (19) in order to make clear the difference from Classical Greek, though it should be noted that the Aorist has not fundamentally changed in terms of its gram type from the Classical to the post-Classical period (viz. a Type 1 perfective).

(19) PERFECTIVE DENOTATION OF THE AORIST IN POST-CLASSICAL GREEK

$[\lambda P.\lambda t_A.\exists e(\mathbf{t}_e \subseteq \mathbf{t_A}\ \{\wedge\ \mathbf{t}_e \not\supseteq \mathbf{t_0}\} \wedge P(e) = 1)]$

For some eventuality e, **eventuality time $\mathbf{t}_e$ is <u>included</u> in assertion time $\mathbf{t_A}$, (and the eventuality time does not include the local evaluation time $\mathbf{t_0}$,)** and the eventuality description P applied to the eventuality e is true (1).

The universal reading of the Aorist regularly available at this stage is conceived of as a special case of the same relation that gives rise to the resultative and experiential perfect readings ($t_E \subseteq t_A \wedge t_E \preceq t_0 \wedge t_A \supseteq t_0$), with a sufficiently long span of the eventuality time interval. Of course, since $t_E \not\supseteq t_0$ is not an *entailment* of (19), the possibility of t_E continuing up through and including t_0 is not excluded outright, such that the universal reading is still permitted, as seen in (15) above. As noted earlier, the reason the universal reading of the Aorist is more frequent in post-Classical Greek than Classical is probably because the Perfect has by the post-Classical stage grammaticalized to a perfective gram, meaning that the Aorist and Perfect are on roughly equal footing as candidates for use in universal function.

Modern (and Medieval) Greek Aorist:

In Modern Greek, the Aorist is described by some as an "unmarked" past tense, neutral in aspect (Hedin 2000: 227–228). If true, this would constitute an even further semantic "weakening" from a perfective to a simple past gram—a typological development hypothesized by Bybee et al. (1994: 92–94) and seen, perhaps, in Modern Hebrew (whose Past tense form corresponds to the Perfective of Biblical Hebrew). However, the fact that the Aorist indicative in Modern Greek can still be used to refer to future time (Thumb 1912: 123) and in the gnomic function (Seiler 1952: 65) is problematic for the view that it is a past *tense*, as (to a lesser extent) are its persistent stative uses for "attained states" (Thumb 1912). Yet all such readings are entirely expected for a perfective gram (cf. Bybee et al. 1994: 95),[49] which strongly suggests that the Modern Greek Aorist does not represent a simple past tense but remains a perfective aspect gram (of Type 1, $t_E \subseteq t_A$, seeing as it continues to have complexive as a use (Seiler 1952: 75)). Further support for this view is that, as far as I can determine, the Modern Greek Aorist lacks continuous-state, past habitual, and progressive uses (i.e., canonical "imperfective-like" readings), which might be expected to occur, at least in certain environments, for an aspectually neutral simple past tense (cf. the English Preterite).

48. Some support for this view (i.e., usage restricted by blocking rather than semantic change) comes from the fact that Modern Greek has the stative use of the Aorist to certain predicates (for "attained states") (Thumb 1912: 123; Schwyzer–Debrunner: 282). In addition, post-Classical Greek seems to have regular universal perfect uses (cf. (15) above and Appendix §A.3.5), which may involve overlap between t_E and t_0, so a sufficient denotation of the Aorist at this stage should probably not exclude that possibility. Further, according to Joseph (2000: 324), after the loss of the synthetic Perfect in Medieval Greek until the Early Modern period (early 17th century CE) the Aorist indicative was re-recruited for use as a present perfect (see also *CGMG*: 1936–1937, with examples). This implies that the denotation of the Aorist was at no stage incompatible with perfect readings, though its actual use in such contexts fluctuated over time, depending on the state of the rest of the verb system at any given stage. In Modern Greek, where an analytic Perfect is firmly in place, the Aorist nevertheless remains preferred for conveying the resultative perfect reading, with either past or present reference (Thumb 1912: 125–126, 162–163).

49. Cf. the futurate and performative/reportive interpretations of the Perfective in Slavic (Fortuin 2019: 15, 18–20), among others, such as present stative (Comrie 1976: 58).

Therefore, I tentatively assume that the denotation of the Aorist in Medieval and Modern Greek is essentially unchanged from that of the (post-)Classical period, in (18)/(19). As noted in n.48 above, the increase in the "perfect-like" uses of the Aorist after the post-Classical stage is to be attributed to the loss of the Perfect in Medieval Greek, which could thus no longer block these readings of the Aorist (cf. Joseph 2000: 324).

6.1.2 Semantics of the Perfect

By the time of Hellenistic Greek, the Perfect was used "with indicative Aorist meaning" (Schwyzer–Debrunner: 287–288). Gerö & von Stechow (2003) show that the Perfect follows the typical grammaticalization pathway (cf. (3a) above) from stative-resultative in Homer to perfect in Classical Greek (cf. n.43 above) to perfective in Hellenistic Greek, discussing its semantics at each stage in detail, which I will not repeat here.

6.1.3 Semantics of the Imperfect

As for the Imperfect, I assume that its denotation remains, for the duration of Ancient Greek, that of a simple past, as defined in (20). This constitutes the "neutral aspect," which is maximally permissive in that it allows *any* relation to hold between the two temporal parameters, t_E and t_A, so long as one overlaps with (i.e., intersects with or includes) the other.

(20) SIMPLE PAST DENOTATION OF THE IMPERFECT IN ANCIENT GREEK (STAGES I–III)

$[\lambda P.\lambda t_A.\exists e(\mathbf{t}_e \circ \mathbf{t_A} \wedge \mathbf{t_A} \preceq \mathbf{t_0} \wedge P(e) = 1)]$

For some eventuality e, **eventuality time $\mathbf{t}_e$ <u>overlaps</u> with assertion time $\mathbf{t_A}$, and the assertion time at least partially precedes the local evaluation time $\mathbf{t_0}$,**[50] and the eventuality description P applied to the eventuality e is true (1).

Such a denotation allows for concentrative-sequential and complexive uses, both found abundantly in Homer. Though these uses survive into the Classical period, they become increasingly restricted in the ways described above until by the post-Classical period the Imperfect is dispreferred in these functions. In post-Classical Greek, the Imperfect comes to apply almost exclusively in "canonical" imperfective contexts ($t_E \supset t_A$), only occasionally found in concentrative or complexive uses. That its *denotation* has not changed, however, is shown by the exceptions to the foregoing generalizations at every stage, which, while increasingly infrequent, are there nonetheless (viz. terminative uses, requiring that $t_E \subseteq t_A$).

This denotation also permits all the other readings observed for the Imperfect in Section 5 above, including its occasional "perfect-like" readings, such as experiential (cf. n.50 above). Futurate uses of the Imperfect are of course ruled out by the requirement that the Imperfect be past in tense ($t_A \preceq t_0$). Any other readings not typically expressed by the Imperfect, such as performative/reportive or resultative, are assumed to be categorically blocked by one of the other functional categories, whose denotations are more specific (i.e., "stronger"), namely the Aorist and Perfect (cf. §6.2.1 below). Evidence for this blocking relationship can be seen, for example, from the fact that the Imperfect is generally dispreferred

50. The relation "$t_A \prec t_0$" ('assertion time fully precedes evaluation time') is how past tense is defined, e.g., by E. Dahl (2010: 57–58, 67) and Klein (1994: 124). However, such a denotation would exclude the possibility of present reference, which is commonly available to past tense grams across languages in "perfect-like" readings of the simple past (cf. American English *Help, I've fallen and I can't get up!* beside the equally felicitous *Help, I fell and I can't get up!*). I therefore borrow E. Dahl's (2010: 57) "partial precedence" relation ($\preceq$). This allows for t_A to overlap with or even include t_0, as required in *present* perfect contexts (the present tense being defined as $t_A \supseteq t_0$ by E. Dahl (2010: 58) and Klein (1994: 124)), so long as t_A at least partially precedes t_0.

in complexive contexts in the post-Classical period wherever the Aorist can apply. However, verbs that only build Present stems, such as εἰμί 'be', regularly use their Imperfect in this function (cf. (14) above). Since the converse is not true—i.e., the Aorist and Perfect do not occur in "imperfective-like" functions no matter what—the denotation of the Imperfect must permit a wider functional range than do the other categories, even though not all of the readings that it is compatible with are realized in actual usage except under special circumstances of type just described.

6.1.4 Semantic change: Medieval and Modern Greek Imperfect

Eventually, however, the association of the Imperfect with imperfectivity *does* appear to become conventionalized as part of its truth-conditional content. At a certain stage, the "neutral aspect" of the Imperfect may not have been recoverable to learners, because the form would have applied almost exclusively in canonical imperfective contexts, being categorically blocked in terminative contexts by the Aorist. Hence, learners could understand its denotation to be that of a Type 1 imperfective gram ($t_E \supset t_A$), based on the available input data. Thus, the Medieval and Modern Greek Imperfect seems to express "canonical" imperfective aspect (cf. *CGMG*: 1934–1935; Johanson 2000: 95, 98–99), comparable in most respects to the imperfective grams found in the Romance languages (Hedin 2000: 262–263). This development appears to have taken place by the end of what I have been calling the post-Classical period, since no traces of terminative uses (i.e., concentrative or complexive) of the Imperfect are reported for Medieval and Modern Greek. The past imperfective denotation of the Medieval/Modern Greek Imperfect is given in (21).

(21) IMPERFECTIVE DENOTATION OF THE IMPERFECT IN MEDIEVAL/MODERN GREEK

$[\lambda P.\lambda t_A.\exists e(\mathbf{t}_e \supset \mathbf{t_A} \wedge \mathbf{t_A} \preceq \mathbf{t_0} \wedge P(e) = 1)]$

For some eventuality e, **eventuality time $\mathbf{t}_e$ properly includes assertion time $\mathbf{t_A}$, and the assertion time at least partially precedes the local evaluation time $\mathbf{t_0}$,** and the eventuality description P applied to the eventuality e is true (1).

6.2 Pragmatics of the Imperfect

6.2.1 Blocking, partial blocking, and deblocking

The blocking of the non-imperfective readings of the Imperfect by the Aorist in Ancient Greek may be captured in a theoretically rigorous way by applying the methods of Grønn (2007, 2008b) (following Blutner 2000). He adapts a framework known in neo-Gricean paragmatics as a "Horn strategy" (Horn 1984) to the aspectual system of Russian, in order to explain how speakers decide when to use the Perfective and Imperfective as a partial blocking process. When two morphological forms compete for the same semantic space (due to partial overlap in meaning), the more specific form may block the application of the less specific form wherever it can apply (cf. §4.4 above). This is because the more specific form (in our case the Aorist) is "weakly optimal" in some specialized meaning (here, perfect(ive) aspect).

Recall that the Ancient Greek Imperfect does not entail perfect(ive) aspect, though it is *compatible* with it, whereas the Aorist does entail perfect(ive) aspect.[51] We know this because the Imperfect regularly attests readings other than perfect(ive) ones, such as habitual or progressive, while the Aorist does not. Thus, the Imperfect can be said to permit but not guarantee perfect(ive) meaning, while the Aorist

51. The parenthesis on "perfect(ive)" here is meant to capture the various stages of the Aorist, since its denotation changes from more "perfect-like" to more "perfective-like" over time, though it is always compatible with use in both "perfect-like" and "perfective-like" contexts, and tends to block the application of the Imperfect in both—the more so in perfective contexts as it undergoes "aoristic drift" along the lines of (3a).

entails it. So, when the Imperfect is used, the addressee may infer that, if the speaker had meant to express perfect(ive) aspect, they would have done so with the form that *entails* the expression of that aspect (viz. the Aorist) rather than merely implicating it with the Imperfect. The Aorist thus comes to block to the application of the Imperfect in contexts that are not canonically imperfective. Because of this blocking, the Imperfect becomes associated with imperfective aspect, inasmuch as its denotation allows for its use in "imperfective-like" contexts while the denotations of the other members of the Greek "past-tense" system do not.

The (partial) blocking process is represented as a 2×2 game between the speaker's preference for "short, unmarked forms" and the addressee's preference for "stereotypical, unmarked meanings" (Grønn 2007). This can be visualized as in Tables 12 and 13, where vertical arrows represent the speaker's preferences and the horizontal arrows represent the addressee's preferences. To help conceptualize this framework, I give English examples of lexical blocking first, in Tables 12 and 13.

TABLE 12: Blocking of *kill* by *cause to die*

	m_1: direct		m_2: indirect
f_1: *kill*	✓	⟵	✗
	↑		↑
f_2: *cause to die*	✗	⟵	✓

TABLE 13: Partial blocking of *cow* by *beef*

	m_1: count		m_2: mass
f_1: *cow*	✓	⟵	✗
	↑		↑
f_2: *beef*	✗	⟵	✓

In Table 12, the speaker prefers the minimally marked form (viz. *kill* (f_1)) and the addressee assumes its most stereotypical meaning (viz. direct killing (m_1)). When a speaker makes the discourse move to say *cause to die* instead (f_2), some less stereotypical meaning (viz. indirect killing (m_2)) is assumed because, if the speaker had meant m_1, there was a better form available (viz. *kill*). Applying the algorithm of weakly bidirectional OT (Jäger 2002), the preferences of speaker and addressee conspire to prefer the pair <f_1, m_1> over the pairs <f_1, m_2> and <f_2, m_1>. The two losing pairs are removed from the table (✗) and the optimal pair remains (✓). Thus, *kill* is the preferred form with the preferred meaning of direct killing. The remaining pair <f_2, m_2> survives despite the existence of the optimal pair <f_1, m_1>. This is said to be the "weakly optimal" candidate: "True, there is a better form (f_1), but *not* given meaning m_2. Similarly, there is a better meaning (m_1), but *not* given form f_2" (Grønn 2007, emphasis original).

Table 13 works similarly—the mass noun *beef* blocking the application of *cow* in m_2—except that there are certain contexts in which one might wish to use *cow* as a mass noun (m_2), as in (22).

(22) DEBLOCKING: NON-CANONICAL MASS NOUN

Hindus are not allowed to eat <u>cow</u> (ex. Grønn 2008b).

This is called "deblocking" (Grønn 2007, 2008b), whereby the mapping <f_1, m_2> can arise only if m_2 is understood in some unusual sense. Deblocking is captured by assuming a second round of blocking (Grønn 2008b), such that *beef* is f_1, mapped to an m_1 "canonical mass noun" while *cow* (now f_2) is mapped to an m_2 "non-canonical mass noun," shown in Table 14.

TABLE 14: Deblocking of *cow* in a special meaning

	m_1: canonical mass		m_2: non-canonical mass
f_1: *beef*	✓	⟵	✗
	↑		↑
f_2: *cow*	✗	⟵	✓

This framework can be readily extended to tense–aspect systems, being ideally suited to explaining why one form blocks another (synchronically) and, as a consequence, why each form grammaticalizes

in the way that it does (diachronically). I represent the pragmatic interactions of the Greek Aorist, Imperfect, and Perfect at various stages of development in the following tables.

A word about markedness: I have shown that the Imperfect is categorically "unmarked" in terms of its meaning (aspectually neutral) and hence occupies the m_1 slot in Table 15. The matter of formal markedness, however, is more complicated. I take the Aorist to be the "marked" form (f_2) because building an Aorist stem seems to require an extra derivational "step." In the synchronic grammar of Greek (at any given stage), an Aorist stem can be straightforwardly derived from a Present stem by applying productive morphology (most regularly the suffix /-s-/), but the converse is not true: There are no synchronic morphological processes in Greek that will reliably generate a Present stem on the basis of an Aorist. I therefore assume that the Present stem is the unmarked form and the Aorist stem is derived from it by adding morphology to the base (viz. the suffix /-s-/ or sometimes reduplication), thus making the Aorist the more marked member of the pair (but cf. Garrett 2008 for a different view).[52] The Perfect, in its turn, is transparently a derived stem, employing reduplication in all cases (except οἶδα 'know'), and is accordingly regarded here as formally marked.

Thus, in Table 15, the Aorist is shown to categorically block the application of the Imperfect in "perfect-like" functions (especially the resultative, a reading that belongs most straightforwardly to the Aorist).

TABLE 15: Blocking of the perfect readings of the Imperfect by the Aorist in Ancient Greek (all stages)

	m_1: non-perfect		m_2: perfect
f_1: Imperfect	✓	←	✗
	↑		↑
f_2: Aorist	✗	←	✓

Similarly, Table 16 can be assumed to account for the partial blocking of the perfect readings of the Aorist by the Perfect, under normal circumstances, at the Classical stage (recall that the universal perfect reading is practically excluded by the Aorist's *denotation* at the Archaic stage). This is because the Perfect has a more specific denotation than the Aorist, being a perfect gram in the Classical period, while the Aorist is more grammaticalized along the path of "aoristic drift" in (3a) above and therefore has a more generalized denotation.

TABLE 16: Partial blocking of the Aorist by the Perfect in Classical Greek

	m_1: non-perfect		m_2: perfect
f_1: Aorist	✓	←	✗
	↑		↑
f_2: Perfect	✗	←	✓

When we find, as we occasionally do, the Imperfect in "perfect-like" contexts—namely resultative, experiential, and universal (cf. §5 above)—we may understand this in terms of deblocking, along the lines of Table 14 above: A form whose denotation is compatible with a particular function that is blocked under normal circumstances by a more specific form that competes with it may occasionally meet with contexts or lexical items that permit (or force) this ordinarily blocked usage to surface nonetheless. For example, verbs like εἰμί 'be' that only build a Present stem, must of course use their Imperfect even in

52. In the case of root Aorists, thematic Aorists, and suppletive paradigms, neither the Aorist nor the Present stem is straightforwardly derivable from the other, such that taking either form as the "base" would come at the same derivational "cost." Such cases would have to be learned individually, just as English speakers must acquire the exceptional "strong" preterites separately from the forms marked with the productive *-ed* suffix.

"perfect-" and "perfective-like" contexts, since there is no better alternative (cf. respectively *Il.* 13.228–229 and (14a) above).

A somewhat different explanation must be given for why we find sometimes the Aorist and sometimes the Perfect in the experiential, stative-resultative, and (mostly after Homer) universal perfect functions. Though we may appeal to blocking to some extent, and most reliably at the Classical stage (per Table 16), it seems that we still must admit a higher degree of variability or "division of labor" of readings among these morphological categories than blocking alone might predict, especially at the Archaic stage. Descriptively, then, it can be said that when two forms with similar (but non-identical) denotations compete for the same semantic space, all readings are not necessarily divided among the separate forms stably across all utterances, at least not immediately so, and sometimes one form is preferred for one kind of reading while the other is preferred for another kind of reading, in such a way that blocking alone cannot predict. This can be seen at the Archaic stage, where the Aorist is preferred in resultative contexts while the Perfect is preferred in experiential contexts (though not uniformly so). Since both represent varieties of perfect grams (one "late-stage" and one "early-stage"), it seems they have each become specialized for particular readings within the perfect domain. It is not easy to see how blocking or deblocking alone can account for such specialization of usage, since this would predict the Perfect to be preferred in *all* perfect-like uses, given its more specific denotation. The denotations of these two functional categories seem to drift apart somewhat at the Classical stage—now grammaticalized respectively to a perfective and a perfect gram—such that a rather firmer blocking relationship holds between the two (though the Aorist is never uncommon in the resultative function). Yet they converge again at the post-Classical stage, when both forms represent kinds of perfective grams (the Perfect having also undergone "aoristic drift" per (3a)), and they accordingly compete almost equally in all sorts of "perfect-" and "perfective-like" uses, showing a near functional merger, which is matched by the beginnings of a formal merger as well (cf. Browning 1983: 30). The notion of gradation and of gradual regularization of blocking processes will be expanded upon in the next subsection (§6.2.2), and variability is discussed further in Section 6.3.1 below.

In a similar way, the Imperfect and Aorist show alternation in sequential narrative contexts at the Archaic stage. Since neither form specifically encodes perfective aspect *per se*—the Imperfect being neutral in aspect and the Aorist being still an "emergent" perfective (i.e., a late-stage perfect)—neither form is definitively favored in this most characteristic of perfective contexts (cf. n.10 above). Still, the Aorist is already *somewhat* preferred to the Imperfect in the concentrative use at the Archaic stage (as shown in Hollenbaugh 2018: 46–47), its denotation at this time being only slightly stronger than that of the perfective gram to which it will later develop. Once this happens, the Aorist comes to be more strongly preferred in the concentrative use, to the near total exclusion of the Imperfect by the post-Classical stage. However, deblocking may apply in cases where the Imperfect surfaces in concentrative contexts at the post-Classical stage, often motivated by lexical item (such as εἰμί 'be') or other factors enumerated below (§6.2.2).

As for the complexive use, the Imperfect is the favored form at the Archaic stage because it is the only one whose denotation is compatible with such contexts. When the Aorist "weakens" later on, thereby permitting the coextension relation to hold between eventuality time and assertion time, it then has the most specific denotation that is compatible with the complexive reading, and accordingly comes to be preferred in complexive contexts, to the near total exclusion of the Imperfect by the post-Classical stage. Again, deblocking may apply in some cases, such that the Imperfect in the complexive function surfaces even at the post-Classical stage.

The partial blocking of the Imperfect by the Aorist in "perfective-like" or *terminative* contexts (i.e., concentrative, complexive, etc.) at the post-Classical stage is shown in Table 17. At this stage, the Imperfect is still compatible with terminative uses, as evinced by its attestation in such contexts (which I regard as a deblocking process), but its application in these uses is restricted by the Aorist, which is now

more specially suited to terminative contexts, due to its specifically perfective denotation (cf. (19) above), which it did not have at the Archaic stage (cf. (17) above).

TABLE 17: Partial blocking of the Imperfect by the Aorist in post-Classical Greek

	m_1: non-perfective		m_2: perfective
f_1: Imperfect	✓	⟵	✗
	↑		↑
f_2: Aorist	✗	⟵	✓

Once this blocking process became categorical, it seems that it was eventually no longer recoverable to learners as a synchronic process. It would then have simply been learned that the Imperfect is used for imperfective aspect and the Aorist is used for perfective aspect, without any need for recourse to these kinds of reasoning processes. This assumption of semantic change is confirmed by the general lack of "perfective-like" uses of the Imperfect at the Medieval and Modern stages of Greek.

The observed blocking processes thus adhere to the generalization, adopted at the outset (cf. §4.4 above), that the form with the more specific denotation tends to block the application of a form with a more general denotation in contexts where either form could, in principle, apply based on the functional range permitted under its semantic denotation alone. In this way, the Imperfect comes be restricted over time to specifically imperfective contexts, due not to its *expression* of "imperfective-like" readings in particular, but rather its mere *compatibility* with such contexts, where the other "past tense" forms were not permissible (as entailed by their semantics). Even so were the "perfective-like" uses of the Imperfect—so robust at the Archaic stage—gradually taken over by the Aorist, whose specifically perfective denotation at the Classical and post-Classical stages made it ideally suited to use in terminative functions, in preference to the Imperfect. The gradual nature of this process is the subject of the next subsection, where I also take account of the various factors that seem to have contributed to the use of the Imperfect in terminative contexts even after the Archaic period—frequently so at the Classical stage, and occasionally at the post-Classical stage.

6.2.2 Development of blocking over time: From partial to categorical

Since the partial blocking described above is a reasoning process that applies synchronically, the blocking does not necessarily become categorical right away. The specific imperfective uses associated with the Imperfect do not become conventionalized and associated with its truth-conditional content immediately. Rather, the association builds gradually over a long period of time. This lag in grammaticalization is due to various factors that favor or require the use of the Imperfect in contexts where one might ordinarily expect a perfective, even after the Archaic stage. As discussed above, the surfacing of the less specific form in a context that ordinarily calls for the more specific form is typically attributed to deblocking (Grønn 2008b). Aside from lexical factors discussed in Section 6.3.1 below, some factors contributing to the use of the Imperfect in terminative functions are listed as follows. The first two have to do with deblocking ((A)–(B)); the third with the notion of partial blocking as being sensitive to predicate type (C). I expand on the notion of non-culmination (B) in Section 6.3.2 below.

(A) **Avoidance of potential ambiguity brought on by the Aorist**: The Imperfect is preferred in concentrative contexts in order to avoid potential ambiguity that would arise from using the Aorist, since the Aorist is commonly associated with resultative and counter-sequential interpretations, while the Imperfect is not (cf. Altshuler 2014: 765–770 and n.57 below).[53] Wherever a speaker wishes to

53. Delbrück (1879: 103–104) compares the situation to North German (followed in Hollenbaugh 2018: 48–49): "ἐποίησε [AOR.]

rule out a resultative or counter-sequential interpretation that could arise from use of the Aorist, the Imperfect is available for use instead, thereby clarifying that a plain concentrative reading is intended (assuming the context is not conducive to progressive, habitual, or other "imperfective-like" interpretations).

(B) **Non-culmination**: The Imperfect surfaces in sequential narration when the event ceases to develop but does not necessarily culminate (preferred under certain QUDs,[54] cf. §6.3.2 below and §5.5 above).

(C) **Distribution by situation type**: In Classical Greek, the use of the Imperfect in the complexive and inceptive functions is only *partially* blocked by the Aorist, which has these readings only when built to state predicates (cf. Hollenbaugh 2020b), while the Imperfect has them elsewhere. Although we *do* find the Imperfect used for some state predicates in these functions (being the "elsewhere" case), the Aorist is strongly preferred for state predicates in this usage, and there is little overlap in the set of lexical items that belong to the Aorist in this use vs. those of the Imperfect (cf. §5.2 above). This partial blocking relationship is represented in Table 18.

TABLE 18: Partial blocking of the complexive/inceptive uses of the Ipf. by the Aor. in Classical Greek

	m_1: complexive non-state		m_2: complexive state
f_1: Imperfect	✓	⟵	✗
	↑		↑
f_2: Aorist	✗	⟵	✓

6.3 Exploring variability: Paradigms and the role of partitive operators

6.3.1 Variation and paradigmatic limitations: Present vs. Aorist stems

As Wackernagel (1926–1928 [2009]: 222) observes, "we are absolutely not entitled to expect that every Greek verb is, in schoolbook terms, fully conjugated." Langslow (id.) in his footnote to this remark points out that "standard, predictable conjugation" is emergent within the history of Greek, arising between Homer and Attic (Classical). Still, there are several verbs that do not conjugate fully (e.g., κεῖμαι 'lie', lacking an Aorist) or for which one form or the other is unexpectedly rare (e.g., frequent Ipf. ἐκέλευε beside rare Aorist ἐκέλευσε, both concentrative 'ordered').[55]

Besides paradigmatic and lexical restrictions, there does appear to be some degree of just plain alternation, which could be called "free" variation (cf. Wackernagel quote above in §1.1). Consider (23), which has two infinitives (inf.) to the same verb *in the same kind of context*, both having a complexive interpretation, the first being Aorist, the second being Present.[56]

er hat gethan, aber ἐποίει [IPF.] er that" (i.e., 'he has done' vs. 'he did'). This also resembles the *have*-Perfect and simple Preterite distinction in English (*has done* vs. *did*). The Greek Aorist thus often leaves open the possibility of a resultative meaning undesirable in plain narration, whereas the Imperfect lacks this ambiguity.

54. *QUD* is a term in pragmatics that refers to the "question under discussion" in a given discourse. Different QUDs, whether implied or stated, will elicit different kinds of responses from speakers.

55. For examples and discussion see Wackernagel 1926–1928 [2009]: 222–224, 235–236.

56. Cf. (5) above for a similar example with the Aorist and Imperfect. Jacobsohn's (1933: 305) example of the Imperfect ἐβασίλευε with ἔτη 'reigned for X years' is in fact never attested (confirmed by a *TLG* search), though the Aorist indicative is common in this meaning after Homer (cf. (9) above). For an example with the (present-referring) Aorist and Present indicative (viz. Soph. *Aj.* 270), see Wackernagel 1926–1928 [2009]: 226. In (23) the Aorist infinitive marks culmination (the story continues with his death and succession by his brother), while the Present infinitive might not (the story continues with his deeds as ruler). However, this is not true of all such examples (cf. (24) below), and Basset (2009: 213, 217–219) concludes that the exact opposite is true generally (i.e., the Aorist establishes a frame in which other events fall, while the Imperfect/Present list individual events;

(23) AORIST AND PRESENT INFINITIVES IN THE COMPLEXIVE USE

a. **βασιλεῦσαι**[AOR.INF.] δὲ τὸν Χέοπα τοῦτον Αἰγύπτιοι ἔλεγον πεντήκοντα ἔτεα (Hdt. 2.127.1).

'And the Egyptians said that Cheops **ruled**[AOR.INF.] [Egypt] for fifty years' (ex. Basset 2009: 215).

b. τὸν δὲ Αἰθίοπα **βασιλεύειν**[PRES.INF.] Αἰγύπτου ἐπ᾽ ἔτεα πεντήκοντα (Hdt. 2.137.2).

'And [they said that] the Ethiopian **ruled**[PRES.INF.] Egypt for fifty years' (ex. Basset 2009: 217).

(24) shows Homeric examples of single, momentary events of 'placing' (concentrative use). The first employs the Imperfect, the second the Aorist. As (24a) demonstrates, coordination of an Imperfect with an Aorist is not uncommon.

(24) IMPERFECT AND AORIST OF τίθημι 'PUT, PLACE' IN THE CONCENTRATIVE USE

a. ὣς ἄρ᾽ ἔφη, καὶ ἀναΐξας δέπας ἀμφικύπελλον
μητρὶ φίλῃι ἐν χερσὶ **τίθει**[IPF.], καί μιν προσέειπεν[AOR.] (*Il.* 1.584–585).

'Thus he spoke, and having sprung up he **put**[IPF.] the double-sided cup
in his dear mother's hands, and he said[AOR.] to her' (cf. similarly *Il.* 1.446–447).

b. Ἥρη δὲ χρύσεον καλὸν δέπας ἐν χερὶ **θῆκεν**[AOR.]
καί ῥ᾽ εὔφρην᾽[AOR.] ἐπέεσσι· (*Il.* 24.101–102).

'And Hera **put**[AOR.] in her hand a fair golden cup,
and spoke words of cheer[AOR.].'[57]

There does not seem to be any difference between the two acts of placing in (24): Both seem to be characterized as complete in the past and both seem to have culminated.

Given two forms with overlapping semantics, it is entirely reasonable that there should be some degree of "speaker choice" or "interchangeability" of this sort, whereby two different forms are used in virtually identical contexts. The benefit of the analysis developed here is that it makes correct predictions about where we should expect to find such formal alternations and where we should not. In sequential narration, for instance, we expect alternation between the Aorist and Imperfect at the Archaic stage; under the scope of νῦν 'now', however, we typically expect the Aorist. Still, the notion of culmination vs. non-culmination described in the next subsection (§6.3.2) is invoked to account for many occurrences of the Imperfect in terminative contexts after Homer (e.g., (5) above). Examples like (24), where both the Aorist and the Imperfect seem to characterize events as culminated, may perhaps be understood in terms of entailment vs. implicature: The Aorist entails culmination, while the Imperfect merely implicates it.

6.3.2 Partitive operators: culminating vs. ceasing to develop

It remains to explain why, particularly in Classical Greek, when the Aorist had fully grammaticalized to a perfective gram, we still find the Imperfect used quite commonly in terminative contexts, such as sequential narration. Given what has been said so far about blocking, we might expect the Aorist to block the Imperfect in all such contexts after the Archaic stage. I have said above that indeed the Aorist does begin to block the Imperfect in terminative contexts at the Classical stage, but we still need some way to explain how the Imperfect can apply with such frequency in these kinds of contexts *despite* its blocking relationship with the Aorist (i.e., what licenses its frequent "deblocking"), until the blocking of its terminative readings by the Aorist approaches being categorical within the post-Classical period.

with a similar point see Wackernagel 1926–1928 [2009]: 234).

57. Cf. similarly *Il.* 18.614–616, 21.145, 23.750. Most often, though, the Aorist to this root is reserved for one of the following uses: resultative (*Il.* 6.357, 23.333), counter-sequential (*Il.* 1.55, 8.324), pluractional (*Il.* 1.2, 9.547), factitive (*Il.* 2.482, 12.399, 23.263, 269, 24.538). By contrast, the Imperfect is typically used in sequential narration or plain concentrative use. On this pervasive distribution of Aorist and Imperfect to the same verb, see Delbrück 1879: 103–106 and cf. §1.1 above.

The answer, in my view, has to do with the notion of culmination of an eventuality vs. its merely ceasing to develop, as discussed by Altshuler (2014: 738, 747–750). Culmination seems to be entailed by the Aorist (cf. English *ate the cookie up*), whereas the Imperfect in terminative contexts only requires that an event ceased to develop any further but did not necessarily culminate (cf. *ate some of the cookie*). Wherever culmination is considered too strong an entailment for the speaker's intended meaning or the context in which the utterance occurs (i.e., under what QUD it occurs; cf. n.54 above), the Imperfect is available for use instead. Thus, the Imperfect continues to be used in terminative contexts, to which it remains semantically just as well suited as the Aorist, and is favored when the speaker does not want to commit to the culmination of the eventuality in question. Still, the Aorist eventually comes to be the default form in such contexts (post-Classical), due to the blocking relationship it has with the Imperfect (described above in §6.2.1), which applies under normal circumstances and is strengthened as time goes on.

Wackernagel (1926–1928 [2009]: 233–234) notes that in archaic (and later archa*izing*) Greek inscriptions, the creator of a piece of art often writes ἐποίει (Ipf.) rather than ἐποίησεν (Aor.) to mean '[artist's name] made (this)'. Wackernagel (1926–1928 [2009]: 233–234) claims that the former is used to mean 'so-and-so worked on/did work on this' (Imperfect, partitive) vs. 'so-and-so has produced/is the author of this' (Aorist, resultative). The Imperfect seems to assert that "at least some X happened." It could be that all X happened, or it could be that only some X happened, within the relevant assertion time interval. Just as the word *some* in English is ambiguous between "only some" and "not none," the Greek Imperfect is semantically ambiguous between the interpretation that some (∃) or all (∀) of a given eventuality takes place within a given assertion time. By contrast, a "canonical" general imperfective of the Romance or Semitic type (Type 1) entails that not all (¬∀) of the eventuality falls within the salient assertion time (i.e., "only some"). When the Ancient Greek Imperfect receives the interpretation (as determined by context and predicate type) that all of t_E falls within t_A (i.e., terminative), there is no evidence to suggest that it entails culmination of the eventuality. Therefore, I regard the Ancient Greek Imperfect as being compatible with interpretations that involve a cessation of development but not necessarily culmination (though it may, of course, *implicate* culmination).

The difference between "an event that *culminated* and an event that *ceased to develop further*" is discussed by Altshuler (2014: 738, 747–750) and is illustrated by an example like (25).

(25) *Mary ate the cookie, #but she did not finish it.*

While (25) is illicit in English with the simple past, there are a number of languages whose perfective (or neutral) aspect grams allow such non-culmination of the event, even while allowing or requiring that the event has ceased to develop any further. In such languages (e.g., Hindi, Tunisian Arabic), a sentence like (25) with the perfective would mean that Mary has stopped eating the cookie, she's had enough, but not necessarily that the cookie is all gone. By contrast, languages like Russian or Modern Greek (or English), whose perfective (or neutral) aspect grams entail culmination, require that the cookie have been fully consumed (or else a different form of the verb would be used).

It is difficult to establish definitively that the Aorist indicative in Ancient Greek *entails* culmination, though Wackernagel (1926–1928 [2009]: 235) certainly defines the Aorist in such terms (cf. §1.1 above): "The most that we can say, if we wish to draw a distinction between the [aorist and imperfect], is that occasionally *the aorist denotes more the culmination* of a series of actions or processes, while their actual performance is expressed in the imperfect" (emphasis added).[58] Yet there is also no evidence to suppose

58. On the other hand, Purdie (1898: 67–68) maintains that the Greek Aorist cannot be equated with the Russian Perfective due to the latter's obligatory culmination effects and lack of complexive ("constative") use. The inceptive reading would seem to speak against regarding culmination as an entailment of the Greek Aorist, but this can be dealt with in ways that are not incompatible with such a semantics (see Bary & Egg 2012 and Hollenbaugh 2020b). The stative use of the Aorist at the Archaic

that it represents a partitive operator. The egressive reading, peculiar to the Aorist (Gildersleeve & Miller 1900: 94 "Aorist of attainment"), provides one strong piece of evidence to suggest that the Aorist entails culmination while the Imperfect does not. The Imperfect in (26) is plainly partitive, in the sense that it designates a VP-event stage (per Altshuler 2014: 738).

(26) AORIST EGRESSIVE FOR ἀγωνίζομαι 'CONTEND FOR A PRIZE' (ACCOMPLISHMENT PREDICATE)

τί οὖν; ἠγωνίζου$_{[\text{IPF.}]}$ τι ἡμῖν; καὶ πῶς τι **ἠγωνίσω**$_{[\text{AOR.}]}$; (Plat. *Ion* 530a).

'So what (of it)? Pray tell, did you do some competing$_{[\text{IPF.}]}$? And how **did you *compete***$_{[\text{AOR.}]}$?' [i.e., 'Did you participate in the contest, and (if so) how did you *finish up* or *place* in it?']

The egressive use is also found in Russian, which Altshuler (2014: 766) concludes has a perfective gram that entails culmination (called Perfective (Pfv.)). The past Imperfective (Ipfv.) verbs in (27) are conative.

(27) RUSSIAN PERFECTIVE, EGRESSIVE USE (ACCOMPLISHMENT PREDICATES)

a. *On mnogo delal*$_{[\text{IPFV.}]}$*, no malo **sdelal***$_{[\text{PFV.}]}$.

'He did (i.e., undertook)$_{[\text{IPFV.}]}$ a lot but **did (i.e., accomplished)**$_{[\text{PFV.}]}$ little' (ex. Comrie 1976: 113).

b. *On dolgo ugovarival*$_{[\text{IPFV.}]}$ *menja, no **ne ugovoril***$_{[\text{PFV.}]}$.

'He was persuading$_{[\text{IPFV.}]}$ me for a long time (i.e., he spent a long time trying to persuade$_{[\text{IPFV.}]}$ me) but **didn't (successfully) persuade**$_{[\text{PFV.}]}$ me' (ex. Comrie 1976: 19).

Further, the Aorist in Modern Greek cannot be used to felicitously translate the sentence in (25), as shown by (28). Here, substituting the Ipf. έτρωγε 'was eating' for the Aor. έφαγε 'ate' would render the sentence grammatical.[59]

(28) CULMINATION ENTAILMENT OF THE MODERN GREEK AORIST

Η Μαρία **έφαγε**$_{[\text{AOR.}]}$ το κουλουράκι, #αλλά δεν το τελείωσε.

'Mary **ate**$_{[\text{AOR.}]}$ the cookie, #but she did not finish it'.

This strongly suggests that the Modern Greek Aorist entails culmination, which offers further support for the assumption that the Aorist in Ancient Greek did so as well.[60]

If this is correct, then the Greek Imperfect and Aorist can be analyzed similarly to how Altshuler (2014) analyzes the Hindi "SV" (simple) Perfective and Russian Imperfective (partitive, non-culminating) vs. the Hindi "CV" (complex) Perfective (non-partitive, culminating). The Classical Greek Aorist can thus be considered a genuine perfective gram, in that it "requires a *maximal stage* of an event[uality]" (id.: 771), but a perfective of a specific kind, namely one that entails culmination. The Classical Greek Imperfect, however, cannot be a perfective (unlike the Hindi SV Perfective), since it does not require a maximal stage of an eventuality but only requires *a stage* and hence must be regarded as an "imperfective" of some kind. It is not quite like the Russian Imperfective either, though, in that it is regularly used in sequential narration (at least until post-Classical Greek, cf. n.37 above), a reading which seems to require the concentrative relation $t_E \subset t_A$. Thus, while I find Altshuler's (2014) claims extremely attractive, I see

stage, in which a state is characterized as *ongoing* at evaluation time, may speak against assuming a culmination entailment for the Aorist until the Classical period, though it is difficult to be certain of this given the nature of the evidence. Some of the other readings of the Aorist (e.g., universal) may require further explanation to understand in what way they (can) fall out from a culmination entailment.

59. Many thanks to my native-speaker consultants for this information.

60. I have been unable to document and unsuccessful at eliciting a Modern Greek example like the one in (26). Accordingly, we may tentatively conclude that egressive is not a (typical) use of the Modern Greek Aorist. Still, (28) provides sufficient evidence of its culmination entailment.

no way to avoid falling back on Smith's (1997) and Grønn's (2004) notion of neutral aspect for the Ancient Greek Imperfect ($t_E \circ t_A$), partitive though it may be (i.e., it is a partitive operator) and "imperfective" in the sense that it does not require a maximal stage.[61]

In Grønn's (2007, 2008b) terms, the Classical Greek situation can be represented as in Table 19 (compare Table 14 above), where the Aorist, being a perfective gram, is preferred in what might be considered the most "canonical" perfective contexts, namely where the eventuality culminates, while the Imperfect is nevertheless "weakly optimal" in less "canonical" perfective contexts, where the eventuality merely ceases to develop. Note that, because Table 19 represents deblocking, the normal markedness ranking seen in Tables 15–18 is reversed, such that the Aorist is f_1 and the Imperfect is f_2 (just as *cow* and *beef* are reversed in Table 14 as compared to Table 13).

TABLE 19: Deblocking of the terminative uses of the Classical Greek Ipf. in terms of culmination

	m_1: canonical pfv. context (culminating)		m_2: non-canonical pfv. context (non-culminating)
f_1: Aorist	✓	⟵	✗
	↑		↑
f_2: Imperfect	✗	⟵	✓

Typologically speaking, then, we may observe that an imperfective gram may permit interpretations under which an event ceases to develop (as emerges within post-Classical Greek), or it may not (as in Modern Greek). Likewise, neutral and perfective aspect-denoting grams may entail culmination or not. The Homeric and Classical Greek Imperfect represents a clear case of a form that denotes non-culminating neutral aspect, while the (post-Homeric) Greek Aorist is a form that denotes culminating perfective aspect.[62]

7 Conclusion

Wackernagel (1926–1928 [2009]: 243) says that part of the reason that "the understanding and proper evaluation of the Greek imperfect have been greatly hindered" is its "usual equation" with the Imperfect of Latin, which "is palpably more constrained" (i.e., something like the general imperfectives of modern Romance). While we abandon this equation, at least until post-Classical Greek, it is important to keep in mind that the Greek Imperfect is a moving target. Any "proper evaluation" of it will accommodate this fact. I have therefore tried to treat the Imperfect with as little reverence for its name as possible, governed in my analysis of it only by attested usage. I hope thereby to have shown that:

- The Imperfect did not *entail* imperfective aspect (defined as $t_E \supseteq t_A$) at any stage of Ancient Greek.
- The trend towards imperfectivity has less to do with semantic change than it does with pragmatic restriction by means of various pressures from other functional categories within the verb system, eventually resulting in categorical blocking of the terminative uses of the Imperfect by the Aorist (and to some extent the Perfect before its demise).
- In the Archaic period, there was a high degree of variability between the Aorist and Imperfect in the concentrative function, and the Imperfect was the preferred form in the complexive function.

61. The Greek Imperfect would occupy the same spot in Altshuler's (2014: 765) typology as the Russian Imperfective, yet it differs in at least one crucial respect: its use to sequence events in past narration. Therefore, the addition of a category to the typology is required, namely "neutral aspect."

62. To complete the typology, culminating neutral aspect is instantiated by the English Preterite, while non-culminating perfective aspect is instantiated by the Hindi "SV" Perfective.

- In the Classical period, the Imperfect continues to be used in terminative contexts, partly because it characterizes an event as ceasing to develop, while the Aorist entails its culmination, and it is often desirable not to have to commit to the culmination of an event in ordinary discourse. By the post-Classical period, however, the Aorist is preferred in terminative uses generally.
- The Aorist undergoes semantic change along the "perfective cline" (3a) and consequently restricts the application of the Imperfect primarily to "imperfective-like" uses by the post-Classical stage due to categorical blocking. The Imperfect was then reinterpreted as imperfective in denotation, thereby accomplishing semantic change.
- The observed changes were by no means abrupt and were never entirely without exception (up to the present day), even allowing a certain degree of "free" variation and variation from author to author.
- In the face of alternation between different morphological categories found in nearly identical discourse contexts, the advantage of this analysis is that it correctly predicts where variability will and will not occur. The locus of formal alternations between the Aorist and Imperfect, for instance, is predicted on the basis of known areas of semantic overlap among the two forms. Hence, we regularly find both forms in sequential narration but only one or the other in various other contexts (such as counter-sequential or progressive).

With these conclusions in mind, we may now consider applying the same line of inquiry to other languages that have similar verb systems (cf. Hollenbaugh 2021, 2018). The most instructive in this respect may be Sanskrit, which, despite having nearly exact formal matches for all the functional categories of the Greek verb system here considered, nevertheless displays a completely different kind of diachronic development. Its (so-called) "Imperfect," in particular, *never* regularly expresses imperfective aspect, despite competing with an Aorist and a Perfect, which could, according to the very same principles observed for Greek, have imposed pragmatic restrictions on the Imperfect via categorical blocking. Why two languages with exact formal matches for each of these three verbal categories (Aorist, Imperfect, Perfect/Pluperfect) should be subject to such wildly different kinds of developments over time is an important outstanding question that must await future research on this topic.

Appendix to "The development of the Imperfect in Ancient Greek from simple past to imperfective as a blocking phenomenon": On the readings and their philological and typological bases

This appendix is divided into three sections, corresponding to the three stages into which I have divided the Ancient Greek language in order to track its verbal usage over time. In the first section (Homeric/Archaic), I give brief accounts of each reading, with discussion of its formal semantic properties and accompanying references to relevant literature in the fields of formal semantics and typology. I also provide references to the Greek grammatical literature, where the reader can find richer discussion for each reading and further examples from the texts than I have space here to provide. Each reading in Section A.1 has at least one textual citation. This serves a double purpose: first, to exemplify for the reader precisely what is meant by each reading label and, second, to provide specific evidence of each reading's attestation within the Archaic stage of the language. The readings are numbered and grouped by category (stative, resultative, etc.), within which the reading's manifestations in each of the three functional categories under investigation are treated individually where applicable (e.g., "resultative Aorist," "resultative Imperfect," "resultative Perfect/Pluperfect"), marked off by bullet points.

For the Classical and post-Classical stages, my treatment is less detailed. This is not for lack of thoroughness in my research of these readings, for which the same rigor has been applied as for the Archaic stage, but because: (1) there would be a great deal of redundancy in discussing the semantics of each reading again, (2) the textual citations from the first section (Archaic Greek) serve to exemplify the reading for the reader, whereas subsequent citations from Classical and post-Classical texts would serve only to verify that a reading is actually attested at the stage I claim it is, for which purpose (3) references to the various handbooks on Classical and post-Classical Greek are generally quite sufficient, there being typically very thorough treatments therein, with numerous citations from the primary texts. Therefore, I omit discussion of and references to formal semantics and typology in the sections on Classical and post-Classical Greek, except to refer to what has already been said previously above, and I limit textual citations to those deemed especially enlightening or necessary—there being, on occasion, inadequate treatment of certain readings in the standard handbooks. Still, for every reading at all three stages I provide references to the standard handbooks or other resources where the reader can find (additional) textual citations of the usage under discussion at the stage to which I attribute it. My approach has sought to maximize informativeness (examples and discussion) and transparency (citations of primary and secondary literature) without sacrificing brevity beyond necessity.

Throughout the appendix I use the word *above* in reference to the sections and examples of the main paper (e.g., "cf. §6.1.1 above"). This should be understood simply as a convenient shorthand to refer the reader to the text of the published paper, even though it is not really located "above" the appendix. Of course, the words *above* and *below* are used for cross-references internal to the appendix as well.

A.1 Readings of Archaic Greek (Table 8)

A.1.1 STATIVE READINGS:

Readings presented here have in common that they express states that are ongoing at assertion or evaluation time. They may be built to state verbs or, in the Perfect, derive states from events. These states may be ongoing in either the past ($t_A \prec t_S$) or the present ($t_A \supseteq t_S$) and may be either "attained" (i.e., expressing the ongoing result state of an implied event) or "continuous" (no result state), as discussed below and in Section 5.1 above.

- Stative Aorist: This label describes the use of the Aorist built to state predicates to characterize

states as ongoing either in the past or in the present of speech time, such that the runtime of the state includes speech time or local evaluation time ($t_E \supseteq t_0$, as permitted by the expression $t_E \preceq t_0$ in (17) above). The stative reading here referred to is treated in the semantic literature as a use of the *perfect* aspect (Kiparsky 2002: 113, 120–121), rather than perfective, as seen in the English periphrastic *'ve got* (e.g., *I've got something to tell you*). Its existence in Homer provides some of the evidence on whose basis I assume that the Homeric Aorist was not yet fully grammaticalized as a perfective gram but is more accurately referred to as an "*emergent* perfective" (cf. §6.1.1 above). The past stative use of the Aorist, unlike the complexive reading, refers to states that are *ongoing* at an evaluation time shifted into the past (though the state may implicitly no longer hold at the time of utterance).

An example for Homer has already been given in (6) above (cf. also *Il.* 5.423, 13.430, and *Od.* 8.481). Similar to ἐφίλησα 'loves' is the Aor. ἤχθηρε 'hates', which occasionally occurs with adverbs like ἤδη 'already' to mean 'already hates' (*Il.* 20.306). Other verbs of hating behave similarly (e.g., *Il.* 14.95=17.173: νῦν δέ. . . ὠνοσάμην 'But now I hold in scorn'). As Chantraine (1953 [2015]: 214) discusses, another example is the Aor. ἔπλετο, which in Homer is frequently presential (e.g., *Il.* 1.418), meaning simply 'is/are' (like ἔφυ in Attic), though it can be past referring as well (e.g., *Il.* 12.11: ἔπλεν 'was'). Note that it is often perverse to read ἔπλετο as referring to a change of state 'became/has come to be', as many have sought to explain it, where no change of state exists (as, e.g., at *Il.* 6.434). Another example of a stative Aorist is ἀλλοῖός. . . φάνης νέον ἠὲ πάροιθεν 'you look different now than before' (*Od.* 16.181). For discussion and further Homeric examples see Lloyd 1999: 44, n.72 and Chantraine 1953 [2015]: 214, though the stative usage I refer to strictly excludes some of the resultative or inceptive examples these authors cite.

Examples of the stative use of the Aorist with *past* reference include: ἐφίλησα to mean 'loved' (e.g., *Il.* 9.481, *Od.* 8.63); πόθεσαν 'they missed (him)' (e.g., *Il.* 15.219); in the negative, οὐδ᾽ ἄρ᾽ ἔτ᾽ ἄλλα δυνήσατο 'but he was still not able' (*Il.* 5.621=13.510), οὐδ᾽ ἄρ᾽ ἔτ᾽ ἔτλη 'could no longer endure' (e.g., *Il.* 20.421), and οὐκ ἐθέλησα 'I didn't want (to fight)' (*Od.* 13.341). See Hollenbaugh 2018: 44 for other possible examples.

This use seems to survive at least into archaic lyric poetry (e.g., Theog. 67, though here ἐφίλησαν could mean 'they have come to love') and probably into Attic drama (cf. §A.2.1 below). However, the use is moribund already in Homer and seems vestigial in Attic drama, being highly lexically restricted (mostly to verbs of loving or hating). The only stative Aorist that long endures after Attic drama is ἔφυ in the lexicalized meaning 'be (by nature)' (post-Homeric, cf. above on Homeric ἔπλετο).

- Continuous-state Imperfect: This describes the use of the Imperfect to characterize states as ongoing in the past (a common use of imperfectives and simple pasts cross-linguistically). It is restricted to state predicates (contrast the Perfect), which will accordingly always be of the "continuous" variety (cf. n.20 above), such that the runtime of the state properly includes assertion time ($t_E \supset t_A$) (that is, unless some other reading of the Imperfect available to state predicates arises, such as complexive or inceptive). This reading may be thought of as a kind of "progressive" to state verbs (of the type *was standing, was sleeping*, etc.; cf. §A.1.2 below). As such, it may co-occur alongside a progressive Imperfect, as in (A1), where the Imperfect to a state predicate ἔζωον 'were living/alive' and to an event (activity) predicate ἐμάχοντο 'were fighting' both convey something ongoing in the past (as evinced by ἔτι 'still').

(A1) CONTINUOUS-STATE IMPERFECT IN HOMER

ὅσσοι ἔτ᾽ **ἔζωον** περί τε ψυχέων ἐμάχοντο·
τοὺς δ᾽ ἤδη ἐδάμασσε βιὸς καὶ ταρφέες ἰοί (*Od.* 22.245–246).

'As many (wooers) as **were** still **living/alive** and fighting for their lives
while the bow and flurry of arrows had already overcome the rest'.

For discussion and further examples of this use see, e.g., Chantraine 1953 [2015]: 220–221 and Schwyzer–Debrunner: 276 ("stative Imperfect," citing ἔσκε 'was' for Homer, among others). For a theoretical treatment of this reading of the imperfective aspect (among others) see Deo 2015b.

- Stative Perfect: This describes a Perfect built to any predicate type (except, evidently, agentive activities) to characterize states as ongoing at speech/evaluation time (i.e., in the present). See Wackernagel 1926–1928 [2009]: 215–218 for discussion, as well as Schwyzer–Debrunner: 263–264, 286–287; Gildersleeve & Miller 1900: 99–100; Chantraine 1953 [2015]: 228–229. On the Pluperfect see Chantraine 1953 [2015]: 231; Wackernagel 1926–1928 [2009]: 238; Gildersleeve & Miller 1900: 103; Schwyzer–Debrunner: 287–288. The stative use of the Perfect comes in two main varieties based on the situation type of the predicate. It express what I call "attained states," which are typically built to transformative event verbs (i.e., achievements or accomplishments), of the type τέθνηκε 'is dead' to θνήισκω 'die' (e.g., *Il.* 7.328, 18.12). When combined with a transformative predicate, the Perfect asserts that there is a result state that holds at speech/evaluation time (t_0) and that that result state (in this case BE DEAD) is of the sort that follows from an event of the type denoted by the predicate (in this case DIE). Though this typically assumes a preceding event that has led to the result state expressed by the Perfect, the event itself is not part of the asserted content of a verb in the Perfect (i.e., it is not at issue). This is what distinguishes the stative from the resultative interpretation, which asserts the occurrence of an event of the type denoted by the predicate and only *implicates* that its result state still holds at speech/evaluation time (cf. Mittwoch 2008). When the Perfect morphology combines with a state predicate, on the other hand, there is no implication of a preceding event, since the lexical item does not itself denote an event. These are what I call "continuous states," of the type ἔολπα 'I hope' (e.g., *Il.* 20.186). Given that the Perfect built to non-states outputs stative meaning, it may be said to function as a "stativizer" (i.e., it converts events into states).

A.1.2 PROGRESSIVE-CONATIVE AND INTENSIVE-FREQUENTATIVE READINGS

Readings treated here have in common that they refer to events (not states) that are ongoing at the relevant assertion time, such that the eventuality time properly includes the assertion time ($t_E \supset t_A$), as in the first clause of *I was jogging* (t_E) *when my phone rang* (t_A). The progressive-conative is a basic interpretation available to the imperfective aspect (Comrie 1976: 32–40). See Deo 2020 for discussion and review of the semantic literature. I assume what decides whether any given imperfective occurrence will be interpreted as habitual or progressive/continuous-state to be largely a matter of pragmatics, and the semantics of these readings probably requires more machinery than is, for simplicity's sake, posited here (cf. discussion under Figure 1 above). I assume also the difference between the progressive and continuous-state interpretations to be determined by predicate type (cf. §A.1.1 above)

- Progressive-conative Imperfect: I group the progressive and conative readings of the Imperfect together, since I view the latter as simply a variety of the former (though nothing depends on this assumption). In its progressive use, the Imperfect characterizes an event as ongoing or incomplete in the past (Chantraine 1953 [2015]: 222), as seen above in (2b) and (A1) (cf. also

Il. 18.550–551). The conative variety refers to a specific kind of incomplete action such that the goal or termination of the action has not (yet) been achieved (Chantraine 1953 [2015]: 220–221; Gildersleeve & Miller 1900: 93–94), as shown in (A2) (cf. also (A15b) below).

(A2) CONATIVE IMPERFECT IN HOMER
πορφύρεον δ᾽ ἄρα κῦμα διιπετέος ποταμοῖο
ἵστατ᾽ ἀειρόμενον· **κατὰ** δ᾽ **ἤιρεε** Πηλείωνα (*Il.* 21.326–327).

'And the dark wave of the heaven-fed River
stood towering (over him), and **was seeking to/preparing to overwhelm** the son of Peleus'.

The negative of the conative use often expresses resistance or inability to achieve some goal or begin some process (cf. id.: 95–6, 106). This is similar to what is sometimes termed the "capacity reading" (cf., e.g., Green 2000), except that it can refer to specific occasions rather than generic attributes. I will call it here simply the "ability reading" (cf. below §A.2.2). Examples include: τὸν δ᾽ οὐ κύνες ἀμφεπένοντο 'But the dogs could not set to work on Hector' (despite their wanting to) (*Il.* 23.184); ἀλλ᾽ οὐχ ἥιρει φῶτας 'But he could not catch any man' (despite his trying to) (*Il.* 17.463).

- Intensive-frequentative Perfect: Under this label (also sometimes called "iterative-intensive") is the Perfect with non-stative "presential" interpretation, which often involves some sort of intensive or frequentative action. It is restricted to event predicates. See Wackernagel 1926–1928 [2009]: 215–216 for discussion, as well as Schwyzer–Debrunner: 263–264, 286–287; Gildersleeve & Miller 1900: 100–101; Chantraine 1953 [2015]: 228–229. Many, including Schwyzer–Debrunner (263), view this usage as original to the meaning of the Perfect, from which its stative use derives. The use is most common in Homer (Wackernagel 1926–1928 [2009]: 215) but does continue to be productive later, at least in Attic drama (see §A.2.2 below and cf. Gerö & von Stechow 2003: 271). Examples include: ἀλάληται 'wander about', βέβηκεν 'strides, keeps striding' (according to Wackernagel 1926–1928 [2009]: 216), πεποτήαται 'they flap about', and various noises such as βέβρυχεν 'roars, is/keeps roaring' (e.g., *Od.* 5.412). The Pluperfect of such verbs is simply their past-tense equivalent, as in ἀμφὶ δὲ πέτρη / δεινὸν βεβρύχει 'and the rock would roar/kept roaring terribly all around' (*Od.* 12.241–242).

  I have classed the intensive-frequentative Perfect with the progressive-conative readings for convenience. Strictly speaking, however, this "reading" really refers to a class of Perfects that function essentially as Present stems. Accordingly, their readings are not limited to progressive, but may be habitual (e.g., *Od.* 5.412), pluractional (e.g., *Od.* 12.242), inceptive (e.g., *Od.* 21.354), etc. Further, their synchronic status as "intensive" or "frequentative" in meaning does not necessarily hold in all cases. So, for instance, βέβηκεν/βεβήκει is often used to mean simply 'moves/moved' (as in *Il.* 16.69: Τρώων δὲ πόλις ἐπὶ πᾶσα βέβηκεν 'the whole city of the Trojans is moving [or 'is in motion'] against (them)').

A.1.3 RESULTATIVE READINGS

This use refers to an *event* whose direct effect or outcome (called "result state") continues to hold at the time of speech (or time of local evaluation). In the semantic literature it is regarded as one of the three or four basic readings of perfect aspect (Comrie 1976: 56–58; Kiparsky 2002: 113, 118–120),[63] though it should be noted that, cross-linguistically, perfective grams are also robustly resultative in their usage, such that both perfect and perfective aspect must be compatible with the

63. I.e., along with the experiential, universal, and stative readings. In Hollenbaugh 2018, this cluster of readings is referred

resultative interpretation (cf. Condoravdi & Deo 2014). The event referred to in a resultative expression (especially as expressed by the Aorist in Greek) is often located in the recent past relative to speech/evaluation time, though this is not a requirement. The recent past interpretation is referred to in the semantic literature as the "hot news" reading of the perfect aspect (since McCawley 1971; cf. Binnick 1991: 99), otherwise called the "recent past" reading (Comrie 1976: 60–61). However, I follow Kiparsky (2002: 120) in assuming that "the recent past reading is a special case of the resultative reading," since virtually all recent past readings are resultative (type *The article has just been published*, with a continuing result state) but not all resultatives are recent (type *She has long since retired*).

As discussed in Section 6.1.1 above, I assume that the resultative interpretation, like all "perfect-like" interpretations, requires that the assertion time include both eventuality time and evaluation time ($t_E \subseteq t_A \wedge t_A \supseteq t_0$) and that eventuality time at least partially precede evaluation time ($t_E \preceq t_0$). When the evaluation time coincides with speech time (t_S), the verb can be said to have "present reference," translatable typically by the English *have*-Perfect in the present. When t_0 is "back-shifted," such that it does not coincide with speech time but precedes it, the assertion time will necessarily precede speech time (but still include the back-shifted evaluation time) in a use called the "counter-sequential" reading (cf. §A.1.7 below). The difference between the resultative and the experiential (§A.1.4) and universal (§A.1.5) readings of the perfect aspect is a much debated topic. I assume that these all reflect the same basic aspectual relation, as just described, and that a mixture of semantic and pragmatic effects, such as predicate type and context, are responsible for the differences. Some support for this view comes from the fact that one and the same predicate can have different perfect readings under different circumstances. Compare the resultative perfect *I have (just) thrown the ball on the roof* (and I can't get it down; result state holds at speech time) versus the experiential *I have thrown the ball on the roof (before)* (so now I know to be more careful; result state does not hold at speech time but "consequent state" does). The difference between the resultative and experiential is thus a matter of whether the result state holds at evaluation time or not, while in the universal reading the eventuality time interval is "stretched" from some point in the past typically all the way to the evaluation time ($t_E \supset t_0$), though this is not strictly required (see discussion below, §A.1.5).

- Resultative Aorist: The resultative use of the Aorist is quite common at all stages of Greek (Schwyzer–Debrunner: 281–282 "confective") but nowhere more so than in Homer, as has been argued extensively above (§5.4). It often refers to the result of a recent past event and frequently co-occurs with adverbials meaning 'now' (e.g., νῦν 'now', ἤδη 'already, (by) now'), 'just now' (e.g., ἄρτι 'just, now, presently'), or 'again' (αὖ), though this is not a requirement (Wackernagel 1926–1928 [2009]: 227; as, e.g., ἐβόησας 'have you [just] cried out' *Od.* 9.403–404). For discussion of this reading in the Greek grammatical literature, with further examples, see Hollenbaugh 2018: 40–49; Chantraine 1953 [2015]: 214; Wackernagel 1926–1928 [2009]: 227; Delbrück 1879: 107–108; 1897: 280–281. I provide an example of a resultative Aorist with present reference in (A3).

  (A3) RESULTATIVE AORIST IN HOMER
  νῦν μὲν γὰρ Μενέλαος **ἐνίκησεν** σὺν Ἀθήνηι (*Il.* 3.439).

  'This time Menelaus **has beaten** me with Athena's help' (ex. and tr. Wackernagel 1926–1928 [2009]: 227).

to collectively under the label "constative." However, this practice is to be abandoned, due in part to the fact that the name "constative" is used elsewhere in the Greek grammatical literature to refer to the so-called "statement-of-fact" or "factive" use of the Aorist (e.g., Purdie 1898).

In contexts in which the assertion time precedes the speech time, as in clauses that depend on a past-referring main verb, the Aorist designates anteriority/counter-sequentiality and, as such, is the most regular means of expressing anteriority at all stages of Greek (cf. §A.1.7 below). A parallel passage containing a single Aorist form (συμφράσσατο) in both the anterior resultative and the plain resultative use is *Il.* 1.537 ('had plotted') and 540 ('has plotted').

- Resultative Imperfect?: The Imperfect does not typically have a resultative function, at least not with present reference, though cf. its counter-sequential use below (§A.1.7), which may be understood in most instances as resultative *in the past* (cf. discussion just above). Some possible cases of the resultative Imperfect with present reference exist, however. Cf. Wackernagel's (1926–1928 [2009]: 224) interpretation of νεόμην at *Od.* 4.585 as 'I have (now) returned home' (cf. Hollenbaugh 2018: 36), though this may be better taken as an inceptive Imperfect ('I set out for home') (cf. Wackernagel 1926–1928 [2009]: 224, n.12). Another possible example of this sort is *Il.* 1.335–336: ἄσσον ἴτ᾽· οὔ τί μοι ὔμμες ἐπαίτιοι, ἀλλ᾽ Ἀγαμέμνων, / ὃ σφῶϊ **προΐει** Βρισηΐδος εἵνεκα κούρης 'Come closer; it is not you who are blameworthy to me, but rather Agamemnon, who **has sent** you **forth** for the girl Briseis'. Given that the result state of Agamemnon's "sending" action still holds at the time of Achilles' quoted speech, it is reasonable to assume that this example represents the resultative reading of the Imperfect with present reference. In addition, the Ipf. ἄκουον means 'have heard of' at *Od.* 3.193 and 18.126, referring to knowledge attained by hearing (cf. Wackernagel 1926–1928 [2009]: 236), though these may be better classed as experiential (see below). Interestingly, this "perfect-like" value of the Imperfect is distinct from that of the Aor. ἄκουσα in its resultative use, which typically refers to hearing something directly, rather than hearing about it, thus 'have heard (a sound or speaker)' (e.g., *Il.* 24.223, and cf. (A5) below). Another possible example is *Od.* 1.234: νῦν δ᾽ ἑτέρως ἐβόλοντο θεοί 'But now the gods have chosen otherwise'. Such readings are, of course, not incompatible with neutral aspect, and I attribute the scarcity of the resultative Imperfect to blocking on the part of the Aorist (cf. §6.2.1 above).

- Resultative Perfect: This refers to the use of the Perfect in a meaning similar to that of the resultative Aorist, to designate not a state but an event (typically in the recent past) whose effects or "result state" still hold at speech/evaluation time. The use is quite rare in Homeric proper (i.e., Homer, Homeric hymns, and Hesiod), where it occurs mostly in dependent clauses in the passive (e.g., *Od.* 22.55–56) and possibly in the active (*Il.* 21.155–156, though this may be better classed as concentrative (cf. §A.1.6 below)). An example in a main clause may be observed for the verb βεβίηκεν 'has overpowered', given in (A4a) (similarly at *Il.* 10.172; cf. Chantraine 1953 [2015]: 230–231). Note that this example cannot be read as stative ('is overwhelmed'), not only judging from its context but because it has a subject that is not an experiencer and an accusative object that is a patient of the action of the verb, whereas statives typically have experiencer *subjects* and take accusative objects that are not patients (such as οἶδα 'know' or ὄπωπα 'see', with an accusative of what is known or seen; cf. id.: 229–230). The resultative use becomes more common beginning in lyric. Sappho (Sapph., c. 600 BCE) has a likely example in a main clause, given in (A4b).

(A4) RESULTATIVE PERFECT IN ARCHAIC GREEK

a. μὴ νεμέσα· τοῖον γὰρ ἄχος **βεβίηκεν** Ἀχαιούς (*Il.* 10.145 = 16.22).

'Don't be offended; for such sorrow **has overwhelmed** the Achaeans'.

b. **δέδυκε** μὲν ἀ σελάννα
καὶ Πληΐαδες, μέσαι δέ

νύκτες (Sapph. *fr.* 168B.1–3).

'The moon **has set**
along with the Pleiades,
and (it is) midnight'.

The Pluperfect can have resultative interpretation from the perspective of the past (Chantraine 1953 [2015]: 231). This amounts to an anterior or "counter-sequential" use (discussed in §A.1.7 below). Yet the line between this and the past stative use of the Pluperfect (cf. §A.1.1 above) is not always clear: cf., e.g., τὸν δ᾽ ἔλιπε ψυχή, κατὰ δ᾽ ὀφθαλμῶν **κέχυτ᾽** ἀχλύς 'and his spirit left him, and down over his eyes a mist **was/had been shed**' (*Il.* 5.696). Examples like this seem even to approach the concentrative-sequential use of the Pluperfect (cf. §A.1.6 below).

A.1.4 Experiential readings

This reading refers to an eventuality whose consequent state holds at speech/evaluation time but not its result state (type *I have been to Paris*). In the semantic literature, the experiential reading is treated as a reading of the perfect aspect (Comrie 1976: 58–59; Kiparsky 2002: 113). It is sometimes called "existential" (McCawley 1971; Gerö & von Stechow 2003). The experiential interpretation is especially compatible with pluractional interpretation cross-linguistically, of the type 'I have often wondered about that' (cf. E. Dahl 2010: 78–79). Cf. §A.1.3 and §6.1.1 above for a discussion of the semantics of this use and how it differs from the other "perfect-like" readings.

- Experiential Aorist: This use of the Aorist typically occurs with adverbs like πολλάκι(ς) 'often', ἤδη 'already', or πω 'yet' (cf. E. Dahl 2010: 78–79, 300–301). For a discussion of the experiential Aorist in Homer, with examples, see Hollenbaugh 2018: 33, 43. On the use in Greek generally see Smyth 1956: 431–433 and Gildersleeve & Miller 1900: 108, 112 ("Empiric(al) Aorist"). I provide an example with present reference in (A5).

  (A5) Experiential Aorist in Homer
  πολλάκι γάρ σεο πατρὸς ἐνὶ μεγάροισιν **ἄκουσα** (*Il.* 1.396).

  'For I **have** often **heard** you in the halls of my father' (cf. similarly *Od.* 14.198).

  An example in the negative is to be found at *Od.* 19.350–351. When the experiential Aorist occurs in past-referring contexts, it is classified as counter-sequential/anterior (type *She knew how to find it because she had been there before*), for which see §A.1.7 below.

- Experiential Imperfect?: This refers to the Imperfect designating a past eventuality whose consequent state holds at speech time (t_S) or a salient reference point in the past (t_0). Compare the Russian past Imperfective in (present) experiential use (Forsyth 1970: 15 (cf. 42)). This use is not uncommon under negation with (relative) *past* time reference, treated under "counter-sequential" (cf. §A.1.7 below). Examples of *present*-referring experiential Imperfects in Homer are scarce but not unattested. *Od.* 16.241 shows a solidly experiential use of the Imperfect: σεῖο μέγα κλέος αἰὲν **ἄκουον** 'I**'ve** always **heard of** your great fame' (contrast the experiential use of the Aorist in (A5) above). Another such example is to be found at *Od.* 19.340–342: ὡς τὸ πάρος περ ἀΰπνους νύκτας **ἴαυον** 'as I**'ve spent** sleepless nights before' (similarly *Od.* 22.462–464; cf. Chantraine 1953 [2015]: 221). Such readings are, of course, not incompatible with neutral aspect, and I attribute the scarcity of the experiential Imperfect to blocking on the part of the Aorist and Perfect (cf. §6.2.1 above).

- Experiential Perfect: Despite Gerö & von Stechow 2003, there are multiple clear experiential

uses of the Perfect already in Homer, as in (A6) (cf. Wackernagel 1926–1928 [2009]: 218–219, 227 and Chantraine 1953 [2015]: 230; another example may be found at *Il.* 1.278).

(A6) EXPERIENTIAL PERFECT IN HOMER
ἦ δὴ μυρί᾽ Ὀδυσσεὺς ἐσθλὰ **ἔοργεν**
βουλάς τ᾽ ἐξάρχων ἀγαθὰς πόλεμόν τε κορύσσων,
νῦν δὲ τόδε μέγ᾽ ἄριστον ἐν Ἀργείοισιν ἔρεξεν (*Il.* 2.272–274).

'Truly Odysseus **has done**$_{[PF.]}$ countless good deeds as leader in good counsel and waging war, but now he has done$_{[AOR.]}$ *this*, the best (thing) by far among the Argives'.

A.1.5 UNIVERSAL READINGS

By *universal* I refer to what is typically called the "universal" reading of the perfect in the semantic literature, of the type 'have been doing/being X (for/since some time)' (cf., e.g., Comrie 1976: 60; Klein 1994: 112–113 "perfect of persistent situation"; McCawley 1971; Binnick 1991: 98–99: called "universal" because its logic involves the universal quantifier "all" (∀)—the event or state extending throughout the entirety of the relevant interval). This refers to some event or state initiated some time ago and continuing up to the present moment (or local evaluation time). Cf. §A.1.3 and §6.1.1 above for a discussion of how this use differs from the other "perfect-like" readings.

I take the universal reading to refer to eventualities that continue up *to* speech time, of the type *I have been working all afternoon (and am finally finished)*, as well as those where the eventuality time continues *through* speech time, of the type *I have been working since noon (and will continue for some time)*. The former type I take to be the realization of the relation $t_E = t_A \wedge t_A \supset t_0$ (i.e., eventuality time is coextensive with assertion time, which in turn includes the speech/evaluation time), which is available under the denotations of perfect, Type 1 perfective, simple past, or Type 2 (present) imperfective grams, and so is possible at the Classical and post-Classical stages of Greek for the Perfect (or Pluperfect with past reference), Aorist, and Present indicative. The latter type of universal reading (i.e., eventuality continues *through* speech time) I take to be the realization of $t_E \supset t_A \wedge t_A \supset t_0$, which is available under the denotation of imperfective aspect in general, whence the use of the Present indicative to express this in the present time (Smyth 1956: 422–423, §1885) and the Imperfect to express it in the past (id.: 424, §1892), though the Imperfect can also occasionally be used to designate a present universal as well (see below). In the Classical language, when the Perfect is used to express universal meaning, the eventuality typically does not continue through speech time (id.: 423) or, in the past, through evaluation time (id.: 424). This is in contrast to the Present, for which the eventuality typically does continue through speech/evaluation time.

Further, the universal reading may refer either to states (as in *I have lived in LA for six years now*) or to events (as in the examples of the preceding paragraph). The universal to state predicates is typically expressed in Greek (particularly post-Homeric) by the Perfect (cf. Gerö & von Stechow 2003: 273–9) and (very marginally) the Aorist, though the Present is also so used. The universal to event predicates continuing to/through the speech time is expressed at all stages of Greek by the Present indicative (of the type πάλαι θαυμάζω 'I have long been wondering'; cf. Smyth 1956: 422–423), and in Homer especially with the adverb πάρος 'formerly, up to now' (Chantraine 1953 [2015]: 221). Yet the Perfect and occasionally the Aorist are also found to event predicates in this use (cf. (A8) and (A12) below). The use is increasingly prevalent among Perfects in the Classical period (cf. §A.2.5 below and Gerö & von Stechow 2003: 274–275).

- [Universal Aorist?]: To state predicates an example or two of the Aorist in Homer may possibly

be considered "universal." In (A7) Antilochus has been held in the favor of Zeus and Poseidon the whole of his young life, up to the present time.

(A7) UNIVERSAL AORIST IN HOMER(?): STATE PREDICATE
Ἀντίλοχ᾽, ἤτοι μέν σε νέον περ ἐόντ᾽ **ἐφίλησαν**
Ζεύς τε Ποσειδάων τε, καὶ ἱπποσύνας ἐδίδαξαν (*Il.* 23.306–307).

'Truly, Antilochus, Zeus and Poseidon **have loved** you, despite your being young and they have taught (you) all sorts of horsemanship'.

It is certainly possible, however, that ἐφίλησαν is better classed with the "stative" Aorist discussed above and translated 'Zeus and Poseidon love you despite your youth'. Another possible but uncertain example is *Od.* 9.513: ἀεί τινα φῶτα. . . **ἐδέγμην**. . . ἐλεύσεσθαι 'I **have(?)** always **expected** that a man would come' (cf. also *Il.* 6.126). Remarkably, Homer may attest the universal use of the Aorist even to event predicates, provided the verb has a multiple-event reading, as in (A8).

(A8) UNIVERSAL AORIST IN HOMER(?): ACHIEVEMENT PREDICATE
ῥεῖα δ᾽ ἀρίγνωτος γόνος ἀνέρος ὧι τε Κρονίων
ὄλβον ἐπικλώσηι γαμέοντί τε γεινομένωι τε,
ὡς νῦν Νέστορι **δῶκε** διαμπερὲς ἤματα πάντα (*Od.* 4.207–209).

'For easily recognizable is the offspring of a man for whom the son of Cronos spins happiness both at marriage and at birth,
as he **has given/been giving** Nestor now continuously all his days'.

Yet it is possible that the adverbials in (A8) refer to the result state rather than to the event itself, as when we say *I went home for the rest of the day* we do not mean that the process of going home lasted all day but that the result state of *being* at home did (cf. n.69 below). If so, the Aorist in (A8) is simply resultative like so many others (cf. similarly *Il.* 1.96). Due to the uncertainty of these examples, I regard the universal use as not securely attested for the Aorist at the Archaic stage (contrast the Present in this use, e.g., at *Il.* 14.269).

- Universal Imperfect: The Imperfect in Homer is attested in a universal perfect value with past reference time, as shown in (A9), where the 'watchman' is still at his post keeping watch at the time of narration ($t_E \supseteq t_A$), and we are told that he has been doing so continuously for an entire year up to this point (when he sees Agamemnon).

(A9) UNIVERSAL IMPERFECT IN HOMER: PAST REFERENCE
τὸν δ᾽ ἄρ᾽ ἀπὸ σκοπιῆς εἶδε σκοπός, ὅν ῥα καθεῖσεν
Αἴγισθος δολόμητις ἄγων, ὑπὸ δ᾽ ἔσχετο μισθόν,
χρυσοῦ δοιὰ τάλαντα· **φύλασσε** δ᾽ ὅ γ᾽ εἰς ἐνιαυτόν,
μή ἑ λάθοι παριών (*Od.* 4.524–527).

'And from his post a watchman saw him, whom
deceitful Aegisthus had taken and stationed there, for he had offered as payment two talents of gold; and he **had been keeping watch** for a year,
lest (Agamemnon) should pass by him unnoticed'.

This reading may be viewed as the past equivalent (counter-sequential) of the Present universal construction mentioned at the beginning of this section (e.g., *Il.* 14.269, 18.386, *Od.* 2.89–90; on the use see Chantraine 1953 [2015]: 221; Smyth 1956: 424, §1892). It may alternatively be viewed as a special case of the progressive use of the Imperfect ('was doing up

until' and so '*had been* doing'). Cf. similarly *Il.* 23.871: ἔχεν πάλαι 'had long been holding'. For further Homeric examples see Gildersleeve & Miller 1900: 98.

Remarkably, the Imperfect can also have *present* reference in its universal perfect use, as shown in (A10)—so interpreted by most translators, since the action continues up to the time of the utterance in quoted speech. Such a use is entirely expected of a simple past tense (cf., e.g., the Middle English Preterite (Fischer 1992: 245)), as it is aspectually neutral ($t_E \circ t_A$), and the relation "$t_A \preceq t_0$" only requires the eventuality time to *partially* precede the evaluation time (see (20) above).

(A10) UNIVERSAL IMPERFECT IN HOMER: PRESENT REFERENCE
ἤτοι ὃ τῆς ἀχέων φρένας **ἔφθιεν** (*Il.* 18.446).

'Truly he **has been consuming** his heart grieving for her'.

- Universal Perfect: This use is rare in the Homeric language. The most likely example is to the state predicate ἀφίστημι 'stand back, keep away' in (A11), where it is coordinated with a Present. It is possible, however, to read πάρος 'formerly, up to now' as scoping only over the participle φέροντες 'bearing' and reading the Perfect and Present as present habitual (so Chantraine 1953 [2015]: 229). Still, given the context, in which a specific group of people is referred to, it seems to me more likely that both represent universal perfects—the Perfect used for the state predicate, the Present for the event predicate (as in Classical Greek).

(A11) UNIVERSAL PERFECT IN HOMER: STATE PREDICATE
ἄλλους δ᾽ ὀτρύνοντες ἐνήσομεν, οἳ τὸ πάρος περ
θυμῷ ἦρα φέροντες **ἀφεστᾶσ᾽**$_{[PF.]}$ οὐδὲ μάχονται$_{[PRES.]}$ (*Il.* 14.131–132).

'But spurring them on we will send the others in (to battle), who, even until now, giving in to their resentment, **have been staying away**$_{[PF.]}$ and have not been fighting$_{[PRES.]}$'.

There are two possible examples of universal Perfects built to event predicates, one of which is given in (A12) (cf. similarly *Il.* 24.765–766). However, these are probably better treated as belonging to the stative use ("attained state"; cf. §A.1.1 above) whose result state is asserted to have obtained for a particular duration (similarly Hes. *WD* 385–386 and, with a Pluperfect, *HH* 3.91–92, though cf. (A22) below and Hollenbaugh 2018: 43). Similar are stative-resultative examples like ἐννέα δὴ **βεβάασι** Διὸς μεγάλου ἐνιαυτοί 'Truly (now) nine years of mighty Zeus **have/are gone by**' (*Il.* 2.134).

(A12) UNIVERSAL PERFECT IN HOMER?: EVENT PREDICATE
ἐννῆμαρ δὴ νεῖκος ἐν ἀθανάτοισιν **ὄρωρεν** (*Il.* 24.107).

'For nine whole days strife **has stirred/been roused** among the immortals'.

A.1.6 CONCENTRATIVE READINGS

Under this label (cf. n.9 above) I refer to readings that involve an eventuality that is fully included in assertion time ($t_E \subset t_A$), which is located in the past ($t_A \prec t_0$). In the semantic literature the reading is typically classed as a function (or *the* function) of the perfective aspect, in which the event is "viewed from without," as a "complete" and "bounded whole," without emphasis on its "internal structure" (cf., e.g., Comrie 1976: 18; Klein 1994: 102–103, 109–110; Smith 1997: 66–69).[64] This is in contrast to readings more typical of imperfective aspect, such as the progressive, in which an

64. Cf. also Wackernagel 1926–1928 [2009]: 225–226 for an insightful discussion of the notion of "completeness" as it relates to past tense and the aspect of the Greek Aorist in particular.

event is "viewed from without," as "incomplete," "unbounded," and with attention to its "internal structure." The concentrative use is found in contexts of sequential narration, of the type *I tripped and fell* (cf. E. Dahl 2010: 78), or when the event is explicitly stated to have held at or within a certain time, of the type *While I was running, my phone* ***rang*** or *I* ***was insulted*** *on that occasion*. The sequential-narrative use is thus a special case of the concentrative reading, and not all functional categories compatible with concentrative interpretations will necessarily be used to sequence events in narration. Further, concentrative is by no means the only reading possible in sequential narration; the inceptive, pluractional, and (occasionally) complexive readings are also used to sequence events chronologically.

- Concentrative-sequential Aorist: This is generally assumed to be the Aorist reading *par excellence* (cf. n.10 above), referring to a single event in its entirety, located at some time in the past, without further elaboration as to the "internal structure" of the event (cf. n.25 above). On the concentrative Aorist in Homeric Greek see most recently Hollenbaugh 2018: 30–31, 33, 44, in addition to Chantraine 1953 [2015]: 213–214 and the standard handbook treatments of Greek syntax more generally (e.g., Schwyzer–Debrunner: 280–281; Wackernagel 1926–1928 [2009]: 224–225, 233–236; Delbrück 1879: 102–106). Examples of this common use of the Aorist in Homer are to be found above in Section 1.1 (1), as well as (24b) in Section 6.3.1 (cf. also *Il.* 1.432–433). Most examples of this reading are to verbs belonging to a transformative situation type (viz. achievement or accomplishment), but activities and stage-level states are also possible (cf. n.18 above), provided that the predicate as a whole is telic (e.g., *Il.* 23.114–119; *Od.* 3.151–152, 3.490, 15.188).

- Concentrative-sequential Imperfect: This use, with examples, is treated above in Section 1.1 (1) and §5.1 (cf. also (24a) in §6.3.1). It refers to the Imperfect in a use very similar (or identical) to that just described for the Aorist. On this use of the Imperfect in Homer (and Ancient Greek in general) see especially Wackernagel 1926–1928 [2009]: 235; Friedrich 1974: 14–16; Schwyzer–Debrunner: 276–277; Kühner–Gerth: 143–144; and the extensive treatment in Hollenbaugh 2018: 28–39, with further examples.

- [Concentrative Perfect?]: This refers to the Perfect tense used in simple "preterital" contexts such that eventuality time is fully included in assertion time ($t_E \subset t_A$), as is more typical of the Aorist and Imperfect just discussed. Such Perfects do not designate present states but, paradoxically, past events. However, the Perfect is not used in sequential narration in Homeric/Archaic Greek (contrast Classical and post-Classical usage below), certain regular lexical exceptions notwithstanding (see Chantraine 1948 [2013]: 301). This use is generally seen as a late-stage development of the Perfect (by which time it may be understood as a perfective gram), yet at least one non-sequential concentrative example in Homer seems secure (despite Chantraine 1953 [2015]: 230), given in (A13).

  (A13) CONCENTRATIVE PERFECT IN HOMER(?)
  ναὶ μὰ τόδε σκῆπτρον· τὸ μὲν οὔ ποτε φύλλα καὶ ὄζους
  φύσει, ἐπεὶ δὴ πρῶτα τομὴν ἐν ὄρεσσι **λέλοιπεν** (*Il.* 1.234–235).

  '(I will swear) by this scepter, which will never sprout leaves and shoots,
  [and it hasn't done so] since first it **left** its stump in the mountains'.

  Here, the Perfect occurs in a temporal clause that must refer to action anterior to the state described by φύσει, which makes it difficult to read this as stative ('is gone (from)'). Further, the adverb πρῶτα clearly restricts the time reference of the act of leaving to the (remote) past ('since first it left'). This makes it difficult to read λέλοιπεν as resultative 'has left' (compare the

ungrammaticality of English **I have first done this*). Finally, the fact that the main verb is in the Future tense rules out a counter-sequential reading ('since it had left'). Another possible example, but without πρῶτα, may be found at *Il.* 21.156 (but cf. §A.1.3 above).

By contrast, the Pluperfect in Homer, at least for certain lexical items, often has a concentrative interpretation and is even used in sequential narrative contexts (see Wackernagel 1926–1928 [2009]: 238 for discussion with examples), as in the formula **ὀρώρει** δ᾽ οὐρανόθεν νύξ 'and night **emerged** from heaven' (e.g., *Od.* 5.294). Other Pluperfects commonly found in the concentrative function include βεβλήκει 'struck, smote' (e.g., *Il.* 5.66) and βεβήκει 'went' (e.g., *Il.* 1.221). This usage is Archaic only, not occurring in Attic (Wackernagel 1926–1928 [2009]: 238). The Pluperfect, which Schwyzer–Debrunner (287) call the "Imperfekt zum Perfekt", loses its concentrative-sequential usage over time, in a manner similar to (though earlier than) the Imperfect, even while the Perfect is itself acquiring concentrative-sequential uses (as it grammaticalizes towards being a perfective gram; cf. §A.2.6 below).

A.1.7 Counter-sequential readings

This reading is variously called "counter-sequentiality" (Givón 2001: 293–296), "out-of-sequence" narration (Bybee et al. 1994: 62), "relative past" time (E. Dahl 2010: 11), or simply "anteriority." I refer to the reading as "counter-sequential" or "relative past" and to the contexts that license it (whether dependent or independent clauses) as "anterior" contexts. The counter-sequential reading locates an eventuality in the past prior to some other past eventuality or vantage point (as when t_0 is "past shifted"). It is generally considered in the semantic literature to be a reading of the perfect aspect (Klein 1994: 130–133; Comrie 1976: 53, 55–56, 81), most commonly expressed across languages by the (plu)perfect, perfective, or simple past gram types (cf. Bybee et al. 1994). Strictly speaking, this reading is not independent from the other readings of the perfect aspect and, accordingly, can have a resultative (type *had been born*), experiential (type *had been to Paris*), or universal (type *had been doing*) nuance. The last of these has already been treated in Section A.1.5 above. In anterior contexts the distinction between these perfect values and the concentrative reading is typically neutralized: Compare English *We told them that we had already met* (experiential perfect) vs. *We told them where we had met for dinner last night* (concentrative). The former embeds *we have already met* (Perfect), the latter embeds *we met for dinner last night* (Preterite). This neutralization seems to hold also in Greek.

- Counter-sequential Aorist: The Aorist is the preferred means of expressing anteriority in subordinate clauses at all stages of Ancient Greek (cf. Delbrück 1879: 106–107; Rijksbaron 2002: 20). This is especially true in Homer, where the Pluperfect is dispreferred in anterior contexts. A discussion of the counter-sequential Aorist in Homer, with further examples, is to be found in Hollenbaugh 2018: 40–41. Chantraine (1953 [2015]: 214) acknowledges the use in Homer, with examples, though he is reluctant to view it as "proper value" of the Aorist. In my view, since the Aorist is plainly grammatical in anterior contexts—and indeed is preferred in them—then the counter-sequential reading is as proper to it as any other. In (A14) we find the Aorist used in "anterior" contexts, which may have a resultative (τολύπευσε 'had accomplished') or experiential (πάθεν 'had endured') nuance.

(A14) Counter-sequential Aorist in Homer
ἠδ᾽ ὁπόσα **τολύπευσε** σὺν αὐτῷι καὶ **πάθεν** ἄλγεα (*Il.* 24.7).

'And (Achilles would brood on) all that he **had accomplished** with him (Patroclus) and all the woes he **had endured**'.

- Counter-sequential Imperfect: This is a fairly common use of the Imperfect in Homer, which, again, may have a resultative (A15a) or an experiential nuance (A15b) (cf. similarly *Il.* 5.702, 13.521, 17.377, 22.437). For a discussion of the use in Homer see Hollenbaugh 2018: 37–38, and cf. Delbrück 1897: 269; Friedrich 1974: 15. Cross-linguistically, simple past grams (like the Imperfect), being neutral in aspect, are commonly employed in counter-sequential function, especially when no perfect(ive) or pluperfect grams exist in the language (Comrie 1976: 58; cf., e.g., the Old and Middle English Preterite (Traugott 1992: 183; Fischer 1992: 245)).

  (A15) COUNTER-SEQUENTIAL IMPERFECT IN HOMER

  a. Ἕκτωρ μὲν Πάτροκλον ἐπεὶ κλυτὰ τεύχεˀ **ἀπηύρα**$_{[\text{IPF.}]}$,
  εἶλχˀ$_{[\text{IPF.}]}$ (*Il.* 17.125–126).

  'But Hector, when he **had stripped**$_{[\text{IPF.}]}$ from Patroclus the glorious armor,
  began dragging$_{[\text{IPF.}]}$ (him)'.

  b. ὣς ἔφεπε$_{[\text{IPF.}]}$ κλονέων πεδίον τότε φαίδιμος Αἴας,
  δαΐζων ἵππους τε καὶ ἀνέρας. οὐδέ πω Ἕκτωρ
  πεύθετ'$_{[\text{IPF.}]}$, ἐπεί ῥα μάχης ἐπˀ ἀριστερὰ μάρναto$_{[\text{IPF.}]}$ πάσης (*Il.* 11.496–498).

  'Thus glorious Ajax, routing (them), drove$_{[\text{IPF.}]}$ (them) over the plain at that time,
  slaying both horses and men. But Hector **had** not yet **learned**$_{[\text{IPF.}]}$ (about this),
  since he was fighting$_{[\text{IPF.}]}$ on the left of the whole battle'.

- Counter-sequential Pluperfect: The plain Perfect does not seem to be capable of use in anterior contexts in Homer. However, the Pluperfect can be used, at least in a main clause, to refer to past action that is anterior to some other action in the past (Chantraine 1953 [2015]: 231), as in (A16). Here, Sarpedon has just killed Tlepolemus by striking him on the neck, but we are told that, before his death, Tlepolemus 'had struck' (βεβλήκειν) Sarpedon a powerful blow as well.

  (A16) COUNTER-SEQUENTIAL (RESULTATIVE) PLUPERFECT IN HOMER
  τὸν δὲ κατˀ ὀφθαλμῶν ἐρεβεννὴ νὺξ ἐκάλυψεν·
  Τληπόλεμος δˀ ἄρα μηρὸν ἀριστερὸν ἔγχεϊ μακρῷι
  βεβλήκειν, αἰχμὴ δὲ διέσσυto μαιμώωσα (*Il.* 5.659–661).

  'And down upon his eyes dark night enshrouded him (Tlepolemus).
  But Tlepolemus **had [already] struck** (Sarpedon) upon the left thigh
  with his long spear, and the point had sped through ravenously'.

  Another example, if it is regarded as a Pluperfect (cf. Cunliffe 2012: 408), is ἐφθίατο 'had perished' at *Il.* 1.251 (contrast stative Pf. ἔφθιται 'is dead' at *Od.* 20.340, on which cf. §A.1.1 above).

A.1.8 INCEPTIVE READINGS

By *inceptive* (also called "ingressive," for the Aorist, and "inchoative," for the Imperfect) I refer to a verb of any functional category (mostly Aorist or Imperfect) that in some context means "began to be/do X," where X is the lexical meaning of the verb. References to handbook treatments are given for each functional category below. An extensive treatment of the inceptive use of the Aorist and Imperfect in Greek is now to be found in Hollenbaugh 2020b, which demonstrates a near-complementary distribution of the Aorist and Imperfect in inceptive use. The Aorist inceptive is built only to state or state-like predicates that have experiencer subjects (such as ἐβασίλευσε 'became king' or ἐδάκρυσε 'started weeping'), whereas the Imperfect inceptive may be built to any kind of predicate (state, activity, or accomplishment). In other words, in inceptive contexts the Aorist is restricted to a certain class of lexical items, while the Imperfect is not. As noted above

(§A.1.6), the inceptive use frequently occurs in sequential narration, often alongside concentrative (or other terminative) readings.

Hollenbaugh 2020b also includes a semantic analysis of inceptives, treating the Aorist and Imperfect inceptive as related but distinct phenomena. To discuss the details here would bring us too far afield, but we may observe that the inceptive use of the Imperfect is entirely predicted under a "neutral aspect" semantics, since the inceptive interpretation arises when t_A partially overlaps with t_E, such that the beginning (left edge) of t_E is located within t_A, as shown in Figure 8.

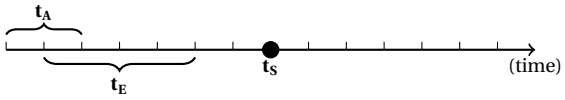


FIGURE 8: Inceptive interpretation (NEUTRAL aspect, past tense)

For perfect(ive) aspect, the matter is trickier, since this requires t_E to be included in t_A, with which Figure 8 is plainly incompatible. Following Bary & Egg (2012: 123–124), Hollenbaugh 2020b supposes a "coercion operator" "INGR" for the Aorist (see there for details), which maps unbounded predicates (states) onto bounded ones (the perfect(ive) aspect), converting the state predicate to an inceptive *event* that is included in t_A, thereby satisfying the semantic requirement of prefect(ive) aspect that $t_E \subseteq t_A$. This correctly predicts that, at the Archaic stage, the inceptive readings of the Aorist should arise only to state predicates, in contrast to the Imperfect, which is unrestricted by predicate type in this use.

- Inceptive Aorist: This is usually called "ingressive" in the literature, referring to the use of the Aorist to designate the entry into a state. It is restricted to state (or "state-like") predicates. For discussion and examples in the Greek grammatical literature see Smyth 1956: 430; Rijksbaron 2002: 20–21; Gildersleeve & Miller 1900: 104–105; Kühner–Gerth: 155–157; Goodwin 1889: 24. On the inceptive interpretation of perfective aspect cross-linguistically see (e.g.) Comrie 1976: 19–20 and Binnick 1991: 154. An example from Homer is (A17) (cf. also (2b) above and *Il.* 1.595–596, *Od.* 11.55 (= 395)).

  (A17) INCEPTIVE AORIST IN HOMER: STATE PREDICATE
  ὣς ἔφατ᾽, **ἔδδεισεν** δὲ βοῶπις πότνια Ἥρη (*Il.* 1.568).

  'Thus he spoke, and ox-eyed queen Hera **was seized with fear**'.

  Wackernagel (1926–1928 [2009]: 224) and Jacobsohn (1933: 308–309) suggest that the Greek Aorist inceptive may be an innovation, as it is rare in Homer (in competition with the inceptive Imperfect) and virtually lacking in Vedic Sanskrit (but cf. E. Dahl 2010: 293–296, following Delbrück 1897: 239–240 and Hoffmann 1967: 157–158).

  While as a rule the Aorist is only inceptive when built to state predicates in Homer (see above), some Homeric Aorists to activity predicates may admit of an inceptive interpretation, though none seem securely to require this reading. Such potential cases include: ἔβησαν, perhaps sometimes to be read 'set out' (e.g., *Od.* 5.107–108, followed by description of the return journey); ἤλασεν 'started driving(?), drove' (*Il.* 23.514); κομίσαντο 'began tending(?), rescued' (*Il.* 1.594). Probably unexceptional is ἠγήσατο 'became leader' (*Od.* 2.405=3.29=7.37, 5.192), understanding ἡγέομαι as a state predicate 'be leader'.

- Inceptive Imperfect: This is often called "inchoative" in the literature, referring to the use of the Imperfect to designate the entry into a state or event (most often activity predicates). It

is unrestricted by predicate type, though achievements are dispreferred for practical reasons. For discussion and examples in the Greek grammatical literature see Rijksbaron 2002: 17–18, 21; Schwyzer–Debrunner: 277; Chantraine 1953 [2015]: 222; Jacobsohn 1933: 308–309. On the inceptive interpretation of imperfective aspect cross-linguistically see Hedin 2000: 250–252. Examples from Homer are in (A18) (cf. also (A15a) above and *Il.* 1.467–468, 9.662).

(A18) INCEPTIVE IMPERFECT IN HOMER: ACTIVITY AND STATE PREDICATES

a. τοῖσιν δὲ Χρύσης μεγάλ᾽ **ηὔχετο** χεῖρας ἀνασχών (*Il.* 1.450).

'Then Chryses, having lifted up his hands, **started praying** aloud for them'.

b. ἀλλ᾽ αὕτως ἀποβάντες **ἐκείμεθα** νηὸς ἄπαντες (*Od.* 13.281).

'But having disembarked from the ship in such a state, we all **lay down**' (ex. Chantraine 1953 [2015]: 222).

The supposed scarcity of inceptive Imperfects in Homer, said to become more common later on (Friedrich 1974: 10), along with the rarity of the inceptive Aorist compared to later Greek (cf. above) accords with the proposal of Hollenbaugh 2018 (followed here) that the Homeric verb system does not yet make a categorical contrast between perfective and imperfective aspect (whereas Classical Greek does).

- Inceptive Pluperfect: At the Archaic stage, the Perfect seems not to have inceptive as a use, though perhaps some of its resultative readings could be counted here. However, in the Pluperfect some of the same verbs that favor concentrative-sequential readings (cf. §A.1.7 above) may also show inceptive readings in the past, as in ἣ μὲν θαμβήσασα πάλιν οἶκόνδε **βεβήκει** 'having become amazed, she **set out to go** back home' (*Od.* 1.360; cf. *Il.* 6.495) (so interpreted by Wackernagel (1926–1928 [2009]: 238)).

A.1.9 COMPLEXIVE READINGS

Cf. n.11 above for discussion of this functional label. *Complexive* refers to an eventuality (state or activity) that is coextensive with assertion time (i.e., "bounded" or "complete" in the past, such that $t_E = t_A \wedge t_A \prec t_0$). It differs from the "stative" reading (cf. §A.1.1 above) in that the complexive reading refers to states that no longer hold but have run their course from beginning to end in the past (type ἐβασίλευσε 'was king, reigned'). Like the inceptive reading (cf. §A.1.8 above), the complexive is found mainly in the Imperfect at the Archaic stage (afterwards the Aorist). Citations within the Greek grammatical literature will be given for each functional category below. Within the semantic and typological literature, the reader is referred (e.g.) to Comrie 1976: 16–17 (for both perfective and imperfective aspect cross-linguistically), E. Dahl 2010: 73–74 (for perfective aspect cross-linguistically, under the name "terminative-egressive"), and Bary & Egg 2012: 113 (for the formal semantics of the use in Classical Greek).

- [Complexive Aorist?]: On the complexive use of the Aorist as an innovation of Greek, being scarce or absent in Homer but far more common later on, see Purdie 1898: 67–70; Jacobsohn 1933: 305–310; Schwyzer–Debrunner: 281.[65] Chantraine's (1953 [2015]: 213–214) examples of

65. Though Purdie's (1898: 67 ff.) "constative" label resembles in some respects what is here referred to as *complexive*, it should be noted that her term is significantly broader in its scope than mine. By "constative," she means the bare statement of a fact with no further implication of "perfectivity," which basically contrasts with the "ingressive" (= inceptive) and "effective" (= punctual concentrative or egressive) uses (65). Purdie (1898: 67–68) explicitly follows Krüger's (1873: 168) "konzentrierte Erscheinung," which is said to have a "summarizing" effect and is directly linked to the use of the Aorist in narration. To be clear, I do not consider the "constative" or "statement-of-fact" use of the Aorist to be a legitimate "reading" (abandoning terminology from Hollenbaugh 2018), since it makes no reference to temporal parameters and is thus impossible to evaluate in a non-

the Aorist in Homer with a "thème duratif" are not complexive in the sense defined here ($t_E = t_A$) but are rather concentrative uses that happen to have a non-punctual runtime of t_E (cf. above §A.1.6 and discussion of (A21) below), or else are experiential uses. However, there are one or two possible candidates for complexive usage of the Aorist in Homer, of which the more questionable is (A19) (cf. Gildersleeve & Miller 1900: 106).

(A19) COMPLEXIVE AORIST IN HOMER?
ἐννῆμαρ **ξείνισσε** καὶ ἐννέα βοῦς ἱέρευσεν (*Il.* 6.174).

'For nine days he **entertained/hosted** him and slaughtered nine oxen'.

Here, the meaning is likely pluractional: 'kept entertaining him (each day) for nine days'.[66] All other examples in Homer of ἐννῆμαρ 'for nine days' (or ἑξῆμαρ 'for six days') with a verb in the past indicative show the Imperfect (rarely Perfect, cf. §A.1.5 above). Likewise, the adjective παννύχιος 'all night long' occurs in Homer always with the Imperfect or Pluperfect (when a past indicative is used), as seen above in (4), never the Aorist (but cf. (A20b) below). This is generally true of all explicit markers of extent of time—the Aorist is dispreferred in favor of the Imperfect—with few genuine exceptions.[67]

In all of Archaic Greek, only the two examples in (A20) look genuinely complexive (but cf. n.69 below). The first, from the *Odyssey*, occurs with a stated definite time interval (τρία ἤματα 'for three days') and occurs in the same line as a complexive Imperfect to a verb phrase of virtually identical meaning. The second, from Pseudo-Hesiod's *Shield of Heracles* (*SH*), occurs with παννύχιος 'all night', a word that in Homer invariably signals complexive interpretation when paired with the Imperfect or Pluperfect but never occurs with the Aorist.[68]

(A20) GENUINE COMPLEXIVE AORIST IN ARCHAIC GREEK

a. τρεῖς γὰρ δή μιν νύκτας ἔχον[IPF.], τρία δ᾽ ἤματ᾽ **ἔρυξα**[AOR.]
ἐν κλισίῃ (*Od.* 17.515–516).

'I held[IPF.] him for three nights, and **kept**[AOR.] him for three days in my hut'.

b. παννύχιος δ᾽ ἄρ᾽ **ἔλεκτο** σὺν αἰδοίῃ παρακοίτι (Ps.-Hes. *SH.* 46)

'And all night he **lay** with his venerable wife'.

The best candidate for a complexive Aorist in the *Iliad* known to me is not indicative but an Aorist *participle*: Οἰνεὺς γάρ ποτε δῖος ἀμύμονα Βελλεροφόντην / ξείνισ᾽ ἐνὶ μεγάροισιν

subjective way. Examples referred to this reading in the grammatical literature are here dispersed mostly among the (non-punctual) concentrative, experiential, and complexive uses of the Aorist (in some cases inceptive), on a case-by-case basis. I have been guided in my categorization of such examples always by the relations that hold between well-defined temporal parameters relative to the context in which the verb occurs on a given occasion.

66. Compare *Il.* 3.232: πολλάκι μιν ξείνισσεν ἀρηΐφιλος Μενέλαος 'Often Menelaus, dear to Ares, entertained him/received him as a guest'. Note that the predicate belongs to the "activity" situation type, which otherwise do not occur in the Aorist with complexive interpretation (until the post-Classical stage; cf. below §A.3.9). In addition, *Il.* 6.174 has a variant reading with the Ipf. ξείνιζε, showing the regular way of designating complexive meaning in Homer, which may well be original, having been later "corrected" by replacing it with the Aorist (so Jacobsohn 1933: 307–308). If so, this would support the view of a diachronic change whereby Archaic Greek preferred the Imperfect in complexive contexts, while the later language prefers the Aorist.

67. The three occurrences in Archaic Greek of the Aorist with the formula (τελεσφόρον) εἰς ἐνιαυτόν 'until the year (is/was) fulfilled' (*not* 'for a (whole) year') are, for various reasons that I lack space to discuss in detail, not to be taken as genuinely complexive (namely *Il.* 21.444, *Od.* 14.292, and *HH* 3.344–345).

68. Note that not all adverbials expressing duration entail a complexive interpretation; many are concentrative. Utterances like νύκτα ἀέσαμεν 'during the night we slept' are true if "we" did all of our sleeping some time during the night, and so are regarded as concentrative, whereas utterances like εὗδον παννύχιοι 'they slept all through the night' are false unless the eventuality (SLEEP) is understood as holding for the entire span of the assertion time (NIGHT) and so are regarded as complexive.

ἐείκοσιν ἤματ᾽ ἐρύξας ‘Brilliant Oineus once hosted blameless Bellerophontes in his halls, detaining [*having detained] him for twenty days’ (*Il.* 6.216–217).[69]

In all, the case for a complexive use of the Aorist at the Archaic stage is not strong, being emergent at best (cf. discussion in §4.4 above). In two or three instances complexive interpretation seems warranted, and we may note that in these and most borderline cases the Aorist is built to a state predicate (as ἔρυξα ‘kept’, ἔλεκτο ‘lay’), anticipating the distribution observed in Classical Greek. Thus, while these examples may be viewed as early precursors to Classical usage, I do not regard complexive as a *regular* use of the Aorist at the Archaic stage, and I exclude the coextension relation $t_E = t_A$ from its denotation (cf. (17) above in §6.1.1). Clearly preferred in complexive contexts at this stage, even to state predicates, is the Imperfect, which is regularly found in the scope of adverbials expressing extent of time (see next item) in all but the cases just mentioned.[70]

- Complexive Imperfect: The Imperfect is the *regular* way of expressing the complexive in Archaic Greek, in strong preference to the Aorist (Jacobsohn 1933: 305–310). An example has been given above in (4) above (see also (A26) below); cf. Gildersleeve & Miller 1900: 90–91 for further examples. As with the inceptive (cf. §A.1.8 above), this use of the Imperfect is unrestricted by predicate type, except that practically the verb must belong to either the state, activity, or (perhaps) accomplishment situation types. In addition to the activity predicates quoted in (4) above, state predicates are quotable in such phrases as ηὗδον παννύχιοι ‘they slept all night’ (*Il.* 2.2, 10.2, 24.678; *Od.* 7.288) or δύω νύκτας δύο τ᾽ ἤματα συνεχὲς αἰεί / κείμεθ᾽ ‘for two nights and two days the whole time continuously we lay’ (*Od.* 9.74–75; similarly *Od.* 10.142–143). Thus, in Archaic Greek the Imperfect is the preferred form for complexive usage even to state predicates, unlike the situation in later Greek (where the Aorist is preferred for complexive *states* and the Imperfect applies elsewhere).[71]

  As noted above, when a past indicative verb occurs in the scope of an expression of extent or duration of time, such as παννύχιος ‘all night long’ (as in (4) above and (A21) below) or

69. The adverb δήν ‘for a long time’ occurs with Aorists at *Il.* 17.695=*Od.* 4.704, *Od.* 17.72–73, and *Od.* 21.425–426. However, at *Il.* 17.695=*Od.* 4.704, the adverb refers to the effects of the verb, not the verbal action itself: δὴν δέ μιν ἀμφασίη ἐπέων λάβε ‘speechlessness seized him [and thus held him] for a long time’. Compare English *I went home for the rest of the day*, which does not mean that it took the rest of the day to get home but that I remained home for the rest of the day after going there. At *Od.* 17.72–73 the verb τράπετο ‘turned’ is negated, and so δήν seems to target not the action of turning but the span of his *not* turning away. The verb at *Od.* 21.425–426 is again negated, but here the action *does* seem to be targeted by the adverb: οὐδέ τι τόξον / δὴν ἔκαμον τανύων ‘I did not labor long at all in stringing the bow’. This would seem to be complexive. However, *Il.* 1.512 provides some evidence that verbal predicates with δήν are not necessarily complexive, since it is a non-specific and subjective unit of time (contrast phrases like παννύχιος ‘all night’, ἔτεα δυώδεκα ‘for twelve years’, and the like). When Zeus ἀκέων δὴν ἧστο$_{[IPF.]}$ ‘sat silent for a long time’, he does not actually stop sitting silent after this clause, but continues to do so until Thetis speaks again. This is possible because ‘sit for a long time’ is not really a telic event in the same way that ‘sit for ten minutes’ is, and so the event’s boundedness need not be precisely coextensive with the interval referred to by δήν. So, in the case of the Aorist at *Od.* 21.425–426, it may be that δήν simply asserts that the event of laboring in question has a *relatively* long duration but is not absolutely coextensive with any clearly defined interval. A similar observation can be made for indefinite adverbials referring to brief durations (e.g., *Il.* 23.418: μάλλον ἐπεδραμέτην$_{[AOR.]}$ ὀλίγον χρόνον ‘they both ran harder for a little while’).

70. Past stative uses of the Aorist to state predicates, such as ἐφίλησα ‘loved, used to love’, are by some considered complexive. If placed here, these would add several examples of the complexive use in Homer (cf. n.21). However, I class them as stative (cf. §A.1.1 above), since unlike the complexive these examples characterize states as *ongoing* at speech or evaluation time.

71. This includes “attained states” built to event predicates. These can be treated as complexive to states resulting from the attainment of the event referred to by the lexical verb. An example is νύκτα δι᾽ ἀμβροσίην μελεδήματα πατρὸς **ἔγειρεν** ‘Throughout the ambrosial night anxiety for his father **kept him awake**’ (*Od.* 15.8). The lexical item ἐγείρω typically means ‘awaken’, but here it refers to the state resulting from awakening (viz. being awake), which is said to hold for a given length of time (viz. all night long).

ἐννῆμαρ ‘for nine days’, the verb form is invariably either Imperfect or Pluperfect (rarely Perfect, cf. §A.1.5 above), with the possible exceptions just mentioned ((A19)–(A20)). Others include εἰνάνυχες ‘for nine nights’ (*Il.* 9.470) and εἰνάετες ‘for nine years’ (e.g., *Il.* 18.400, *Od.* 3.118, 5.106–107, 14.240, 22.228), always with an Imperfect. Illustrating the difference between the complexive use of the Imperfect and the concentrative use of the Aorist is (A21).

(A21) COMPLEXIVE IPF. AFTER CONCENTRATIVE AOR. IN HOMER
δόρπον ἔπειθ᾽ εἵλοντο[AOR.] κατὰ στρατόν· αὐτὰρ Ἀχαιοί
παννύχιοι Πάτροκλον **ἀνεστενάχοντο**[IPF.] γοῶντες (*Il.* 18.314–315).

‘Then they took[AOR.] their supper along the encampment. Meanwhile the Achaians **lamented**[IPF.] all night, mourning Patroclus’.

Even though both the Aorist and the Imperfect in (A21) refer to an event of some duration, only the Imperfect occurs with an explicit indication of extent of time (παννύχιοι ‘all night’) and can be said to be complexive, such that the eventuality time (i.e., their mourning) lasts exactly as long as the assertion time (i.e., all night). The Aorist in this example, by contrast, refers to an event that, while non-momentary, is nevertheless fully contained within the assertion time and can be said to be concentrative-sequential.[72]

- [Complexive Perfect]: There are one or two possible examples of the Perfect in Homer with a definite time span (e.g., (A12) above), though in the cases so far noticed the definite time interval (t_A) includes the speech/evaluation time ($t_{0/S}$) rather than preceding it, which yields a universal interpretation rather than complexive (cf. §A.1.5 above).

  Complexive Pluperfect: The Pluperfect, on the other hand, occurs as readily in complexive contexts as does the Imperfect (cf. discussion above under §A.1.6 about the Pluperfect being the “Imperfect to the Perfect”), as shown in (A22) (cf. similarly *Od.* 11.11 and *HH* 3.91–92). Here, the definite time interval (t_A) designated by παννυχίη ‘all night’ has clearly terminated before the speech time (t_0) of this passage of quoted speech, and the eventuality of “standing” is asserted to last exactly as long as the night ($t_E = t_A$).

  (A22) COMPLEXIVE PLUPERFECT IN HOMER
  παννυχίη γάρ μοι Πατροκλῆος δειλοῖο
  ψυχὴ **ἐφεστήκει**[PLPF.] γοόωσά τε μυρομένη τε (*Il.* 23.105–106).

  ‘For all night long the spirit of unhappy Patroclus
  stood over[PLPF.] me both lamenting and weeping’.

A.1.10 COUNTERFACTUAL READINGS

It is a peculiarity of Homer that the Imperfect in counterfactual conditional constructions (i.e., protasis with εἰ, apodosis with the modal particle ἄν/κέν) expresses only *past* counterfactuality (Chantraine 1953 [2015]: 324–325; Goodwin 1889: 96), while in later Greek the same construction regularly expresses *present* counterfactuality (but cf. Smyth 1956: 518–519). An example is (A23) (cf. similarly *Il.* 24.713–715; with optative apodosis at *Il.* 24.220–222).

72. Other complexive uses of the Imperfect in Homer include: *Od.* 7.253–254, 9.82–84, 10.28–29, 80–81, 12.397–399, 429–430, 447–448, 14.249–253, 314–315, and 15.476–477. For the Imperfect with a definite number designating the extent of time in Archaic Greek see *Il.* 9.470, 18.400, 21.45; *Od.* 3.118, 5.106–107, 388–389, 9.74–75, 10.142–143, 22.228, 24.63–64, 14.240 17.515, 24.63–64; Hes. *Th.* 56. Note that some but by no means all such examples can be felicitously rendered by the English Progressive (e.g., παννύχιος φερόμην at *Od.* 12.429 cannot be read as *‘I was being borne all night’ but, given what follows in line 430, only as ‘I was borne all night’), so the complexive interpretation cannot be taken to be simply a special case of the progressive or imperfective aspect.

(A23) IMPERFECT PAST COUNTERFACTUAL IN HOMER
καί νύ κε τὸ τρίτον αὖτις ἀναΐξαντ᾽ **ἐπάλαιον**,
εἰ μὴ Ἀχιλλεὺς αὐτὸς **ἀνίστατο** καὶ **κατέρυκεν** (*Il.* 23.733–734).

'And now having sprung up again a third time they **would have wrestled**,
if Achilles himself **had** not **stood up** and **restrained** them'.

The Aorist with ἄν/κέν expresses past counterfactuality (Chantraine 1953 [2015]: 325), as at all stages of Greek (e.g., *Il.* 2.155–156, 8.90–91; without negation at 16.617–618; with optative apodosis at *Il.* 5.311–312). The Imperfect and Aorist can co-occur in the same past counterfactual conditional (e.g., *Il.* 8.130–133, 22.202–204). The Pluperfect can be used similarly, as at *Il.* 8.366: εἰ. . . εἴδε᾽ 'if I had known' (cf. §A.2.10 below). Note that this example shows that counterfactuals in Greek are not limited by predicate type, being built to event or state predicates alike. For a semantic analysis of counterfactuality and its interaction with past tense and perfective aspect, particularly with respect to Modern Greek, see Iatridou 2000.

A.1.11 PERFORMATIVE/REPORTIVE READINGS

Of the forms here considered, only the Aorist is used in performative sentences, of the type *I now pronounce you man and wife*, though this does not occur until *after* the Archaic stage. The Greek Present indicative is, of course, also used in this way but not considered here (e.g., *Il.* 1.173–174, 1.577). An example for the Classical stage has been given above in Section 5.2 (7). The use appears to be limited to event predicates. Performative utterances are defined by Fortuin (2019: 5) as follows: "By uttering the sentence the speaker not only describes the event expressed by the predicate, but also performs the act described by the predicate at the moment of speech." "Reportives" constitute a closely related use (most often in in the second or third persons) to describe events unfolding before the eyes of a speaker, of the type used in stage directions or in sportscaster speech (type *She shoots, she scores!*). On performatives and reportives in general see Austin 1962 (origin of the term *performative* to describe this kind of speech act); Ö. Dahl 1985: 71–72, 81, 83, 206; and Fortuin 2019: 25–26. Cf. Lloyd 1999 and Bary 2012 on the phenomenon in Greek in particular, with further references to the linguistic and semantic literature.

This usage of the Aorist is commonly referred to in Greek grammars as the "tragic" or "dramatic" Aorist (e.g., Kühner–Gerth: 163; Gildersleeve & Miller 1900: 113–114; Smyth 1956: 432), since its occurrence is practically restricted to Attic drama (not only tragedy, according to Schwyzer–Debrunner (282)), though it may occur rarely in prose (a possible example being Hdt. 7.46.1 (A28), on which cf. §A.2.2 below). For examples from both genres see Kühner–Gerth: 163–165 (cf. Gildersleeve & Miller 1900: 113). The more modern linguistic term *performative* has been applied by Lloyd (1999), followed more recently by Bary (2012), who provides a semantic analysis of the phenomenon. Essentially, the use of the Aorist is seen as a sort of compromise for speakers' desire to express perfective aspect in the present moment. The Present satisfies this condition only in tense, the Aorist only in aspect. The two forms are thus equally viable and hence alternate in performative utterances in the Classical language. As stated in Section 6.1.1, I take the performative/reportive reading of a perfective gram to arise when eventuality time is coextensive with speech time (i.e., $t_E = t_S$), which is unavailable to the Aorist at the Archaic stage.

It is an interesting fact that we do not find any instance of a performative/reportive Aorist in the Homeric language. Lloyd's (1999: 41) sole Homeric example (viz. *Il.* 14.95=17.173) is probably not performative/reportive but stative (cf. §A.1.1 above), while the Aorist at *Od.* 9.403 is more likely recent past/resultative (cf. §A.1.3 above). A more likely example of the reportive reading is *Il.* 21.150, though the stative and resultative readings cannot be excluded: τίς πόθεν εἰς ἀνδρῶν, ὅ μοι ἔτλης

ἀντίος ἐλθεῖν; 'Who among men (are you and) from where, that dare [have courage? have dared?] to come forth against me?' Still, Schwyzer–Debrunner (282) believe the usage is original and that its "popular" character may explain its scarcity in (or, more probably, total absence from) Homer.

A.1.12 FUTURATE READINGS

The label "futurate," coined by Prince (1973), standardly refers to a verb form not overtly marked for future tense that has future reference in certain contexts, of the type *My plane leaves/is leaving tomorrow at noon*. In the scope of this paper, the futurate use applies only to the Aorist (Smyth 1956: 432; Gildersleeve & Miller 1900: 114) and, occasionally, to the Perfect (Smyth 1956: 435; Schwyzer–Debrunner: 286–287). Of course, the Present indicative can be used to refer to future time (Smyth 1956: 421–422), though it is not considered here. The use appears to be restricted to transformative events (i.e., achievements and accomplishments), strongly favoring one lexical item in particular: ὄλλυμαι 'be lost, perish', whose Aorist forms are attested with future reference both in Homer (A24a) and in Classical Greek (see citations in Gildersleeve & Miller 1900: 114). Other lexical items are met with, however.

For linguistic treatments of futurate constructions cross-linguistically, see De Wit 2017; Iatridou 2000: 240; Huddleston 1977; Dowty 1977; Goodman 1973. De Wit (2017: 190 and passim) considers, in particular, the interaction of perfective aspect and present tense to yield futurate interpretations in Slavic languages and others. Past tense grams seem not to have future time reference unless they are embedded under a modal, of the type *If I **had** a million dollars* or *I think it's time we **went** to bed* (cf. Iatridou 2000). In English, only the fixed phrase *You got it!* (in the meaning *Sure!*) shows an unembedded past tense with future reference, though this ultimately seems to be from the presential (stative) Perfect *have got* (cf. Kiparsky 2002: 113) and so is not properly a past tense in any case. Perfective grams, on the other hand, are cross-linguistically common in contexts of future time reference, as De Wit (2017: 190) shows.[73]

- [Futurate Aorist?]: Two examples of future-referring Aorists in Homer (cf. Chantraine 1953 [2015]: 214–215) occur in apodoses of conditional sentences containing the Future indicative (Fut.), given in (A24).

  (A24) FUTURATE AORIST INDICATIVE IN HOMER

  a. εἰ μέν κ᾽ αὖθι μένων Τρώων πόλιν ἀμφιμάχωμαι,
  ὤλετο$_{[\text{AOR.}]}$ μέν μοι νόστος, ἀτὰρ κλέος ἄφθιτον ἔσται$_{[\text{FUT.}]}$ (*Il.* 9.412–413).

  'If I stay here and fight around the city of the Trojans,
  then **lost** for me **is**$_{[\text{AOR.}]}$ [i.e., will be] my return home but immortal fame will be$_{[\text{FUT.}]}$ mine' (ex. and tr. Wackernagel 1926–1928 [2009]: 228; cf. similarly ≈ *Il.* 9.414–416).

  b. εἴ περ γάρ τε καὶ αὐτίκ᾽ Ὀλύμπιος οὐκ ἐτέλεσσεν,
  ἔκ τε καὶ ὀψὲ τελεῖ$_{[\text{FUT.}]}$, σύν τε μεγάλωι **ἀπέτεισαν**$_{[\text{AOR.}]}$ (*Il.* 4.160–161).

  'For even if indeed the Olympian has not accomplished it straightaway,
  he will accomplish$_{[\text{FUT.}]}$ it completely even late on, and then they **will pay**$_{[\text{AOR.}]}$ together with a heavy price' (ex. and tr. id.: 228).

  In addition, there is an example of the Aorist *infinitive* with future reference in the "Brothers Poem" of Sappho (6–9): λίσσεσθαι. . . ἐξίκεσθαι. . . κἄμμ᾽ ἐπεύρην 'to pray that he will return

73. For example, in Tunisian Arabic, the Perfective is often used to refer to an event located in the future, as in *hāni **jīt***$_{[\text{PFV.}]}$ 'Here **I come**', most often used in contexts signifying 'I'll be right there' or 'I'll be right back'. Similarly, the set phrase ***mšēt***$_{[\text{PFV.}]}$ *m^{c}āk* 'It **went** with you' idiomatically has a meaning close to English 'You('ve) got it!'/'You bet!' or 'Sure!'.

and find us'.

Wackernagel (1926–1928 [2009]: 228–229) is careful to distinguish the basic type of futurate Aorist represented by (A24) above from the Aorist in "future *perfect*" function, which he says is found only in post-Homeric Greek (cf. §A.2.12 below). An example from Classical Greek is given in (8) above, where "for κατεργάσαντο," Wackernagel (1926–1928 [2009]: 228) says, "a Latin speaker would have used the future perfect, *perfecerint*" 'will have accomplished'. Despite his statement to the contrary, at least one instance of the Aorist in Homer seems to have this kind of "future perfect-like" function, shown in (A25). Note that at this point in the narrative, Agamemnon's men have not yet repossessed Briseis, and so the action referred to by the Aor. ἀφέλεσθε lies strictly in the future but logically precedes the action of the Future μαχήσομαι, since the repossession gives the reason for the fighting (or rather lack of fighting despite this reason).

(A25) FUTURATE AORIST IN HOMER ("FOR FUTURE PERFECT")
χερσὶ μὲν οὔ τοι ἐγώ γε μαχήσομαι[FUT.] εἵνεκα κούρης,
οὔτε σοὶ οὔτέ τωι ἄλλωι, ἐπεί μ᾽ **ἀφέλεσθέ**[AOR.] γε δόντες (*Il.* 1.298–299).

'I will not fight[FUT.] for the girl with my hands, neither against you nor any other, since you **will have taken** (her) **back**[AOR.] from me who gave her (in the first place)' [i.e., the ones who gave her will be the ones to have taken her back].

Given that the denotation in (17) rules out ordinary future time reference for the Aorist at the Archaic stage, the three examples in (A24) and (A25) can be accounted for in terms of "future shifting." That is, the denotation of (17) does not allow future tense interpretation *per se*, in the sense that it forbids assertion time from following evaluation/speech time ($t_A \not\succ t_{0/S}$). Yet the eventuality *can* be interpreted as located in the future in a context where the evaluation time itself is located in the future relative to speech time ($t_S \prec t_0$), called "future shifted." In such cases, the eventuality time still must at least partially precede the (future-shifted) evaluation time ($t_E \preceq t_0$), per the denotation in (17), even while it happens to follow the moment of speech ($t_S \prec t_E$)—a possibility which (17) does not rule out. In order to have future shifting, however, the context needs to supply an evaluation time located in the future relative to speech time. For this reason, all examples of futurate Aorists in Homer occur in conjunction with verbs in the Future tense, which serves to establish a future-shifted evaluation time (t_0) in the discourse, as can be seen in (A24) and (A25) above.

- [Futurate Perfect]: According to Schwyzer–Debrunner (286–287), one possible Homeric example of the Perfect with future reference is *Il.* 15.128: μαινόμενε, φρένας ἠλέ, **διέφθορας** 'Madman, crazed in your wits, you **will perish/are doomed**!' However, Chantraine (1953 [2015]: 229) suggests that διέφθορας should rather be understood as presential (stative-resultative) 'you've lost your wits, you're beside yourself'. In any case, it is worth noting that the futurate Perfect, like the futurate Aorist, is not attested in "future perfect" function (in the English or Latin sense) until after the Archaic period (cf. §A.2.12 below).

A.1.13 EGRESSIVE READINGS

The egressive interpretation is peculiar to the Aorist and arises when just the culmination of an action is at issue (cf. Gildersleeve & Miller 1900: 94 "Aorist of attainment"). It may thus be thought of, in a sense, as the mirror image of the inceptive interpretation (cf. §A.1.8 above, Figure 8), illustrated in Figure 9.

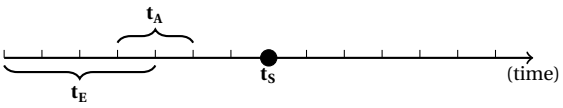


FIGURE 9: Egressive interpretation

The term *egressive* comes from E. Dahl 2010: 73–76, but the use is also referred to under the labels "effective" (e.g., Purdie 1898: 65) and "resultative" (Smyth 1956: 430).

Though scarce at the Archaic stage, there may be an example or two already in Homer. In (A26), the Aor. κάππεσον (to the lemma καταπίπτω 'fall down') refers only to the final, culminating stage of the verb, which I translate 'dropped down' (i.e., '*finished* falling, landed'), since the beginning and middle stages of Hephaestus' fall are referred to in the preceding lines (Ipf. φερόμην 'was borne, fell').

(A26) EGRESSIVE AORIST IN HOMER(?)
πᾶν δ᾽ ἦμαρ φερόμην, ἅμα δ᾽ ἠελίωι καταδύντι
κάππεσον ἐν Λήμνωι (*Il.* 1.592–593).

'I was borne down all day long, and as the sun set
I **dropped down** in Lemnos'.

Cf. similarly the Aor. ἔφυγεν 'escaped' (focusing on the termination of the action) beside Ipf. ἔφευγεν 'fled' (referring to the action in its entirety), for which see (2) above. A possible example in the negative is οὐδ᾽ ἔτ᾽ ἔδησαν 'they did not end up binding (him) after all' (*Il.* 1.406), to the verb δέω 'bind' (but cf. §A.2.2 below for an alternative interpretation). Another example, though it occurs in an anterior context, may be ὤπτησαν 'had finished roasting' at *Od.* 3.470. As at the Classical stage (cf. §A.2.13 below), all putative examples of the egressive Aorist are built to accomplishment predicates.

It is possible that there are some examples of egressive Imperfects as well, if, for example, we suppose that when βάλλε has the meaning 'struck' (e.g., at *Il.* 1.52) this refers to the culmination of a more basic meaning of the lemma βάλλω 'shoot so as to hit'. The uncertainty of how to treat this lexical item has prevented me from including the possibility of an egressive Imperfect in Table 8 above.

A.2 Readings of Classical Greek (Table 9)

As stated above, this and the following section will be significantly briefer than the preceding. I restrict my commentary here only to refer the reader to citations of relevant examples to be found in various handbooks. I give explanations only of readings not already met with in Archaic Greek and provide full examples of quoted text only when especially interesting. For full descriptions of the semantics of each category, the reader is referred to the relevant discussion in the preceding section (§A.1), since the same principles discussed for the Archaic period apply, in general, to the Classical and post-Classical periods as well (exceptions to this generalization are noted and discussed below).

A.2.1 STATIVE READINGS

- Stative Aorist?: For a possible stative use in Euripides, see Lloyd 1999: 42. For other possible stative uses ("emotional," "understanding") see id.: 43–44. The supposed example from Soph. *OT* 1023 (ἔστερξεν) is probably not present stative but complexive or inceptive ('loved' or 'came to love'). On the other hand, the two occurrences of ἔστερξε/-αν at Soph. *fr.* 770 and Ar.

Fr. 229 are very likely to have genuine stative interpretation ('she/they love(s)'). We may say, then, that this use, while *attested* in Classical Greek, is moribund at this stage and apparently absent by the post-Classical period.

- Continuous-state Imperfect: Examples abound in this period, for which see Schwyzer–Debrunner: 276 ("stative Imperfect"). These include verbs of the type ἐκείμην 'lay, was lying' (e.g., Hdt. 1.167), ἥμην 'sat, was sitting' (e.g., Eur. *IA* 88), or simply ἦν 'was' (e.g., Ar. *Pl.* 77).

- Stative Perfect: For examples and discussion of this use of the Perfect at the Classical stage, see Wackernagel 1926–1928 [2009]: 215–218; Gildersleeve & Miller 1900: 99–100; Schwyzer–Debrunner: 263–264, 286–287. For the stative Pluperfect, see Wackernagel 1926–1928 [2009]: 238; Schwyzer–Debrunner: 287–288; Gildersleeve & Miller 1900: 103; Smyth 1956: 435. "Continuous-state" examples are as follows: λέλαμπε 'it shines' (Eur. *Andr.* 1026, cited as "intensive" by Gerö & von Stechow (2003: 271) (cf. §A.2.2 below)); ἐσπούδακα 'I am eager' (first in Ar. *Wa.* 694), Attic ἔγνωκα 'I know', ἐντεθύμημαι 'I am considering', νενόμικα 'I believe', δέδια ~ δέδοικα 'I am afraid'; σέσηρε 'grins'. An "attained-state" example arising in the Classical period is μέμηνα 'I am raging' (Wackernagel 1926–1928 [2009]: 217).

A.2.2 Progressive-conative and intensive-frequentative readings

- Conative Aorist?: See Kühner–Gerth: 166–167 on the possibility of a "conative" use of the Aorist, but cf. Schwyzer–Debrunner: 281 for reasons not to suppose such a reading. A putative example is (A27). Examples of this kind are mostly found in drama but occur also in prose, at least until the end of the Classical period. No such use is reported for the Archaic stage, and I have found none, unless perhaps οὐδ᾽ ἔτ᾽ ἔδησαν 'they no longer sought to bind (him)' at *Il.* 1.406 (but cf. §A.1.13 above for the more likely egressive interpretation of this verb).

(A27) Conative Aorist in Classical Greek
ἔκτεινά σ᾽ ὄντα πολέμιον δόμοις ἐμοῖς (Eur. *Ion* 1291).

'I **tried to kill** you because you were an enemy to my house'.

[Progressive Aorist?]: Oddly, there are some examples of the Aorist that seem to meet the description of the progressive reading, as in (A28), where the action of the verb ἐργάσαο is ongoing at speech time and is not stative. This isolated occurrence, which may admit of alternative interpretations, is not considered as a use of the Aorist in this analysis. However, it has been pointed out to me by a reviewer that the denotation of the Aorist in (18) is technically compatible with an interpretation that seems notionally very close to the progressive, namely $t_E \subset t_A \wedge t_E \supset t_0$.[74] This allows for an event to be ongoing (i.e., in progress) at speech time while still being included in an assertion time (which must also include the speech time). Ordinarily, this interpretation is surely blocked by the Present indicative, which is more highly specialized for the progressive use. Yet under certain pragmatic conditions, it seems, the logically possible reading can be realized, as in (A28), where the verb ἐργάσαο must look both backwards and forwards to what is happening 'now' and what has happened 'a little while ago', which may be the reason why this peculiar usage has been licensed.

(A28) Progressive Aorist in Classical Greek?
ὦ βασιλεῦ, ὡς πολλὸν ἀλλήλων κεχωρισμένα **ἐργάσαο**$_{[\text{Aor.}]}$ νῦν τε καὶ ὀλίγῳ πρότε-

74. As I have adopted a fairly standard definition of perfective aspect ($t_E \subseteq t_A$), the allowance of this "progressive-like" configuration is not unique to my analysis, but is tacitly shared by virtually all prior accounts of perfectivity.

ρον· μακαρίσας γὰρ σεωυτὸν δακρύεις[PRES.] (Hdt. 7.46.1).

'O king, what a distance there is between what you **are doing**[AOR.] now and [what you did/were doing] a little while ago! For having declared yourself blessed you are weeping[PRES.]'.

- Progressive-conative Imperfect: The progressive use is taken for granted by most handbooks (e.g., Goodwin 1889: 6–7; Smyth 1956: 423–424, with some Classical examples, including Xen. *Anab.* 1.5.12). Wackernagel (1926–1928 [2009]: 236) provides some brief discussion with specific Classical examples.

  The conative is also a common use of the Imperfect at the Classical stage (Gildersleeve & Miller 1900: 93–94; e.g., Xen. *Cyrop.* 5.5.22). For further examples and discussion see Rijksbaron 2002: 16–17; Smyth 1956: 424–425; Schwyzer–Debrunner: 276; Wackernagel 1926–1928 [2009]: 213; Gildersleeve & Miller 1900: 93–94; Goodwin 1889: 7. Grammars also describe a variant of the conative use, called the "Imperfect of likelihood" (Rijksbaron 2002: 17; Goodwin 1889: 7), referring to eventualities projected to occur in the past but which were never fulfilled or completed, as (e.g.) at Eur. *Med.* 591–592. When negated, the conative Imperfect often conveys resistance, lack of ability, or failure (Gildersleeve & Miller 1900: 95–96, 106), as in οὐ γὰρ ἐώρων ἐν τῇ νυκτί 'for they could not see in the night' (Thuc. 2.3.1). The Present tense may express ability with or without negation (e.g., Plat. *Rep.* 10.598e–599a and 598b).

- Intensive-frequentative Perfect?: This use is essentially restricted to Attic drama after Homer (Wackernagel 1926–1928 [2009]: 215), with some exceptions (and further examples) in Gildersleeve & Miller 1900: 100–101. In drama, however, it is frequent and apparently productive. Examples postdating the Archaic period include κέκλαγγα 'scream, bark' (e.g., Ar. *Wa.* 929) and κέκραγα 'scream, croak'. Gerö & von Stechow (2003: 271) cite λέλαμπε 'it shines, is ablaze' (Eur. *Andr.* 1026) as an example of "the almost extinct 'intensive' use", though this is in fact a stative use (cf. above §A.2.1).

A.2.3 Resultative readings

- Resultative Aorist: This remains a common use of the Aorist throughout the Classical period and beyond, as is typical of the perfective gram type cross-linguistically (cf. Condoravdi & Deo 2014: 261–262). As I show above in Section 5.4, however, the use is of proportionally less frequent occurrence among the Classical authors than in Homer. For examples and discussion in the Greek grammatical literature see Schwyzer–Debrunner: 281–282 ("konfektive"); Wackernagel 1926–1928 [2009]: 227; Gildersleeve & Miller 1900: 107–108; and Delbrück 1879: 107–108; 1897: 280–281.

- Resultative Imperfect?: A possible example of a present-referring resultative Imperfect is to be found at Eur. *El.* 1301: μοῖρά τ᾽ ἀνάγκης **ἦγ᾽** ἢ τὸ χρεών 'The fate of necessity **has led** where it must (lead)'. For the counter-sequential use of the Imperfect, which may be thought of as a past-shifted resultative, see §A.2.7 below.

- Resultative Perfect: E.g., τί δέδρακας 'What have you done?' (Ar. *Fr.* 1472; cf. also Xen. *Anab.* 1.4.8). According to Wackernagel (1926–1928 [2009]: 219), "After Homer, the perfect begins to be used even when the action has an effect in present time not on the subject but on the object." So, the active Pf. δέδωκε 'has given' occurs first in Pindar and is common only later (in Homer is only passive δέδοται 'is/has been assigned' (*Il.* 5.428)). Similarly, Pind. τετίμακεν 'has honored' (*Isthm.* 4.37) but Hom. τετίμηται 'is honored, held in honor' (*Il.* 12.310, *Od. vii.*69). Cf. Gerö & von Stechow 2003 for a detailed analysis of this shift in usage of the Perfect

from the Archaic to the Classical stage. The Pluperfect also shows resultative use in subordinate clauses, which amounts to the "counter-sequential" reading (cf. §A.2.7 below).

A.2.4 Experiential readings

- Experiential Aorist: The experiential use of the Aorist is not uncommon in the Classical period (cf. Gildersleeve & Miller 1900: 108, 112; Smyth 1956: 431–433 ("Empiric(al) Aorist"), with numerous examples), as is to be expected of a perfective gram (cf. Condoravdi & Deo 2014: 261–262). An example is Ar. *Fr.* 1044: ἥντιν᾽. . . πώποτ᾽ **ἐποίησα** 'any woman that I **have** ever yet **created**'.

- Experiential Imperfect: Since, cross-linguistically, experiential usage is available to certain imperfective grams (cf. §A.1.4 above) as well as simple past grams (e.g., the Middle English Preterite (Fischer 1992: 245)), its availability to the Greek Imperfect is not particularly informative as to its gram type. A likely example is Ar. *Fr.* 1043: οὐ. . . **ἐποίουν** πόρνας 'I **have** not [ever] **created** whores'.

- Experiential Perfect: For examples and discussion see Gerö & von Stechow 2003: 272–273, including Lys. 1.43 (πώποτε **γεγένηται** '**has** ever yet **arisen**'), which they say is "purely existential" (i.e., lacking a strictly *experiential* nuance because of its inanimate subject) without being resultative. Note also how Plato prefers the Perfect in experiential function (ἵνα ὑμῶν πολλοὶ **ἀκηκόασι** 'where many of you **have heard**' (*Apol.* 17c)) precisely where Homer prefers the Aorist to the same verb (cf. (A5) above: πολλάκι. . . ἄκουσα 'often I have heard').

A.2.5 Universal readings

- Universal Aorist: As is typical of perfective grams cross-linguistically (cf. Laca 2010: 6–7), the universal reading is extremely marginal in Classical Greek usage of the Aorist—perhaps even more so than at the Archaic stage (cf. §A.1.5 above). Often languages have other strategies for designating the universal perfect reading in the present time, such that the theoretically possible universal interpretation of a language's perfective gram is categorically blocked by those alternatives. Classical Greek is no exception, where the Present or Perfect indicative are preferred to the Aorist in present universal contexts (cf. Smyth 1956: 422–423). Thus, while the denotation of the Aorist at this stage (per (18) above)—as a "Type 1" perfective ($t_E \subseteq t_A$)—strictly *allows* present universal as a use, it is rarely so applied in practice. Note that the increased availability of the Perfect in universal function at the Classical stage (cf. just below) coincides with the greater restriction of the Aorist in this function as compared to the Archaic stage, which is unlikely to be coincidental and probably reflects the pragmatic interaction of the two forms. A likely example is Soph. *El.* 1256: μόλις γὰρ **ἔσχον** νῦν ἐλεύθερον στόμα 'I **have** now hardly **been restraining** my mouth (from being) free' (so Kells 1973: 203, comparing Soph. *Aj.* 995).

- Universal Imperfect: The Imperfect at this stage attests the universal use (Smyth 1956: 424; Gildersleeve & Miller 1900: 97–98 ("unity of time")) with both past and present reference, as at the Archaic stage (cf. §A.1.5 above). Examples with past reference include: Ar. *Fr.* 778 (καθῆστο 'had been sitting') and Hdt. 9.63.2 (ἀγῶνα ἐποιεῦντο 'had been conducting the engagement'). Examples with present reference include: Soph. *El.* 4: οὐπόθεις 'for which you have been longing' and Aesch. *Lib.* 963–964 (πολὺν ἄγαν χρόνον / χαμαιπετὴς **ἔκεισο** δή 'you **have lain/been lying** prostrate for far too much time'). Of course, both of the examples with present reference just cited are built to verbs that lack an Aorist stem, showing once again how the Imperfect, with its "broader" semantic range, can "fill in" for a paradigmati-

cally lacking Aorist. Still, it is striking that the Present is not used in such cases.

- Universal Perfect: As Gerö & von Stechow (2003: 273–274) show, the use of the Perfect in present universal function is "garden variety" at the Classical stage (cf. also Smyth 1956: 423 and Gildersleeve & Miller 1900: 87 "unity of time"). Besides their citations (from Plato), an example is Eur. *El.* 568: πάλαι **δέδορκα** 'I **have been looking** for a long time' (cf. similarly Ar. *Thesm.* 745, Aeschin. 2.147). As mentioned just above, the greater frequency at which the Perfect is applied in universal function at the Classical stage as compared to the Archaic stage probably contributes to the further restriction of the Aorist in universal function at this time by means of pragmatic blocking. The Pluperfect is also used in universal function when referring to past time, of the type 'had been doing X' (e.g., Xen. *Anab.* 7.5.8; see further examples in Smyth 1956: 424 and Gildersleeve & Miller 1900: 114).

A.2.6 Concentrative readings

- Concentrative-sequential Aorist: See Rijksbaron 2002: 13 and cf. n.25 above. Examples in sequential narration are given above in (12) in Section 5.2. Of course, the concentrative value of the Aorist need not occur in sequential narration (e.g., Ar. *Fr.* 1469) and is not mutually exclusive with other readings of the Aorist, such as inceptive (e.g., Ar. *Fr.* 1022).

- Concentrative-sequential Imperfect: This use of the Imperfect is largely but by no means entirely restricted to verbs of 'sending, motion, saying, and exhorting' (Kühner–Gerth: 143–144). Examples have already been given above in (11) and (12), the latter of which shows a mixture of Imperfects and Aorists in sequential narration. For discussion and further examples see Emde Boas et al. 2019: 429; Rijksbaron 2002: 11–14, 18–19; Smyth 1956: 427; Wackernagel 1926–1928 [2009]: 233–236; Goodwin 1889: 8.

- Concentrative[-sequential?] Perfect: Non-sequential concentrative uses of the Perfect are fairly common at this stage (e.g., Hdt. 4.7.1). Clear sequential uses are lacking (perhaps at Lys. 1.7 (or counter-sequential?)). See Gerö & von Stechow 2003 on this development, and cf. Gildersleeve & Miller 1900: 101 and Smyth 1956: 435 ("dated past action"), citing Dem. 21.7: **προπεπηλάκισται** τὸ σῶμα τοὐμὸν τότε 'my body **got defiled** at that time'. Despite Smyth's (1956: 435) label, an overt temporal adverbial like τότε 'then' is not required for this usage (cf., e.g., Ar. *Fr.* 1023–1024, 1469–1471).

A.2.7 Counter-sequential readings

- Counter-sequential Aorist: See, with copious examples, Smyth 1956: 433–434; Rijksbaron 2002: 20; Gildersleeve & Miller 1900: 109; Delbrück 1879: 106–107 (among others). The Aorist remains regular in anterior contexts, in strong preference to the Imperfect and Perfect.

- Counter-sequential Imperfect: See Kühner–Gerth: 145; Schwyzer–Debrunner: 276; Gildersleeve & Miller 1900: 98; Smyth 1956: 426. An example can be found in (11) above: γὰρ. . . ἀπίεσαν 'for they had shot out' (cf. also Lys. 2.7 and Antiph. 5.29). The examples which Smyth (1956: 426) classes under "Imperfect for Pluperfect" I regard as "continuous state" (cf. §A.2.1 above).

- Counter-sequential Perfect: The Perfect is found in this use in subordinate clauses denoting action antecedent to the main verb (Smyth 1956: 435), which may be either present or past referring, as in Men. *fr.* 598, which is ambiguous between past and present time reference: ἅ σοι τύχη **κέχρηκε**$_{[\text{PF.}]}$, ταῦτ᾽ ἀφείλετο$_{[\text{AOR.}]}$ 'What things Fortune **had/has lent**$_{[\text{PF.}]}$ to you, she took/has taken back$_{[\text{AOR.}]}$'. The Pluperfect may also express past anteriority, albeit rarely

(cf. Rijksbaron 2002: 77; Smyth 1956: 435; Gildersleeve & Miller 1900: 109), as at Hdt. 9.33.1: ὡς. . . πάντες οἱ **ἐτετάχατο** ‘When they all **had been arrayed**’.

A.2.8 Inceptive readings

- Inceptive Aorist: See Section A.1.8 above for references. In contrast to its relative scarcity in Homer (Wackernagel 1926–1928 [2009]: 224; Jacobsohn 1933: 308–309), by the Classical period the Aorist is plainly the preferred means of expressing the inceptive to state predicates (Rijksbaron 2002: 20–21), which I take to be a reflection of its fully grammaticalized perfective denotation (cf. (18) above). An example is Ar. *Fr.* 1022: ὃ θεασάμενος πᾶς ἄν τις ἀνὴρ **ἠράσθη** δάιος εἶναι ‘Everyone who saw (that play) **fell in love** with being fierce’.

- Inceptive Imperfect: See, e.g., Smyth 1956: 426. Like the Aorist, the Classical Imperfect is quite common in the inceptive function (despite Schwyzer–Debrunner: 277; cf. Hollenbaugh 2020b for arguments in favor of this reading of the Imperfect). As in Homer, however, the Imperfect in this use may be built to any predicate type (except, perhaps, achievements), whereas the Aorist is built to state predicates only. An example is Thuc. 2.12.3: τοσόνδε εἰπὼν **ἐπορεύετο** ‘Having said this, he **set out**’.

- Inceptive Perfect: Cf. Smyth’s (1956: 435) “Pluperfect of Immediate Occurrence.” A likely example is Plat. *Ion* 536b: εὐθὺς **ἐγρήγορας** ‘at once you **are awakened/wake up**’. Note that in Homer this same Perfect is used only *statively*: e.g., ἐγρηγόρθασι ‘they lie awake’ (*Il.* 10.419). Seeing as there are apparently no examples of inceptive Perfects at the Archaic stage (cf. §A.1.8 above), I take the inceptive use of the Perfect to be an innovation of Classical Greek.

A.2.9 Complexive readings

- Complexive Aorist: Like the inceptive Aorist, most complexive examples appear to be made with sigmatic Aorists and are invariably built to state predicates (cf. Basset 2009: 214). See Schwyzer–Debrunner: 281; Smyth 1956: 430–431 (though some of his examples are concentrative); Gildersleeve & Miller 1900: 106. Given its scarcity at the Archaic stage (cf. above §A.1.9), the regular use of the Aorist with complexive interpretation to state predicates at the Classical stage amounts to an innovation, being a more pronounced change than that observed for the inceptive use (cf. §A.1.8 and §A.2.8 above). This innovation of usage has been detailed in Sections 5.4–5.5 above and is reflected in the denotations given for the Aorist in (17) and (18) in Section 6.1.1, showing a shift from “emergent perfective” (which virtually excludes complexive as a use) to Type 1 perfective, which freely permits the complexive interpretation. Examples have been given above in (5) and (9).

- Complexive Imperfect: Unlike the Aorist, which attests complexives only to state predicates, the complexive Imperfect is built to all predicate types, though with an apparent preference for activity predicates (cf. Basset 2009; Wackernagel 1926–1928 [2009]: 234; Gildersleeve & Miller 1900: 90–91; and above n.24 and §A.1.9). There is no fundamental change in usage from the Archaic to the Classical complexive Imperfect, as it is regular at both stages. However, since the Aorist has become regular in this function for state predicates in Classical Greek, it partially blocks the application of the Imperfect in such cases, thereby contributing to the Imperfect’s gradual restriction to “imperfective-like” uses, as described in detail above (§§5.4–5.5). Examples for this stage are provided above in (5) and (10).

- Complexive Pluperfect: As in Archaic Greek, the Perfect with definite temporal boundaries typically has a universal perfect interpretation, continuing up to the moment of utterance (cf. above §A.2.5). However, again like Archaic Greek, the Pluperfect is just as well suited to

complexive interpretation as is the Imperfect (cf. Smyth 1956: 435). An example is Ar. *Pl.* 743–744: τὴν νύχθ᾽ ὅλην / **ἐγρηγόρεσαν** 'the whole night they **lay awake**'.

A.2.10 COUNTERFACTUAL READINGS

- Past(/present) counterfactual Aorist: As in Archaic Greek, the Aorist in counterfactual conditions refers to past time (Goodwin 1889: 93–95; Smyth 1956: 518–520) (e.g., Dem. 18.243). However, on rare occasions (in Attic drama) the Aorist can be used in reference to the present time (Gildersleeve & Miller 1900: 169), which I take to be the counterfactual counterpart of the "dramatic" Aorist (cf. §A.2.11 below) (e.g., Ar. *Kn.* 1276–1277).

- Present/past counterfactual Imperfect: See Goodwin 1889: 94; Gildersleeve & Miller 1900: 169; Smyth 1956: 518–520. At the Classical stage, in contrast to Archaic Greek, the Imperfect regularly refers to *present* time (e.g., Xen. *Cyrop.* 1.2.16). However, it occasionally still refers to past time as well. It is said that the counterfactual Imperfect may have past reference at this stage only when it refers to "continued or repeated action" (including conative). While the majority of examples certainly support this claim, the counterfactual Imperfect still occasionally shows simple concentrative interpretations, just like those found in Homer (e.g., Xen. *Mem.* 1.1.5) (cf. §A.1.10 above). This is accounted for *only* if the Imperfect at the Classical stage was still semantically a simple past gram—even if it is by this time more often used in functions associated with imperfectives—such that $t_E \circ t_A$, thus allowing the possibility for eventuality time to be properly contained in assertion time (concentrative), which the stricter imperfective aspect would theoretically rule out.

- Present/past counterfactual Pluperfect: See Gildersleeve & Miller 1900: 169 and Smyth 1956: 519–520. The Pluperfect in contrary-to-fact or unreal conditions typically refers, like the Imperfect at this stage, to the *present* time (e.g., Plat. *Gorg.* 453d), though, again like the Imperfect, it can also refer to the past (e.g., Antiph. 4.2.3). A look at Cunliffe's (2012: 432, 437–438) "Table of the Uses of εἰ (αἰ), ἤν" confirms that the use of the Pluperfect for present counterfactuality is post-Homeric, the only counterfactual Pluperfect occurrences in Homer referring to *past* time (cf. §A.1.10 above).

A.2.11 PERFORMATIVE/REPORTIVE READINGS

In contrast to the Archaic stage, the performative or reportive use is by Classical times a fully developed, regular function of the Aorist indicative, especially frequent in—but not exclusive to—Attic drama (see, with examples, Kühner–Gerth: 163–165; Gildersleeve & Miller 1900: 113; Smyth 1956: 432). Of course, the Present indicative remains available in these functions as well (the so-called "aoristic" Present, cf. Smyth 1956: 414). Full discussion of the performative and reportive has already been presented in Section A.1.11 above. A Classical example is in (7) above.

A.2.12 FUTURATE READINGS

- Futurate Aorist: On the futurate interpretation, see §A.1.12. The Classical usage is exemplified in (8) above. At this stage, the verb ὄλλυμαι 'be lost, perish' continues to show futurate usage (e.g., Eur. *Alc.* 386), as it had already in Homer (cf. (A24) above), but now the futurate interpretation is not uncommon among a variety of other lexical items as well, and may be found in either a subordinate or a main clause, whether conveying strict anteriority (as in (8)) or not. As Wackernagel (1926–1928 [2009]: 228–229) discusses, despite a handful of Homeric examples, the futurate use of the Aorist really takes off in the Classical period. Its unrestricted occurrence in the Classical language amounts to a functional innovation from the Archaic stage, where examples had been isolated and highly restricted (cf. §A.1.12 above). This is expected

under the "weaker" semantics assigned to the Aorist at the Classical stage (cf. (18) above), which readily allows for assertion time to follow evaluation time (i.e., the standard definition of future tense). For further discussion and examples from Classical Greek see Kühner–Gerth: 166–167; Gildersleeve & Miller 1900: 114; Schwyzer–Debrunner: 281–283; Smyth 1956: 432.

- Futurate Perfect: See, with numerous Classical examples, Kühner–Gerth: 150; Gildersleeve & Miller 1900: 101; Smyth 1956: 435; Rijksbaron 2002: 37. This is again a functional innovation from the Archaic stage (cf. §A.1.12 above). As with the futurate Aorist, the futurate Perfect is virtually always found in conditional sentences (e.g., Xen. *Anab.* 1.8.12).

A.2.13 Egressive Aorist: For an explanation of this reading see Section A.1.13 above. As in the Archaic stage, the egressive Aorist is in Classical Greek built only to accomplishment predicates. A Classical Greek example has been cited above in (26) (cf. also Eur. *El.* 824).

A.3 Readings of post-Classical Greek, with notes on Medieval and Modern Greek (Table 10)

Even more so than in the preceding section on the Classical period, I limit my remarks here only to verifying the attestation of a given reading at this stage of the language, either by referencing a standard handbook on post-Classical Greek containing textual citations or by citing a post-Classical text directly. As before, I attempt to give some idea of the extent to which a particular reading may be considered regular or not for each form, insofar as this can be determined, and whether there has been a significant innovation from the previous stage. Where possible, I provide brief notes on the developments of Medieval and Modern Greek as well, except as regards the Perfect, which does not survive as such beyond the post-Classical stage.

Most handbook references in this section are to *BDF* and, hence, most textual citations are to the *New Testament*. This is more for the sake of convenience of reference than for lack of supporting materials in other sources, due in no small part to *BDF*'s incomparably excellent treatment of aspectual usage for a text that falls so squarely within the post-Classical period. Yet nothing in this section should be understood as a uniquely *New Testament* phenomenon, and examples from numerous other post-Classical texts could in most cases easily be quoted. Recall from the "Methodology" section (§4) that the aim here is simply to verify that a particular function of a given form is *operative* at the stage in question, not to list exhaustively which texts and authors belonging to that stage do and do not attest each usage.

A.3.1 Stative readings

- [Stative Aorist?]: A possible occurrence of the stative reading of the Aorist at this stage is (15a) above, though this is more likely universal. Another is Mk. 3:21, if we read ἐξέστη, with most English translations, as something like 'He is out of his mind' or 'He is beside himself'. Note, though, that this would be an "attained state," which differs from the Archaic stative usage of the Aorist (cf. §A.1.1 above) and resembles more closely Modern Greek usage (e.g., πείνασα 'I've gotten hungry, I am hungry'; cf. Thumb 1912: 123 and Schwyzer–Debrunner: 282). A similar example is the Paschal Greeting Χριστὸς ἀνέστη, which if it really means 'He is risen' represents an attained state; but if, as seems more likely, this traditional translation is a mere archaism of English grammar, it is simply another example of the resultative reading of the Aorist, to be understood as 'He *has* risen' (cf. below §A.3.3). In its *New Testament* attestations, ἀνέστη has only resultative (e.g., Lk. 9:19), counter-sequential (e.g., Lk. 9:8), and concentrative (e.g., Mk. 9:27, Acts 9:34) functions.[75] A stative Aorist with *past* reference is plausibly found at

75. Note that the Perfect ἐγήγερται, which might be expected to mean 'He is risen' is only used in resultative (e.g., Mk. 6:14) and concentrative (e.g., 1 Cor. 15:4) functions in the *New Testament* (the latter having its assertion time overtly specified by the adverbial phrase τῇ ἡμέρᾳ τῇ τρίτῃ 'on the third day'; cf. below §A.3.6). The Aorist passive ἠγέρθη 'is/has been raised' is

Jn. 9:18, though it could be complexive here (cf. §A.3.9 below).

- Continuous-state Imperfect: For examples of this very common reading (e.g., Jn. 11:35–36, Lk. 1:22), including (as ever) words like ἦν 'was', see *BDF*: 169. This reading unsurprisingly persists into Medieval (*CGMG*: 1934–1935) and Modern Greek (Thumb 1912: 121) as well.

- Stative Perfect: The "attained state" variety of the stative Perfect (cf. above §A.1.1) is not uncommon in Hellenistic literature, as in διέφθορα 'I am ruined' (e.g., Luc. *Sol.* 3), which is intransitive in Homer, Ionic, and Hellenistic prose but in Attic (drama) only transitive 'I have ruined' (Wackernagel 1926–1928 [2009]: 217). For further discussion and examples see *BDF*: 176. The "continuous state" variety seems to be lacking for this period, unless μέμνημαι 'I remember' belongs here (e.g., 1 Cor. 11:2). On the Pluperfect see *BDF*: 177–178.

A.3.2 Progressive-conative readings

- Progressive-conative Imperfect: For discussion of both the progressive (e.g., Acts 19:32) and the conative (e.g., Acts 7:26) interpretations, with abundant examples of each, see *BDF*: 169. These continue also in Medieval (*CGMG*: 1934–1935) and Modern Greek (Thumb 1912: 121–122).

- [Intensive-frequentative Perfect]: Gerö & von Stechow (2003: 281–283) conclude that "[i]n the Greek of this period the intensive meaning of the Perfect is completely lost."

A.3.3 Resultative readings

- Resultative Aorist: Despite its decline in frequency since the Archaic stage (cf. §5.4 above), the resultative use of the Aorist is, of course, still alive and well in the post-Classical period, as we should expect for a perfective gram, whose use in resultative function is typologically robust (cf. Condoravdi & Deo 2014: 261–262). Numerous resultative Aorists are found in the *New Testament*, with or without νῦν 'now' (e.g., Mt. 26:65–66, Mk. 15.34). The use continues in Medieval (*CGMG*: 1936; Joseph 2000: 324) and Modern Greek (Thumb 1912: 123; Schwyzer–Debrunner: 282).

- Resultative Perfect: See *BDF*: 176, with many examples both intransitive and transitive (e.g., Jn. 19:22). Cf. also Gerö & von Stechow 2003: 281–283 (citing Mt. 2:20) for discussion and diachronic semantic analysis. As the Perfect was, more and more, used *transitively* beginning in the Classical period, the application of the Aorist in resultative contexts naturally became increasingly restricted, until by the post-Classical period the Perfect predominates in resultative function, both in relation to the usage of the Aorist and in relation to the Perfect's own alternative functions (such as stative) that had formerly been so common. This lasts until the Perfect is lost in the Medieval period and a resurgence of the Aorist in resultative and other perfect-like functions is seen (*CGMG*: 1937; Joseph 2000: 324). For the Pluperfect cf. §A.3.7 below.

A.3.4 Experiential readings

- Experiential Aorist: Like the resultative Aorist (cf. §A.3.3 just above), the experiential reading is reasonably well attested (e.g., Mt. 5:28) but, as ever, is strongly dispreferred in favor of the experiential Perfect. The Aorist occurs beside the Perfect in experiential function at Jn. 3:32. This speaks to the competition between the two tenses at this stage, which were both now, typologically speaking, perfective grams and, accordingly, overlap in many of their functions,

consistently used in reference to Jesus' resurrection from the dead (e.g., Mt. 27:64).

including experiential perfect use. The use persists in Medieval Greek (*CGMG*: 1936), but in Modern Greek it seems that the periphrastic Perfect is preferred (required?) in this function (Thumb 1912: 162).

- Experiential Perfect: As at earlier stages of the language, the Perfect seems to be the preferred means of expressing the experiential reading, which is especially clear with verbs of perception, as at Jn. 5:37 and Mk. 2:12 (cf. *BDF*: 176 for further examples). At Jn. 3:32 the Perfect and Aorist occur side by side in experiential function. Cf. discussion and diachronic semantic analysis in Gerö & von Stechow 2003: 281 (citing Jn. 1:18). For the Pluperfect cf. §A.3.7 below.

A.3.5 Universal readings

- Universal Aorist: Examples of universal readings of the Koine Aorist, with both present and past reference, have been given above in (15) (cf. similarly Deu. 9:24). However, this use seems not to continue into Medieval or Modern Greek, where the Present alone is so used (cf. Iatridou et al. 2003: 171).

- Past universal Imperfect: Examples of the universal interpretation of the Imperfect with *past* reference include Lk. 5:25, Mk. 6:17–19, and Mt. 14:4. The Imperfect continues to be regular in past universal function into Modern Greek (being the past-tense equivalent of the universal Present). The *present* universal function documented for the earlier stages of the language (cf. §A.1.5 and §A.2.5 above) appears to be unattested in the post-Classical period (where the Present indicative is uniformly favored, as in Modern Greek).

- Universal Perfect: Gerö & von Stechow (2003: 281–283) claim that the Perfect at this stage has "an Extended-Now-meaning" as its "core meaning." Examples include Mt. 20:6 and Deu. 13:6, where the verbs ἕστηκα and οἶδα have not their stative interpretations (cf. §A.1.1 above) found at earlier stages (respectively, 'be standing' and 'know') but universal ones (respectively, 'have been standing' and 'have known'). This amounts to an innovation in the usage of such Perfects. The Pluperfect is attested in *past* universal function (e.g., Jn. 6:64, Job 42:11, Deu. 32:17).

A.3.6 Concentrative readings

- Concentrative-sequential Aorist: The Aorist, of course, continues to have concentrative-sequential as a use throughout the post-Classical period (cf. *BDF*: 166, 171, where concentrative examples are grouped with what I consider complexive uses). This use remains regular in the Medieval (*CGMG*: 1935–1936) and Modern (Thumb 1912: 122–123) periods.

- Concentrative[-sequential] Imperfect?: This use is discussed in Section 5.3 above, with references and citations (cf. *BDF*: 177), including an example in (13) (cf. also Jn. 11:35–36 and Lk. 4:1). What emerges clearly is that the concentrative use of the Imperfect, especially in sequential narration, is at the post-Classical stage far more restricted—both lexically and syntactically—than it had been at the Classical and Archaic stages. A similar usage exists in Modern Greek, called the "narrative Imperfect," which, however, is lexically and syntactically restricted to an even greater extent than the post-Classical usage (cf. Hedin 2000: 255–256, 262–263).

- Concentrative-sequential Perfect: On this much discussed use of the Koine Perfect see especially Wackernagel 1926–1928 [2009]: 219–220; Schwyzer–Debrunner: 287–288; *BDF*: 177 ("Perfect for the aorist," with many examples and further references); Browning 1983: 30 (on

the formal and functional merger of the Perfect and Aorist beginning in this stage and completed in the Medieval period). See Gerö & von Stechow 2003: 281–283 for a diachronic semantic account (citing Acts 7:35). In some instances the Aorist and Perfect occur side by side in the same, concentrative-sequential function (cf. Gerö & von Stechow 2003: 282–283), as at Rev. 5:7 and 1 Cor. 15:3–5 (cf. n.75 above).

Concentrative-sequential Pluperfect: Remarkably, Wackernagel (1926–1928 [2009]: 239) describes "the Hellenistic use of the pluperfect simply as an indeterminate past tense, in contexts where we would expect an aorist," and a "similar use of the pluperfect as a simple past tense by writers of the imperial period." It seems that the Pluperfect, while it survived, largely lost its specially counter-sequential force (but cf. §A.3.7 just below) and could be used in concentrative contexts as well, not unlike the Aorist and plain Perfect (cf. *BDF*: 177–178). This usage resembles that of the Archaic period (cf. above §A.1.6).

A.3.7 COUNTER-SEQUENTIAL READINGS

- Counter-sequential Aorist: See *BDF*: 169, 177–178. The Aorist in such contexts can have either a resultative (e.g., Mk. 12:12) or an experiential nuance (e.g., Rev. 22:8) and may occur in main clauses (e.g., Deu. 9:25) as well as dependent ones. The usage persists in Medieval (*CGMG*: 1937) and Modern Greek (Thumb 1912: 192–194).

- Counter-sequential Imperfect: See *BDF*: 170–171. At this stage, the use is practically restricted to ἦν 'was, had been', which lacks an Aorist or Perfect stem in its paradigm. Examples containing verbs other than ἦν include Acts. 16:3 (ὑπῆρχεν 'had been') and Mk. 12:44 (εἶχεν 'had possessed'). This usage persists in Medieval (*CGMG*: 1935) and Modern Greek (Thumb 1912: 192–194).

- Counter-sequential Perfect: For this use of the Perfect (e.g., Mk. 5:33) see *BDF*: 177; for the same use of the Pluperfect (e.g., Acts 19:32) see *BDF*: 177–178.

A.3.8 INCEPTIVE READINGS

- Inceptive Aorist: See *BDF*: 171. At this stage, according to Purdie (1898), the simplex Aorist is rare in inceptive function, having been largely taken over by prefixed forms of the Aorist (cf. discussion in §5.3 above and *BDF*: 166). An example of this kind is Jn. 9:18, containing the prefixed Aorist ἀν-έβλεψεν 'received sight'. Still, non-prefixed examples are occasionally met with (e.g., Jn. 11:35–36, ?Jdg. 3:10). The usage persists in Medieval (*CGMG*: 1936) and Modern Greek (Thumb 1912: 122–123).

- Inceptive Imperfect: The inceptive is an extremely common use of the Imperfect in this period (e.g., Mt. 5:1–2). See Wallace 2006, with copious examples and references, and *BDF*: 169 (under "conative"). The usage persists into Medieval (*CGMG*: 1935) and Modern Greek (Hedin 2000: 250–252; Robertson 1923: 885).

- Inceptive Perfect: There are a number of Perfects and Pluperfects that have not their stative-resultative value found at the earlier stages but a past inceptive interpretation (e.g., Heb. 1:3, 12:2), essentially equivalent to the Aorist or Imperfect in this function (cf. *BDF*: 176).

A.3.9 COMPLEXIVE READINGS

- Complexive Aorist: See *BDF*: 171. Examples have been given above in (16). As opposed to the Archaic and Classical periods, the Aorist at this stage is used both for states (16a) and events ((16b)–(16d)) in complexive value. In all, the Aorist is overwhelmingly preferred to the Imperfect in this function (cf. just below), in stark contrast to the earlier stages of the language (recall that in Archaic Greek (§A.1.9) the Imperfect is strongly preferred in complexive contexts, and in Classical Greek (§A.2.9) the Imperfect is regular for complexives to non-state predicates). The usage persists in Medieval (*CGMG*: 1936) and Modern Greek (Thumb 1912: 122; Seiler 1952: 75).

- Complexive Imperfect: The only secure examples of a complexive Imperfect so far observed for post-Classical Greek are to the verb εἰμί 'be' (e.g., (14a) above; cf. also Acts 9:9, 28:7, and Ex. 24:18), which of course lacks an Aorist stem. A likely exception is (14b) above (cf. also Acts 16:18 and ?Lk. 4:1). Further, I cannot document this use in Medieval or Modern Greek, where the Aorist is regular in such contexts. I therefore conclude that the complexive use of the Imperfect was moribund in post-Classical Greek, being pragmatically dispreferred in favor of the Aorist in this function, a handful of lexical exceptions notwithstanding. For a summary of

the change in usage of the Imperfect relative to the Aorist in this function over time see Table 11 in Section 5.3 above.

- Complexive Pluperfect: The Pluperfect, like the Imperfect, occasionally shows complexive as a use, while at the same time being counter-sequential (cf. §A.3.7 above), as at Deu. 10:10.

A.3.10 COUNTERFACTUAL READINGS

There are essentially no noteworthy developments in counterfactual usage as regards tense–aspect at this stage. Interestingly, however, ἄν is no longer required in the apodosis of a conditional sentence (*BDF*: 182, with examples). Examples of the counterfactual Aorist include Mt. 12:7, 24:43, and Lk. 19:23. As at the Classical stage, the Imperfect and Pluperfect remain "temporally ambiguous." The Imperfect with past reference is seen at Heb. 11:15; with present reference at Lk. 7:39 and Jn. 18:36. The Pluperfect with past reference is found at Acts 26:32 and 1 Jn. 2:19; with present reference at Jn. 8:19 and 14:7.

A.3.11 PERFORMATIVE/REPORTIVE READINGS

The performative/reportive Aorist appears not to continue into the post-Classical period. The *Present*, of course, is still used in performative and reportive sentences (e.g., Acts 25:11; cf. *BDF*: 167), as at all stages of Greek.

A.3.12 FUTURATE READINGS

- Futurate Aorist: See *BDF*: 171–172. Both types of futurate Aorist uses occur at this stage, as in Classical Greek—namely the "simple future" (e.g., Jn. 15:8, Mk. 11:24) and the "future perfect" (e.g., Mt. 18:15) varieties discussed above in Sections A.1.12 and A.2.12. The use (in both varieties) continues in Modern Greek (Seiler 1952: 67; Schwyzer–Debrunner: 282; Thumb 1912: 123).

- Futurate Perfect?: See *BDF* (177), noting that the *New Testament* usage is rare and differs somewhat from that of the Classical language (e.g., 1 Jn. 2:5, Ja. 2:10), in that the *New Testament* examples seem always to occur in the apodoses of generalizing sentences (type 'whoever does X'), whereas Classical usage involves *particular* future events that are anterior to another future event. The post-Classical usage thus resembles the "gnomic" function of the Perfect described in *BDF*: 177 (cf. also Wackernagel 1926–1928 [2009]: 230, citing Ja. 1:24, and Schwyzer–Debrunner: 285, 287), from which it perhaps ought not to be distinguished (hence my "?"). It is unclear how the difference between Classical and post-Classical usage is to be understood in this respect, and to what extent it reflects grammatical change.

A.3.13 [Egressive Aorist?]: This use is, according to Purdie (1898), available only to the prefixed Aorists (cf. *BDF*: 166) and seems not to be attested for the simplex Aorist at this stage. It appears to be unavailable in Medieval and Modern Greek (cf. n.60 above), except to prefixed forms of the Aorist (cf. Thumb 1912: 123).

Nomenclature and technical abbreviations

fr. fragment

$\mathbf{t_A}$ assertion time: the interval about which some claim is made (i.e., asserted), with respect to which the runtime of the eventuality is said to hold and may be assessed as either true or false.

t_0 evaluation time (or time of local evaluation): the point or interval of perspective from which a state of affairs is "evaluated" as to its truth or falsity and the location of its temporal parameters (t_E, t_A, or t_S) in time relative to one another. These temporal parameters may be situated prior to, at, or after the contextually salient evaluation time. In the default case, speech time (t_S) and evaluation time coincide, but the evaluation time may be past or future "shifted" in certain syntactic or discourse contexts (see n.42).

t_E eventuality time: the interval at which the eventuality (state or event) expressed by a verb holds true.

t_S speech time (or time of utterance): the point or interval at which the speech act takes place (typically the "now" of the present moment). This may be thought of as a special case of evaluation time (t_0). Where this term is used (rather than t_0 or $t_{0/S}$) it is intended that evaluation times other than speech time not be considered.

$t_{0/S}$ speech time or any other contextually salient evaluation time: This refers to the evaluation time (t_0), whether it coincides with speech time (t_S) or not. Technically speaking, it is not distinct from simple t_0. It is used in this paper only for the sake of clarity and ease of exposition, particularly in contexts where the default case of speech time is most intuitive but I do not wish to rule out the possibility of past or future shifting (as the term t_S would do).

accomp. accomplishments, referring to an eventive situation or predicate type consisting of a preparatory phase and a culmination, such as *come* or *paint a picture*.

achiev. achievements, referring to an eventive situation or predicate type consisting of a culmination only, such as *arrive* or *fall asleep*.

Aor. Aorist (indicative unless otherwise stated): the name of a functional category in Greek

CF counterfactual or contrary-to-fact use

conc. concentrative reading: the eventuality is characterized as complete in the past with respect to an assertion time interval (t_A) that fully contains (properly includes) the runtime of the eventuality (t_E), as determined by the local syntactic or discourse context.

cplxv. complexive reading: the eventuality is characterized as complete in the past with respect to an assertion time interval (t_A) that is coextensive with the runtime of the eventuality (t_E), as determined by the local syntactic or discourse context.

ex. example from

frequ. frequent in occurrence: referring to a reading or set of readings that is *commonly attested* in association with a particular morphological category at a given linguistic stage. Frequency presupposes regularity and indicates that a form is relatively free of pragmatic interaction with other forms in the verbal system (blocking) in a particular usage.

Fut. Future indicative: the name of a functional category in Greek

ind. indicative mood (Greek)

inf. infinitive (Greek)

Ipf. Imperfect indicative: the name of a functional category in Greek

Ipfv. Imperfective: the common English name of the imperfective grams in Russian and Arabic (among others)

ipfv. imperfective (aspect, gram type, or gram)

non-transfm. non-transformative, referring to the natural class of "unbounded" situation types (i.e., those without an inherent endpoint), namely states and activities.

Pf. Perfect (indicative unless otherwise stated): the name of a functional category in Greek

pf. "perfect-like" uses—namely the resultative, experiential, stative, and (in some cases) universal readings—are available to a particular form at a given linguistic stage.

Pfv. Perfective: the common English name of the perfective grams in Russian and Arabic (among others)

pfv. perfective (aspect, gram type, or gram)

Plpf. Pluperfect indicative: the name of a functional category in Greek

Pres. Present indicative: the name of a functional category in Greek

reg. regular: referring to a reading or set of readings that is *compatible with the denotation* of a particular morphological category at a given linguistic stage. Regularity does not necessarily imply frequency of occurrence, as a form can be blocked by other forms in the verbal system preferred in certain contexts for a variety of reasons.

sequ. sequential function: states of affairs characterized as complete in the past are sequenced in narration relative to one or more other complete states of affairs within the local discourse context.

tr. translation by

transfm. transformative, referring to the natural class of "bounded" situation types (i.e., those with an inherent endpoint), namely achievements and accomplishments.

Abbreviations of authors and texts

Aj. *Ajax* of Soph.

Alc. *Alcestis* of Eur.

Anab. *Anabasis* of Xen.

Andr. *Andromache* of Eur.

Apol. *Apology* of Plat.

Cyrop. *Cyropaedia* of Xen.

El. *Electra* of Soph.

El. *Electra* of Eur.

Fr. *Frogs* of Ar.

Gorg. *Gorgias* of Plat.

HH *Homeric Hymns* (Archaic)

Hell. *Hellenica* of Xen.

IA *Iphigenia in Aulis* of Eur.

Il. *Iliad* of Hom.

Ion *Ion* of Plat.

Kn. *Knights* of Ar.

Lib. *Libation Bearers* of Aesch.

Med. *Medea* of Eur.

Mem. *Memorabilia* of Xen.

OT *Oedipus Tyrannus* of Soph.

Od. *Odyssey* of Hom.

Or. *Orestes* of Eur.

Pl. *Plutus* of Ar.

Rep. *Republic* of Plat.

SH *Shield of Heracles* of Ps.-Hes.

Sol. *The Solecist* of Luc.

Thesm. *Thesmophoriazusae* of Ar.

Th. *Theogony* of Hes.

WD *Works and Days* of Hes.

Wa. *Wasps* of Ar.

1 Cor. Book of 1 Corinthians in NT

1 Jn. Book of 1 John in NT

1 Kings Book of 1 Kings in LXX

2 Chron. Book of 2 Chronicles in LXX

Acts Book of the Acts of the Apostles in NT

Aesch. Aeschylus (Classical, drama)

Aeschin. Aeschines, *Speeches* (Classical)

Antiph. Antiphon, *Speeches* (Classical)

Ar. Aristophanes (Classical, drama)

Dem. Demosthenes, *Speeches* (Classical)

Deu. Book of Deuteronomy in LXX

Eur. Euripides (Classical, drama)

Ex. Book of Exodus in LXX

Ezk. Book of Ezekiel in LXX

Ezr. Book of Ezra in LXX

Gen. Book of Genesis in LXX

Hdt. Herodotus, *Histories* (Classical)

Heb. Book of Hebrews in NT

Hes. Hesiod (Archaic)

Hom. Homer (Archaic)

Isthm. *Isthmean Odes* of Pind.

Ja. Book of James in NT

Jdg. Book of Judges in LXX

Jn. Book of John in NT

Job Book of Job in LXX

Lk. Book of Luke in NT

Luc. Lucian (post-Classical/Hellenistic)

LXX *Septuagint* (post-Classical Koine)

Lys. Lysias, *Speeches* (Classical)

Men. Menander (Classical)

Mk. Book of Mark in NT

Mt. Book of Matthew in NT

Neh. Book of Nehemiah in LXX

NT Greek *New Testament* (post-Classical Koine)

Pind. Pindar, *Odes* (late Archaic)

Plat. Plato (Classical)

Plb. Polybius, *Histories* (post-Classical/Hellenistic)

Plut. Plutarch (post-Classical/Hellenistic)

Ps. Book of Psalms in LXX

Ps.-Hes. Pseudo-Hesiod (Archaic)

Rev. Book of Revelation in NT

Sapph. Sappho (late Archaic, lyric)

Soph. Sophocles (Classical, drama)

Theog. Theognis of Megara (late Archaic, lyric)

Thuc. Thucydides, *The Peloponnesian War* (Classical)

Xen. Xenophon (Classical)

Abbreviations of references

BDF	*See* Blass, Friedrich, Albert Debrunner, & Robert W. Funk. 1961.
CGMG	*See* Holton, David, Geoffrey Horrocks, Marjolijne Janssen, Io Manolessou, & Notis Toufexis. 2019.
Kühner–Gerth	*See* Kühner, Raphael, & Bernhard Gerth. 1898.
Perseus under PhiloLogic	*See* Dik, Helma, ed. 2018.
Schwyzer–Debrunner	*See* Schwyzer, Eduard, & Albert Debrunner. 1950.
TLG	*See* Pantelia, Maria C., ed. 2001—.

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