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# THE HISTORY OF GREEK CONDITIONALS & ONE MODAL CYCLE: UPWARD REANALYSIS IN THE LIFE OF *AN**

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Abstract It has been argued that the syntax of conditionals involves leftward movement of an operator (Lycan 2001, Haegeman 2003, 2009a,b, 2010). Conditionals have been analyzed specifically as involving movement of a world operator (Bhatt & Pancheva 2002, 2006) or clause typing operator (Haegeman 2010, 2012) to the left periphery of the clause. This paper provides evidence from the development of conditional clauses in Greek that support this analysis. Based on data from Homeric Greek up to Standard Modern Greek, I argue for the functional transformation of the lexical particle ἄν /an/ from purely modal particle to purely conditional particle. The Greek data, combining generative approaches on syntactic change such as structure economy and 'up-the-tree' movement (van Gelderen 2001, 2004, Roberts & Roussou 2003) with the Nonveridicality theory in the semantics (Giannakidou 1998 *et seq.*), provide the basis for the instantiation of operator movement in conditionals. The modal ἄν /an/ particle is analyzed as an element directly linked to the Nonveridicality Phrase (Chatzopoulou 2012, 2019), but the modal function was gradually taken by the (*i*)*na* particle of Late Medieval and Modern Greek, resulting in a full modal cycle, in the sense of cyclicity of van Gelderen (2011, 2016b).

## 1 Introduction

The formation and function of conditionals has attracted the attention of researchers and scholars since antiquity and throughout the middle ages within the study of logic, grammar, as well as language typology (van der Auwera 1983, Puente-Castelo 2017). Regarding the syntax of conditionals, in recent

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decades, it has been argued that their syntax involves leftward movement of an operator (Lycan 2001, Haegeman 2003, 2009a,b, 2010, 2012, Arsenijević 2009, Tomaszewicz 2009, Danckaert & Haegeman 2012). Conditionals have been analyzed specifically as involving movement of a world operator (Bhatt & Pancheva 2002, 2006) or clause typing operator (Haegeman 2012) to the left periphery of the clause. This discussion is more broadly embedded in the analysis of all adverbial clauses, including conditionals, as one that involves operator movement or head movement of an element to the left periphery, most recently supported in Endo & Haegeman (2019). The present paper provides evidence from the development of conditional clauses in the history of Greek compatible with this analysis, namely the functional transformation of the lexical particle ἄν /an/ from Homeric Greek up to Standard Modern Greek, from a purely modal particle to a purely conditional particle (Table 1).

| Function of *an* | Language stage |
|---|---|
| Exclusively modal particle | 8th–7th century BC (Homeric Greek) |
| Exclusively conditional particle | Standard Modern Greek |

**Table 1** Brief history of the Greek particle *an*[1]

In all intermediate stages, from Attic Greek (Classical Greek) until Koine, the particle ἄν /an/ participates in structures, where it contributes either conditional meaning or modal meaning, within and outside the conditional protasis and apodosis. The historical Greek data combined with generative approaches of syntactic change such as structural economy and 'up-the-tree' movement (van Gelderen 2001, 2004, Roberts & Roussou 2003), along with the Nonveridicality theory of polarity (Giannakidou 1998, most recently Giannakidou & Mari 2017, Chatzopoulou 2012, 2019), provide an instantiation of operator movement in conditionals, both clause internally and with respect to the main clause. This is a type of movement in real time, a point further discussed in the last section of the paper. The examples below illustrate this shift in function of the *an* morpheme from modal particle in Homeric Greek (1 a) to conditional particle in Standard Modern Greek (1 b).

1 The form *an* is used here to refer to the particular particle under investigation in all stages of the language, while ἄν /an/ and αν /an/ are used respectively to refer to this element in ancient Greek (Homeric, Attic and Koine) and more recent stages (Late Medieval, Standard Modern Greek). The only difference between the forms is in the written diacritics, which were not in fact meaningful even regarding Attic Greek. The phonetic form of the of the particle has in fact not changed. Only its function did.

(1) (a) κεῖσε δ᾽ **ἂν** οὔ μιν ἐγώ [...] ἐῷμι ἔρχεσθαι.

*kése d' an u: min ego: eo:mi erk$^{h}$est$^{h}$ai*
there 2P IRR NEG1 him I permit.AOR.OPT.1SG come.INF
'I would not allow him to go there [...].' (*Odyssey* 16.85)

(b) **Αν** βρέξει αύριο, θα μείνω σπίτι.

*an vréksi ávrio θa Míno spíti.*
IF rain.PNP.3SG tomorrow will stay.PNP.1SG home
'If it rains tomorrow, I will stay at home.'
(Standard Modern Greek)

This is, to our knowledge, a unique instantiation of a full modal cycle in a time span of twenty-seven centuries. This paper does not propose an alternative analysis to the existing analyses regarding the formation of conditionals, but checks the available synchronic analysis of conditionals against the Greek historical data. That the history of the Greek particle *an* provides evidence for operator movement in conditionals has already been claimed in Beck, Malamud & Osadcha (2012) for the case of the Classical Greek ἄν /an/ in the uniform analysis of modal and conditional *an* they propose. The present paper expands this claim with evidence from subsequent stages of the language and enriches the motivation for this movement, pointing that the reasons of the change are not only phonological, as claimed in Beck et al. (2012: 70), but also syntactic.

Apart from traditional Greek grammars, such as Jannaris (1897: 420),[2] this development in Greek conditionals is noted and discussed in Horrocks' (1995) paper 'On condition, aspect and modality in the history of Greek', which examines data from Homeric, Classical, Post-Classical and Medieval Greek, with some reference to Modern Greek as well. The emphasis there is on temporal and mood marking of the verb forms in the protasis and apodosis of conditionals in the various stages of the language. He discusses the link between past tense morphology and modality,[3] as well as the semantic contribution of the optative, highlighting how its use is linked to the fact that the notion of conditionality in general is inherently atemporal. Each language makes use of different tools in order to indicate the atemporality of conditionals and this is the case also for the different stages of one and the same language, as in the case of Greek. Crucially, Horrocks (1995) analyzes how the particular verb forms capture the logical anteriority or posteriority between the protasis and the apodosis, in each language stage, as well as their potential

2 Cf. also Goodwin (1889: 123–125) for Classical Greek.
3 What would be described as fake past in Iatridou (2000).

relation/reference to real time events. Similar observations were also made in Gerö (2000, 2001) on modality and past tense in particular, as well as on the function of the modals in Homeric and Attic Greek.

This paper focuses mainly on the syntax of conditionals and in particular the functional transformations of the particle *an*, which combined with the reanalysis Attic Greek ἵνα /ina/ from purpose complementizer to nonveridical marker in Koine Greek (cf. Joseph 1981, Chatzopoulou 2019), resulted in one full modal cycle in the history of Greek. From the broad, heterogeneous family of conditional phenomena, we are examining here adverbial/adjunct conditionals, while other types—such as speech act conditionals or indirect questions, which are introduced in Greek and other languages with the same conditional particles—are only marginally referred to.[4] However, the quantitative evidence collected from the Greek language corpora and online databases (*Thesaurus Linguae Graecae*, http://www.perseus.tufts.edu) include all cases of prototypical conditional syntactic elements (CP related elements) per historical stage, because the morphological changes identified here were general and not sensitive to semantic differences within different types of conditionals, at least not in a way that relates to our present discussion. A total of 18,142 conditional and modal particles were examined, all types per stage (Homeric texts & Hesiod 2,270, Thucydides 1,536, Plato 11,448, New Testament, Epictetus 2,521, Late Medieval Texts 367).[5] More information regarding data selection is provided in Section 4.

The life of the Greek particle *an* is summarized in Horrocks (1995). Some of his insights are selected below, while detailed examples on the uses referred to follow in corresponding sections for each language stage in the present paper. Regarding the use of modal ἄν /an/ in Homeric Greek and the modal particle κε(ν) /ke(n)/ (cf. also Gerö 2000), which had the exact same function with modal ἄν /an/ in Homeric, Horrocks (1995) notes the following:

4 For purely semantic analyses see Kratzer (1979, 1986, 2012) briefly discussed in Section 3, von Fintel (2011) and Schulz (2012) for a more pragmatic approach. For speech act or pragmatic conditionals see Haegeman (1984b), containing also a preliminary syntactic analysis and the split between central and peripheral (relevance or speech act) conditionals, as well as Athanasiadou & Dirven (1995, 1997) from a more cognitive perspective.

5 Homeric texts and Hesiod were examined case by case (see appendix), due to the importance of the fact that no occurrences of conditional ἄν /an/ or the blended form ἐάν /ean/ (εἰ /e:/ + ἄν /an/) appear in this stage, while Late Medieval Greek texts were manually examined due to lack of databases of reliable vernacular Greek for that stage.

> The originally optional use of κε(ν)/ἄν in the apodoses of such sentences [Homeric conditionals] can be seen as an overt marker of hypothetical consequentiality (logical 'then'), but its increasingly regular use in Homer (eventually fully grammaticalized in later Greek) implies that the associated verb form in the protasis was seen less a simple marker of hypotheticality and more as a marker of logical anteriority. (Horrocks 1995: 161)
>
> A significant further development in the Koine [...] is the progressive loss of the particle ἄν from hypothetical apodoses, a process already apparent in lower-register works such as the New Testament. [...] We might speculate that the disappearance of ἄν was due in part to its growing confusion, following the loss of vowel-length distinctions, with the conditional conjunction ἄν/ἐάν; [...] As time went on ἄν increasingly took on the functions of Classical εἰ and eventually superseded it completely. It is therefore possible that the use of modal ἄν declined as the use of 'conditional' ἄν developed; a word meaning 'if' had no proper place in the apodosis of a conditional. (Horrocks 1995: 165)

Therefore, we find *an* as an optional modal marker in the protases and/or apodoses of conditionals in Homeric Greek, as well as in other modal functions, embedded and unembedded, contributing irrealis/modal meaning. It subsequently gets generalized and obligatory in some modal functions during Classical Greek, while it also starts appearing as a particle introducing certain types of conditional antecedents, being now in complementary distribution with the *par excellence* conditional complementizer of Classical Greek, the particle εἰ /e:/. In the Hellenistic Koine stage, the modal use of *an* declines and its conditional use is strengthened. By the Late Medieval stage the modal use of *an* is no longer attested, while the two conditional particles εἰ /i/ and αν /an/ are not in complementary distribution any more, but in free variation. Finally, in the Modern Greek stage the exclusive function of *an* is as conditional particle, introducing all types of conditional clauses. Figure 1 summarizes this shift in function of the *an* particle from modal particle, as in (1 a), to conditional particle, as in (1 b).[6]

6 Examples from the intermediate stages are presented in the corresponding subsections in Section 4. The Standard Modern Greek stage does not manifest significant differences from the Late Medieval Greek stage regarding the use of particle *an* as a morpheme introducing conditional clauses, therefore it is not included in Figure 1, although data from Standard Modern Greek are presented as well in Section 4 to manifest the complete modal cycle.

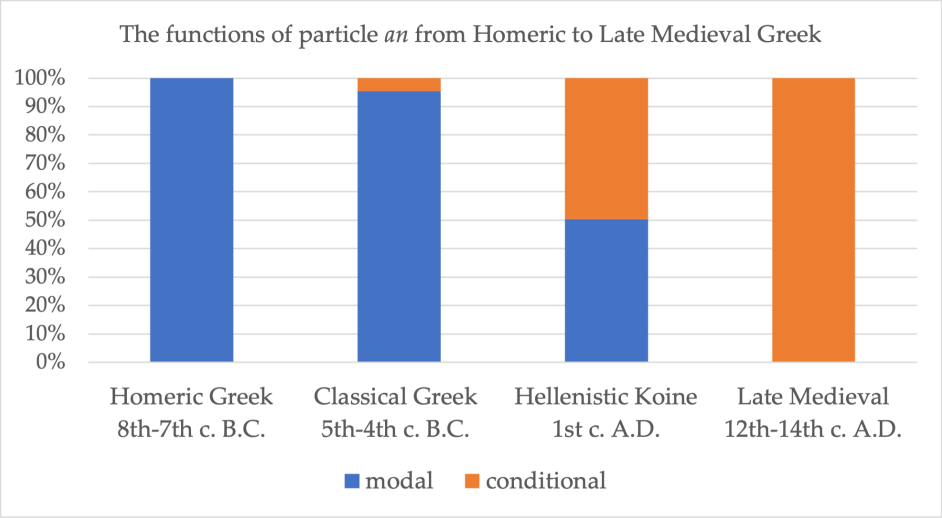



**Figure 1** The functional shift of *an* from modal to conditional particle[7]

The paper proceeds as follows: in Section 2 previous evidence for operator movement in conditionals is presented. Section 3 provides the theoretical background regarding the Nonveridicality theory of Giannakidou (1998 *et seq.*) and the treatment of Nonveridicality as a distinct syntactic projection in Chatzopoulou (2019) and (ii) syntactic change as upward reanalysis (van Gelderen 2001, 2004, Roberts & Roussou 2003) with evidence from the history of Greek negation. Section 4.1 contains evidence from five stages of the Greek language regarding the syntax and morphology of standard conditionals and the Beck et al. (2012) analysis for Classical Greek conditionals is presented. In Section 4.2 the historical Greek data are combined with the theories presented in Section 3 and the Greek morpheme *an* is shown to constitute an instantiation of operator movement in the diachrony of conditionals, a development which resulted in a full modal cycle. Section 5 concludes the paper.

7 This figure was based on data from case by case in context examination of 1,085 instances of *an* in Classical Greek (Plato, *Republic*, Isocrates, *Panegyricus* and *De pace*) and 815 instances of *an* in Koine Greek (Synoptic Gospels & *Secundum Johannem*, Epictetus, *Enchiridion* and *Dissertationes* I-IV).

## 2 Operator movement in conditionals

Using a conservative description of the conditionals discussed here, they are understood as the bi-clausal structures with a protasis $p$ and an apodosis $q$, in which the truth of $p$ is in a way correlated to the truth of $q$. This correlation, going beyond the material implication, may be causal, temporal or some other sort of relation, cf. the distinction between hypothetical (2) and relevance (3) conditionals. As our focus is on adverbial conditionals, the meaning of a prototypical conditional connective, such as the English *if* or the modern Greek *an*, in formal semantics can be represented as in (4) from Kratzer (2012: 92).

(2) *If Maria is tired, she will easily fall asleep.*

(3) *If you are hungry, there are biscuits in the fridge.*

(4) $[[if]] = \lambda p \lambda q \lambda w\ (p(w)\ \rightarrow q(w))$

Thus, adverbial conditionals in terms of meaning consist of three things: a protasis, an apodosis and the relation between the two, which can be referred to as a world or state of affairs $w$ according to which every time $p$ is true in $w$, $q$ is true in $w$.

Regarding their syntactic structure, relatively recent analyses of conditionals within generative grammar argue that their formation involves (i) movement of a world operator clause internally to Spec, CP in the conditional protasis and (ii) restructuring of at least some cases of conditionals, as in Iatridou (1991), or in all cases of conditionals, as in Bhatt & Pancheva (2002, 2006), with the protasis being base-generated in a lower structural position and moving to a higher one. Cross-linguistic evidence from various languages and language families are identified in the relevant literature supporting one or both of these claims (Lycan 2001, Bhatt & Pancheva 2002, 2006, Haegeman 2003, 2006, 2009a,b, 2010, 2012, Arsenijević 2009, Tomaszewicz 2008, 2009, Danckaert & Haegeman 2012). We subsequently provide representative arguments and data that conspire to the direction that the derivation of conditionals at least in some languages requires operator movement of some sort.

In Bhatt & Pancheva (2006) conditional clauses are analyzed as free relatives, i.e., definite descriptions of possible worlds. The link between conditionals and relative clauses goes back to Geis (1970, 1985); there is also discussion of conditional clauses as interrogatives (Larson 1985, Croft 1990/2002, Heine & Kuteva 2002: 249). The similarities of conditionals with structures that traditionally involve operator I-to-C movement are examined in addi-

tion within the context of imperatives, embedded interrogatives and temporal clauses. Examples from English are provided below, but such affinities are attested in several languages (cf. Comrie 1986, Iatridou & Embick 1994, Iatridou 2000, Han 2000, Han & Lee 2007, Haegeman 2009b, 2010, Danckaert & Haegeman 2012).

(5) *Buy this and you will regret it.* — IMPERATIVE WITH CONDITIONAL FUNCTION (I-to-C)

(6) JOHN: *Did Maria leave?* — POLAR QUESTION (I-to-C)
*John asked if Maria left.* — EMBEDDED QUESTION (*if*-clause)

(7) *When/if something is funny, it's OK to laugh.* — CONDITIONAL PARALLEL TO WH-CLAUSE

(8) *Had you taken your keys, you would not be locked outside.* — CONDITIONAL INVERSION (I-to-C)

Haegeman (2009b, 2010) and Danckaert & Haegeman (2012) provide further evidence in favor of operator movement in conditionals within the cartographic approach of Cinque (1999). Their arguments rely on the incompatibility of conditionals (i) with main clause phenomena, such as locative inversion, VP topicalization, argument fronting (9), and (ii) with speaker oriented adverbs, e.g. *frankly*, evaluative, e.g. *fortunately*, epistemic, e.g. *probably* and evidential adverbs, e.g. *apparently* (10) (see Ernst 2009 for an analysis of this within the Nonveridicality theory). It is observed that the incompatibility of conditional clauses with main clause phenomena is shared by temporal clauses, embedded interrogatives and relative clauses and that the unavailability of such structures can be explained through the argument-adjunct asymmetry: adjuncts render these structures grammatical (11 b, 12 b, 13 b), while arguments do not (11 a, 12 a, 13 a). In relative clauses and interrogatives arguments block operator movement. The examples in (12) and (13) are from Danckaert & Haegeman (2012), (12) cited from Culicover (1991).

(9) **If this dress you don't buy, you'll regret it.*

(10) **If frankly/fortunately/probably/apparently she is unable to participate, they will be disappointed.*

(11) (a) **When this dress you don't buy,* TEMPORAL CLAUSES
*you'll regret it.*
(b) *When tomorrow you don't shop,*
*you'll regret it.*

(12) (a) **Robin knows where, the birdseed,* EMBEDDED QUESTIONS
*you are going to put.*
(b) *Lee forgot which dishes, under normal*
*circumstances, you would put on the table.*

(13) (a) **I met the author who, this new column,* RELATIVE CLAUSES
*began to write last year.*
(b) *This is the student to whom, last week,*
*I had recommended your book.*

This evidence is further corroborated also by crosslinguistic data from German, West Flemish, Mandarin, Bulgarian, Romance languages and Polish (Tomaszewicz 2009), and supports different types of island sensitivity and available scope interpretations, omitted for reasons of space. We adopt here, therefore, the view that conditional formation requires some sort of operator movement, a type of A'-movement, both inside the conditional protasis and in relation to the conditional and the matrix clause. We then build a new argument that the history of the Greek particle *an* provides evidence for such movement. We also consider the contribution of the proform *then* which may appear in simple conditionals in English and corresponding proforms of similar temporal and deictic origin appear in other languages, including the modern Greek τότε /tóte/ ('then'). The denotations in (14) and (15) are from Bhatt & Pancheva (2006: 663), while (16) gives examples with the proforms, the English *then* and the modern Greek τότε /tóte/.

(14) [[if John arrives late]] = $\iota w$ [John arrives late in $w$]

(15) (a) $[_{CP}$ [free relative]$_i$ $[_{CP}$ ...proform$_i$...]] CORRELATIVE
(b) $[_{CP}$ ... [free relative]] FREE RELATIVE AS ARGUMENT OR ADJUNCT

(16) (a) *If John arrives late, then we won't have the party.*
(b) Αν δεν βρέξει, (τότε) θα παίξουμε έξω.

| *an* | *δεn* | *vréksi* | *tóte* | *θa* | *péksumε* | *ékso* |
|---|---|---|---|---|---|---|
| If | NEG1 | rain.PNP.3SG | then | FUT | play.PNP.1PL | out |

'If it doesn't rain, then we will play outside.'

There are semantic and structural differences identified in the literature in conditionals with and without an overt proform (Iatridou 1991, 1993). However, the Greek morphological data under investigation do not appear to be sensitive to such distinctions in a way relevant to our present discussion. The etymological relation with the modern Greek word for *when* (όταν /ótan/) and temporality with the modal *an* is worth mentioning, as it also supports the movement analysis of conditionals.

Examples (17) and (18) from Homeric Greek and Standard Modern Greek respectively reveal the etymological origin of the Modern Greek (όταν /ótan/). The Homeric Greek ὅτ' /hot'/ is in fact a wh-element which combined with the modal *an* and resulted in the Modern Greek *when* (όταν /ótan/), which correlates to the same proform, the conditional proform τότε /tote/ ('then'). Similarly to the English *then*, the Modern Greek τότε /tóte/ performs both temporal deixis and can introduce conditional consequents, what was earlier described as relation of 'logical posteriority' in Horrocks (1995: 156) and has more recently been described as 'mental space deixis' in Dancygier & Sweetser (2005: 142).[8]

(17) ἔσσεται ἦμαρ ὅτ᾽ ἄν ποτ᾽ ὀλώλῃ Ἴλιος ἱρὴ

*essetai* *hɛ:mar* *hot'* *an* *pot'* *olo:lɛ:*
be.FUT.IND.3SG day when IRR ever destroy.AOR.SUB.3SG
*ilios* *hirɛ:*
Ilios holy
'The day shall come when sacred Ilios shall be laid low'
(Iliad 4.164)

(18) Όταν γυρίσεις, τότε πάρε ψωμί

*ótan* *ghirísis* *tóte* *páre* *psomí*
when return.PNP.2SG then buy.PNP.SG bread
'When you return, then buy bread.'

We move on now to offer the specific syntax-semantics background through which our data will be analyzed: (i) the Nonveridicality theory, given that

8 Conditionals are mentioned as instances of 'mental space deixis' in Dancygier & Sweetser (2005). Deixis may in fact be a more preferable way of description for conditionals, as it does not carry the metaphysical connotations that may be implied through the possible world analysis. This is a topic that perhaps should be studied separately and may prove fruitful, as linguistic phenomena like conditionals can create bridges among diverse theoretical outlooks hopefully improving mutual comprehension and appreciation across different linguistic frameworks.

all the environments discussed so far are nonveridical (conditionals, imperatives, interrogatives) and (ii) the diachronic generative syntax frameworks of Roberts & Roussou (2003) and van Gelderen (2004).

## 3 Theoretical backgrounds

### *3.1 Nonveridicality and the nonveridicality projection*

The Nonveridicality theory of polarity was developed in Giannakidou (1994 *et seq.*) to explain the distribution of certain elements in languages, which like English *any* and the Modern Greek κανένα /kanéna/ (n-thing) (cf. also Veloudis 1982), cannot appear just anywhere, e.g. they cannot appear in episodic past environments. The examples below form English (19) and Standard Modern Greek (20) manifest this.

(19) **John pressed any key yesterday*.

(20) *Ο Γιάννης πάτησε κανένα πλήκτρο χθες.

| *o* | *Jánis* | *pátisε* | *kanéna* | *plíktro* |
|---|---|---|---|---|
| the.MASC.NOM | John | press.PP.3SG | any.NEUT.ACC.SC | key |

*xθés*
yesterday
'John pressed any key yesterday.'

Such items, which are present in all languages and are not limited to any particular grammatical category, were originally linked to negation (Buyssens 1959, Klima 1964) and were termed negative polarity items. Various partially successful attempts to identify the reasoning behind the limited distribution of negative polarity items (Ladusaw 1979, Zwarts 1995, van der Wouden & Zwarts 1993, Kas 1993) resulted in the formalization of the Nonveridicality theory, first in Giannakidou (1994) and Zwarts (1995) and followed by numerous applications in various languages. (Non)veridicality is formally defined as a property of propositional operators (cf. Giannakidou & Mari 2017, 2020).

**(Non)veridicality for propositional operators** (Giannakidou 2006)

i. A propositional operator *F* is veridical iff *Fp* entails or presupposes that *p* is true in some individual's epistemic model Mᴇ(x); otherwise *F* is nonveridical.

ii. A nonveridical operator $F$ is antiveridical iff $Fp$ entails that *not* $p$ in some individual's epistemic model: $Fp \rightarrow \neg p$ in some $\text{M}_\text{E}(x)$

The epistemic state $\text{M}_\text{E}(x)$ is intended to capture the epistemic component of (non)veridicality, namely that a sentence is being judged as true or false based on evidence, knowledge and beliefs that a speaker (x) has. The speaker's model is the speaker's epistemic state, their body of knowledge, as they evaluate the sentence.

Nonveridical environments are semantic and syntactic environments of uncertainty. They cannot *per se* receive a truth value in the speaker's epistemic state: conditionals, modals, imperatives and interrogatives are such environments. Table 2 gives an overview of the main nonveridical environments.

| Semantic environments | | | Examples with *any* in English |
|---|---|---|---|
| Anti-veridical | | Negation | Ariel didn't talk to *anyone*. |
| | | *without*-clause | Philip entered without *anyone* noticing him. |
| | | *before*-clause | Ella left before eating *anything*. |
| Nonveridical | | conditional protasis | If you see *any* wolves, go inside and lock the door. |
| | | imperatives | Kiss *any* frog. |
| | | interrogatives | Did you eat *any* berries? |
| | | modal verbs | She could see *anyone* from the balcony. |
| | | generics | *Any* wolf eats pigs. |
| | | downward entailing | Few dwarfs brought *any* diamonds. |

**Table 2** Prototypical nonveridical environments (Chatzopoulou 2019)

According to the theory, a linguistic expression is a polarity item if it needs to appear in (any or all) of these environments:

**Definition for polarity items** (Giannakidou 2006)

A linguistic expression α is a polarity item iff:

i. The distribution of α is limited by sensitivity to some semantic property β of the context of appearance; and

ii. β is (non)veridicality.

This is particularly relevant in the case of conditionals and modals regarding the Greek *an*, which in most of its history functions as both conditional

and modal. Giannakidou identifies modal expressions as nonveridical par excellence, and Giannakidou & Mari (2017, 2020) propose the Nonveridicality Axiom of modals as in (21).

(21) **Nonveridicality Axiom of modals**

**MODAL (M)** ($p$) can be defined only if the modal base is nonveridical, i.e. only if M contains $p$ and non-$p$ worlds.

**Veridical, nonveridical modal spaces (sets of worlds)**
(Giannakidou & Mari 2017)

(a) A modal space M is veridical with respect to a proposition p iff
$\forall w' \, (w' \in M \rightarrow p(w'))$

(b) A modal space M is nonveridical with respect to a proposition p iff
$\exists w', w'' \in M \, (w' \neq w'' \, \& \, (p(w') \, \& \, \neg p(w'')))$

(c) A modal space M is antiveridical with respect to a proposition p iff
$M \cap p = \emptyset$

The nonveridical modal base, the set of propositions that are compatible with the speaker's beliefs regarding a proposition $p$, must contain both $p$ and non-$p$ worlds. This account captures the generalization why modals and conditionals carry uncertainty about the truth of their sentence. The nonveridicality characterization is in synch with Kratzer's 'not necessarily realistic' characterization of modal conversational backgrounds (Kratzer 1981, 2012: 36–68; with conversational background being understood as the modal base). Not necessarily realistic backgrounds include informational (i.e, epistemic and doxastic), stereotypical, deontic, teleological and bouletic backgrounds, which all can be described through our perspective as nonveridical. The modal ἄν /an/ of Attic Greek appears in all these environments in its unembedded functions. Table 3 summarizes these environments and representative examples are provided in (22 a–22 c). More examples appear in the corresponding subsections of Section 4, while the interested reader can further look at traditional grammars of ancient Greek on the use of ἄν /an/ in these stages (Jannaris 1897, Goodwin 1889, Smyth 1920).[9]

9 By ancient Greek we refer to all three representative stages that precede the Late Medieval Greek stage, namely Homeric Greek, Classical Greek and Koine Greek, which is also often described as New Testament Greek.

| | Nonveridical (not necessarily realistic) conversational backgrounds | | | | |
|---|---|---|---|---|---|
| Type of conversational background | informational | stereotypical | deontic | teleological | bouletic |
| Relevant grammatical notion | evaluativity, reported speech, epistemic modality | habituality, genericity, iterativity | desirability | intensionality | desirability, wish |

**Table 3** Kratzerian conversational backgrounds as nonveridical & licensing modal *an*

(22) (a) Ζηνὶ βροτῶν οὐκ ἄν τις ἐρίζοι

*sdɛ:ni* *broto:n* *u:k* *an* *tis*
Zeus.DAT mortals.GEN.PL NEG1 IRR someone
*erosdoi*
quarrel.PRES.OPT.3SG
'No one among mortals could/should quarrel with Zeus.'
ABILITY MODALITY OR DEONTIC
(*Odyssea* 4.78)

(b) οὐδὲν ἂν σὲ ἔδει δεῦρο ἰέναι

*u:den* *an* *se* *ede:* *deuro* *ienai*
not-at-all IRR you.ACC.SG must.PAST.IND.3SG here come.INF
'[...] there would be no need for you to come here.'[10]
DEONTIC OR INFORMATIONAL
(Plato, *Republic* 1.328d)

(c) πάντ᾽ ἂν μηχανησαίμεθα ὑπὲρ τοῦ μὴ περιπεσεῖν [...]

*pant* *an* *mihanisémɛθα* *ipér* *tu* *mι*
everything IRR contrive.AOR.OPT.1PL to the NEG2
*peripesín*
fall.AOR.INF
'We would do anything to avoid (death).'[11] STEREOTYPICAL
(Epictetus, *Dissertationes* 1.5.4)

10 This is in fact a conditional apodosis of a counterfactual conditional.

11 The particular abstract of text is the following: οἱ δὲ πολλοὶ τὴν μὲν σωματικὴν ἀπονέκρωσιν φοβούμεθα καὶ πάντ᾽ ἂν μηχανησαίμεθα ὑπὲρ τοῦ μὴ περιπεσεῖν τοιούτῳ τινί, τῆς ψυχῆς δ᾽ ἀπονεκρουμένης οὐδὲν ἡμῖν μέλει. 'Most of us are afraid of mortification of the body and would contrive all means to avoid such a thing, but we care not about the soul's mortification.' (Epictetus, *Dissertationes* 1.5.4).

Building on Giannakidou's theory, Chatzopoulou proposed that nonveridicality is introduced as a syntactic projection, related to but distinct both from morphological mood and from the C position (Chatzopoulou 2012, 2013). Chatzopoulou's account was motivated by the need to account for the distribution of the negative *me* in Greek which appears in nonveridical environments only and extends to other languages employing a negative marker dedicated to nonveridical environments like Greek. NonVerP, Chatzopoulou argues, is a better semantically defined alternative than IrrealisP (Cinque 1999) in location and function—as the nonveridicality theory provides a sold formal analysis of the pretheoretical notion of irrealis. The syntactic relevance of nonveridicality in our terms is preceded by the AFFECT-criterion in Haegeman (1992). As discussed in Chatzopoulou (2018, 2019), positing a nonveridicality projection allows for a syntactic treatment of polarity items in terms of agreement in the sense of Chomsky (2001) with a goal and a probe. Thus, negative polarity items form agreement relations with an overt or covert nonveridical head, e.g. in the case of negator selection in languages that have nonveridical negator. The nonveridicality phrase can host or license elements that contribute uncertainty meaning, such as the Greek *an* in its modal function, a point we return to in Section 4.

That every lexical category has its functional counterpart has long been argued for in van Riemsdijk (1990: 231). In Chatzopoulou (2018, 2019) it is argued that in the same way negative environments are marked compared to nonnegative (as discussed in Horn 1989), similarly nonveridical environments are marked compared to veridical. This is argued based on crosslinguistic evidence, while pragmatic grounding is further provided regarding markedness and the nonveridicality projection, based on the Maxim of Quality of Grice (1975): 'do not say that for which you lack evidence' with the addition that 'if you do, make sure it is sufficiently differentiated from what you do have evidence.' Linking markedness to conceptual universals echoes Elšik & Matras's (2008: 30) approach to markedness: that the motivation for the formation and maintenance of asymmetries in language is conceptual and 'grounded on conversational maxims in order to ensure communicative efficiency'. Postulating a syntactic projection dedicated to nonveridicality—perhaps at the expense of mood, which is not a semantic category—is furthermore in line with the cartographic project direction 'syntacticize as much as possible the interpretative domains' (Cinque & Rizzi 2010: 76). This projection and structural position appears to be involved in the synchronic derivation of conditionals, in at least some of the worlds languages, given that conditional meaning, nonveridicality and meaning in general are universal.

### 3.2 *Syntactic change as upward reanalysis*

Generative outlooks on syntactic change are equally important for the analysis of Greek conditionals and the Greek modal cycle proposed here. It is by now a known fact that the application of generative tools to the description of previous stages of various languages enabled the identification of patterns of syntactic change.[12] Motivated by reasons of structure economy or other acquisitional factors (see van Kemenade 2009) general tendencies or preferences were identified mainly in endogenous language change that took the form of principles, like the Late Merge Principle in van Gelderen (2004, 2011), as in (23), or formed in terms of various degrees of markedness and markedness hierarchies in syntactic operations as in Roberts & Roussou (2003), as in (24).

(23) **Late Merge Principle**

(a) Merge as late as possible.

(b) Avoid Internal Merge.

(24) $F^*_{Move/Merge} > F^*_{Move} > F^*_{Merge} > F$

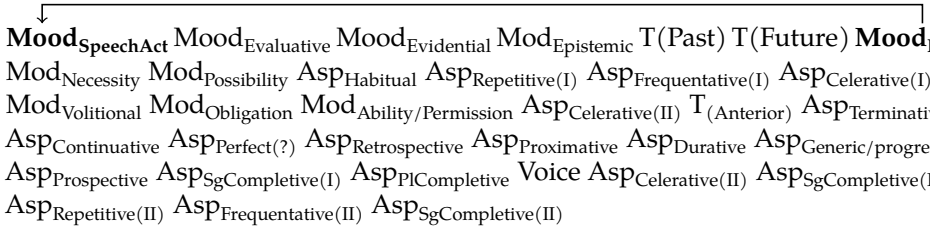
According to the Economy Principles of Chomsky (1995), it is more economical for an element to merge later in the derivation rather than merge early and then move. Operations that involve movement are thus more marked than those that do not. These generalizations have been particularly enlightening on several aspects of language change and syntactic processes that undergo renewal, connected to the notion of the linguistic cycle, like the agreement cycle, the copula cycle, the determiner cycle and the negative cycle, known as Jespersen's cycle, among many others (see van Gelderen 2011 for general overview). The Beck et al. (2012) multiple step analysis of the Attic Greek *an* in conditionals is an instantiation of internal Merge (remerge of an element in a different point in the derivation, see van Gelderen 2008). The general observation is that lexical elements diachronically manifest an up-the-tree movement and eventually get base generated in their former landing site.

Syntactic change as upward reanalysis has been identified also in combination with the cartographic approach of Cinque (1999), as in Roberts (2010) who provides a formal explanation of the notion of semantic bleaching with the aid of the functional hierarchies of Cinque. Haegeman (2009a,b, 2010) applies the cartographic approach to the derivation of conditionals and argues

12 For the development of the field of diachronic generative linguistics after the 1990s see van Gelderen (2015, 2016a).

that operator movement in conditional structures is in fact a movement of an element hosted at the IrrealisP on the Cinque hierarchy. The development of negation in Greek is also relevant to our discussion, as this movement has been identified regarding the transformations of the Greek NEG2 *me* in Chatzopoulou (2014, 2019) and is further supported here in this case regarding the Greek modal *an*. The shift in function of the particle *an* from modal to conditional has followed the exact same path, from an element located in IrrealisP to an element located in SpeechActP. It seems thus that these two projections are linked in more than one way.[13]

(25) The upward reanalysis of NEG2 *me* and modal *an* on Cinque's (1999) hierarchy




At this point we can turn to the Greek data regarding standard conditional formation in five different stages of the language, from Homeric Greek to Standard Modern Greek.

## 4 Operator movement in the history of Greek conditionals

The material presented here is part of an ongoing investigation of the syntax of conditionals in the history of the Greek. Both qualitative and quantitative evidence were examined regarding the syntactic expression of conditionality from each linguistic stage. The following texts were used for the quantitative evidence, while qualitative data were drawn also for other texts per stage. The works of specific writers, such as Thucydides, were also investigated separately in the databases in order to track transitional phases from one stage to the other.

This is a corpus study with anticipated limitations (lack of native speaker judgements and actual negative evidence for all stages other than Standard Modern Greek); the goal therefore was to maintain a balance between proper methodology and feasibility in order to arrive at coherent and adequately reliable results in a realistic way. The identified tokens of the morpheme *an*

13 The connection between conditionals and speech act is known since Austin (1961) and van der Auwera (1986).

| | |
|---|---|
| Homeric corpus (*Iliad*, *Odyssey*), Hesiod (*Opera et dies*, *Theogony*) | 8th c. BC |
| Attic Greek (Thucydides, *History*, Lysias, Plato *Republic*, Aristotle *De anima*) | 5th–4th c. BC |
| *New Testament*, Epictetus (*Dissertationes I-IV, Enchiridion*) | 1st c. AD |
| *Digenis Akritis*, *Chronicle of Moreos*, *Floris and Blancheflour* | 14th c. AD |
| *Varlaam & Iosafath* (codex I 104) | 17th c. AD |

**Table 4** Texts examined

were examined case by case manually in all texts and checked against translations of reference in cases of ambiguity. The *Thesaurus Linguae Graecae – TLG* database was used for corpora investigation and the perseus.tufts.edu tools for morphological analysis and reference translations.

### *4.1 The Greek data*

All types of conditionals discussed in the literature are identified in our corpus in the history of Greek. We are focusing here on adverbial conditionals, with no restrictions on the illocutionary force of the matrix clause, while other types are marginally commented on. In all its stages, Greek is a language with inflection, gender and different forms of grammatical agreement. Ancient Greek in particular, namely Homeric, Attic and Koine Greek, manifests a quite complex mood system (indicative, subjunctive, optative, imperative), as well as nonfinite forms (infinitives and participles). Both the mood system and the nonfinite elements would either decline or shrink by Late Medieval Greek (see Joseph 1990, Horrocks 2010) with the rise of the modern Greek (ι)να /(i)na/—formerly a purpose complementizer—now a modal particle, traditionally described as a marker of subjunctive mood or the head of the nonveridicality projection in Chatzopoulou (2018, 2019: 123). There are changes in the overall grammar regarding inflectional morphology and word order from stage to stage. We are referring to these changes only to the extent that they relate to our topic. In all stages the protasis can either precede or follow the apodosis. It is however worth mentioning, as conditionality and conditional syllogisms are studied both in Aristotle and the Stoics, that the terms they use for the two clauses are *hegoúmenon* (ἡγούμενον) 'that which precedes' for the conditional clause and *légon* (λῆγον) 'the final' for the matrix clause.[14] There is therefore unsurprisingly accordance with the 14th universal of word order in Greenberg (1963) for the protasis to precede the apodosis, reflected in the Greek etymology of these terms as well. In the sections that

14 See for this terminology Diogenes Laertius 7.1.71–73.

| Homeric | Classical | Koine | Late medieval | Standard modern |
|---|---|---|---|---|
| εἰ /e:/ | εἰ /e:/ | εἰ /i/ | (ει /i/) | (ε)αν /(ε)an/ |
| ἤν /ɛ:n/ | ἄν /an/ | ἄν /an/ | (ε)α(ν) /(ε)a(n)/ | |
| αἰ /ai/ | ἐάν /ean/ | ἐάν /ean/ | | |

**Table 5** Conditional particles in the history of Greek

follow examples of conditionals are provided with brief discussion from all five stages of Greek, while Table 5 contains the conditional particles per stage, either heads or specifiers of the CP in the conditional clause.

We see that there are multiple particles that introduce conditional clauses in Homeric, Classical Greek and Koine, while by Late Medieval one particle, *(ε)α(ν)* /(ε)a(n)/, is statistically dominant at 87.1%. This is the one that would persist in the modern language. This stands in contrast to the number of modal particles per stage, presented in Table 6, which we argue that are linked to the Nonveridicality phrase or IrrealisP. More discussion on the particular forms and representative examples are provided in the following sections. Yet it should already be evident how a full modal cycle has taken place from Homeric to Standard Modern Greek, given that all the functions modal *an* of Homeric and Classical Greek have been assumed in Modern Greek predominantly by να /na/ and by other particles.

| Homeric | Classical | Koine | Late medieval | Standard modern |
|---|---|---|---|---|
| ἄν /an/ κε(ν) /ke(n)/ (all modal functions) | ἄν /an/ (all modal functions) | ἄν /an/ ἵνα /ina/ | (ι)να /(i)na/ θ(έν)α /θ(έn)a/ ά(φε)ς /a(fɛ)s/ | να /na/ (teleological) θα /θa/ (informational, stereotypical, future) ας /as/ (bouletic, deontic) |

**Table 6** Modal particles in the history of Greek

### *4.1.1 Homeric Greek*

Homeric Greek is a stage of morphological diversity regarding the expression of conditionality, as there are at least three CP related elements that introduce conditional clauses: εἰ /e/ (26), (27), ἤν /ɛ:n/ (28), αἰ /ai/ (29). Although Homeric Greek—with which we refer to the language also of Hesiod—was a language particular to epic poetry, it was comprehensible to speakers of Attic

Greek and quite influential. In any case Homeric texts represent a variety of grammatical Greek, which because it was written in verse, it is also more immune to subsequent editorial interventions (see la Roi 2019).

Homeric Greek manifests an elaborate system of morphological mood marking on the verb forms to which we do not expand here, given that our focus is on the conditional and modal particles. The interested reader can find rich material and discussion regarding Homeric mood marking in Willmott (2007) in terms of semantic mapping. Examples (26) and (27) below contain a counterfactual and a relevance conditional respectively, with conditional complementizer εἰ /e:/ and modal particles κε(ν) /ke(n)/ and ἄν /an/ indicated in boldface. We see that the conditional protasis follows the matrix clause in (26), given the liberal word order especially in ancient Greek and that the verb is in indicative form, although the conditional clause is a nonveridical environment, while the nonveridical negator NEG2 μη /mɛ:/ is present. This shows how morphological mood can be independent from nonveridical marking, namely the nonveridicality projection, where both modals κε(ν) /ke(n)/ and ἄν /an/ are hosted in (26), (27) and (29).[15]

(26) ἔνθα **κεν** ὑψίπυλον Τροίην ἕλον υἷες Ἀχαιῶν

*ent$^h$a ken hypsipylon Troiɛ:n hɛlon hyiɛs*
Then KEN high-gated Troy taken son.ACC.PL
*Ak$^h$aio:n*
Achaeans.GEN
'Then would the sons of the Achaeans have taken high-gated Troy,'

**εἰ** μὴ Ἀπόλλων Φοῖβος Ἀγήνορα δῖον ἀνῆκε

*e mɛ: Apollo:n P$^h$oibos Agɛ:nora di:on*
if NEG2 Apollo Phoebus Agenor.ACC godly.ACC
*anɛ:kɛ*
raise.AOR.IND.3SG
'had not Phoebus Apollo aroused godly Agenor.' (*Iliad* 21.544–5)

15 There is a homophonous particle *an* which appears structurally also before Wackernagel clitics, μεν /mɛn/, δε /dɛ/, (discourse particles indicated as 2P in the glosses, because they usually are the second word of the clause) in Homeric Greek, which is an adverb of location, a contracted form of ἀνά /ana/. Our corpus contains only the modal particle, not the locative adverb. This may or may not have contributed to the reanalysis of particle *an* as a conditional particle.

(i) ἂν δ᾽ ἄρα Τηλέμαχος περικαλλέα βήσετο δίφρον.

*an d' ára Tɛ:lémak$^h$os perikalléa bɛ:seto díp$^h$ron*
on 2P then Telemachus beautiful step.AOR.IND.3SG chariot
'Then Telemachus mounted the beautiful car.' (*Odyssey* 3.481)

(27) **εἰ** δέ τις ἀθανάτων γε κατ᾽ οὐρανοῦ εἰλήλουθας

*e: dε tis at$^h$anato:n gε kat' u:ranu:*
if 2P someone immortal.GEN.PL P from sky.GEN
*e:lε:lu:t$^h$as*
come.PRF.IND.2SG
'If thou art one of the immortals come down from heaven,'

οὐκ **ἄν** ἔγωγε θεοῖσιν ἐπουρανίοισι μαχοίμην

*u:k an εgogε t$^h$εoisin εpuranioisi*
NEG1 AN of course god.PL.DAT heavenly.PL.DAT
*mak$^h$oimε:n*
fight.PRES.OPT.1SG
'then will I not fight with the heavenly gods.' (*Iliad* 6.129)

(28) **ἤν** δέ τις ἢ στοναχῆς ἠὲ κτύπου ἔνδον ἀκούσῃ [...]

*ε: δε tis ε: stonak$^h$ε:s ε:e ktypu: enδon*
if 2P someone or groaning.GEN or din.GEN.SG inside
*aku:sε:*
hear.AOR.SUBJ
'If anyone hears within groanings or din from inside [...]'

μή τι θύραζε προβλώσκειν

*mε: ti t$^h$yrasdε problo:ske:n*
NEG2 at all out rush.PRES.INF
'let them not rush out.' (*Odyssea* 21.383-385)

(29) δεῖπνον δ᾽, **αἴ κ᾽** ἐθέλω, ποιήσομαι ἠὲ μεθήσω

*de:pnon d ai k et$^h$elo: poiε:somai ε:e*
meal.ACC 2P if KE want.PRES.IND.1SG make.FUT.IND or
*mεt$^h$ε:so:*
let.FUT.IND.1SG
'If I please, I will make my meal of you, or let you go.'
(Hesiod, *Opera et dies* 209)

The modal particles κε(ν) /ke(n)/ and ἄν /an/ are identified as intensional in Gerö (2001), where she discusses the notion of irrealis in relation to Greek moods and past tense, understood however more as counterfactual. She also describes the type of morphological past tense involved in counterfactual conditionals as 'fake' (following Iatridou & Embick 1994, Iatridou 2000 as an exclusion feature of remoteness). More plausibly, counterfactuality is an indication of nonveridicality, and in fact a kind of antiveridical marking (see Table

2), in that it entails or implicates that the contained proposition is false. The particle ἄν /an/ in the Homeric stage is exclusively modal (epistemic, evidential, habitual, futurate and general irrealis) without contributing any kind of illocutionary force or CP relevance (see examples (1) and (27)). It is only in Classical Greek that ἄν /an/ begins to appear as a purely conditional particle, in Spec, CP, while also keeping its former modal function in the majority of its attestations, as shown previously in Figure 1.

### *4.1.2 Attic Greek (Classical Greek)*

In the transition from Homeric Greek to Classical Greek there seem to have been three mergers: (i) the functions of αἰ /ai/ are absorbed by εἰ /e:/, mostly however with indicative and optative, (ii) the conditional function of □ν /ɛ:n/ is absorbed in Classical Greek by ἄν /an/ and the blended form ἐάν /ean/ (εἰ /e:/ + ἄν /an/), the latter first appearing in the Classical Greek language and (iii) modal κε(ν) /ke(n)/ becomes obsolete, replaced by modal ἄν /an/.[16] Classical Greek, namely the Attic dialect, is the most intensively studied stage, and a general overview of the conditional types and mood selection is given in Table 7 below based on descriptions of traditional grammars (Jannaris 1897, Goodwin 1889, Smyth 1920) with some terminological updating, e.g. the future less vivid. Examples follow not for all types of conditionals due to limitations of space, but only regarding the conditional particles that introduce the conditional protasis: εἰ /e:/ and ἄν /an/ (or ἐάν /ean/).

| *If*-word | protasis | apodosis | Meaning |
|---|---|---|---|
| ἄν /an/ or ἐάν /ean/ | subjunctive/ (optative) | future indicative | future more/less vivid |
| | subjunctive | nonpast indicative | iterative in nonpast |
| εἰ /e:/ | indicative | any mood | realis |
| | optative | past tense indicative (+ἄν /an/) | iterative in the past |
| | optative | optative + ἄν /an/, nonpast indicative, potential infinitive or participle | generic/habitual |
| | past tense indicative | past tense indicative + ἄν /an/ | counterfactual |

**Table 7** Distribution of conditional particles εἰ /e:/ & ἄν /an/ (or ἐάν /ean/) in Attic Greek

16 By the Attic Greek stage κε(ν) /ke(n)/ appears only in poetry and the chorus sections of drama.

(30) ἐπεύχομαι πᾶσι τούτοις [...]

*ερευkʰimai pasi toutois*
pray.PRES.IND.1SG all.DAT.PL they.DAT.PL
'I beseech them all that'

**εἰ** μὲν ἀληθῆ πρὸς ὑμᾶς εἴποιμι [...]

*e: men ale:tʰe: pros hymas e:poimi*
if 2P true.ACC.PL to you.ACC.PL speak.AOR.OPT.1SG
'if I shall speak the truth now [...],'

εὐτυχίαν μοι δοῦναι καὶ σωτηρίαν

*eutukʰian moi dunai kai so:te:rian*
happiness.ACC me.DAT give.AOR.INF and salvation.ACC
'they may grant to me prosperity and salvation.'
(Demosthenes, *De corona* 141) REALIS

(31) οὐκ οἶδ' ἂν εἰ πείσαιμι.

*uk oid' an e: pe:saimi*
NEG1 know.1SG AN if convince.AOR.OPT.1SG
'I don't know if I will convince him.'[17]
(Euripides, *Medea* 941) ARGUMENT OF MATRIX VERB

(32) ἡμῖν ἂν εἶεν, εἰ κρατοῖμεν, εὐμενεῖς

*hε:min an e:en e: kratoimen eymene:s*
we.DAT AN be.PRES.OPT.3PL if win.PRES.OPT.1PL benevolent
'Would they be, if we should prevail, well disposed to us?'
(Euripides, *Electra* 632) PARENTHETICAL

(33) εἶπον [...] ἵνα [...] ἐψευσμένος ὦ

*e:pon hina εpsευsmεnos o:*
say.AOR.IMP.2SG so-that lie.PCP.PF.MASC.NOM be.PRES.SUBJ.1SG
'Speak out [...], that I may find myself the victim of [...] falsehood,'

17 Full citation: οὐκ οἶδ' ἂν εἰ πείσαιμι, πειρᾶσθαι δὲ χρή. 'I don't know whether I shall win him over, but I must try.' (Euripides, *Medea* 941).

ἂν φανῇς σὺ μὲν εἰδὼς

*an* *pʰanɛ:s* *sy* *mɛn* *e:do:s*
if show.AOR.SUBJ.2SG you.ACC 2P know.PCP.PF.MASC.NOM
'if you [...] prove to have knowledge of it [...].'
(Plato, *Meno* 71d)

(34) ἂν μὲν οἶμαι μαθήσεως προσηκούσης τύχῃ,

*an* *mɛn* *Oimai* *matʰɛ:seo:s* *prosɛ:ku:sɛ:s*
if 2P think.PRES.IND.1SG teaching proper.GEN
*tykʰɛ:*
have.AOR.SUBJ.3SG
'If it receives the proper teaching,'

εἰς πᾶσαν ἀρετὴν [...] ἀφικνεῖσθαι

*e:s* *Pasan* *aretɛ:n* *apʰikne:stʰai*
in all.ACC virtue.ACC arrive.PRES.INF
'[...] it will attain to consummate excellence,'

ἐὰν δὲ μὴ ἐν προσηκούσῃ [...] τρέφηται,

*ɛan* *dɛ* *mɛ:* *ɛn* *prosɛ:ku:sɛ:* *trɛpʰɛ:tai*
if 2P NEG2 in proper grow.PRES.SUBJ.3SG
'but, if it be grown [...] in the wrong environment,'

εἰς πάντα τἀναντία αὖ

*e:s* *panta* *tanantia* *au*
to all.ACC contrary.ACC again
'the outcome will once more be quite the contrary.'
(Plato, *Republic* 6.492a)

Example (30) contains a realis conditional with an adverbial protasis, in (31) the conditional protasis *e: pesaimi* functions as an internal argument of the matrix verb, yet we note the adjacency to the modal ἄν /an/, glossed as AN in order to distinguish it from the conditional ἄν /an/ (glossed as 'if') that first appears in Classical Greek. In examples (33) and (34) the conditional protases are respectively introduced with ἄν /an/ and the blended variant ἐάν /ean/ (e:=an), which already indicates clause internal movement of the *an* modal particle to a CP related position. In the conditional use the two forms ἄν /an/ and ἐάν /ean/ are in free variation with one another and both in complementary distribution with εἰ /e:/. Table 8 gives a clearer picture of the variation of particles, especially regarding the rise of the merged form

| *if*-words & modals | Homer 8th c. BC & Hesiod 8th–7th c. BC | Thucydides 5th c. BC | Plato 5th–4th c. BC | Total |
|---|---|---|---|---|
| ἐάν /ean/ | 0 (0 %) | 12 (0.78 %) | 1,237 (10.8 %) | 1,249 |
| εἰ /e:/ | 722 (31.66 %) | 626 (40.75 %) | 3,388 (29.59 %) | 4,736 |
| αἰ /ai/ | 161 (7.06 %) | 9 (0.58 %) | 0 (0 %) | 170 |
| ἤν /ɛ:n/ | 21 (0.92 %) | 257 (16.73 %) | 15 (0.13 %) | 293 |
| ἄν /an/ | 377 (16.53 %) | 631 (41.08 %) | 6,799 (59.4 %) | 7,807 |
| κε(ν) /ke(n)/ | 989 (43.37 %) | 1 (0.06 %) | 7 (0.06 %) | 997 |
| Total | 2,280 | 1,536 | 11,446 | 15,252 |

**Table 8** *If*-words and modals from Homer to Plato

ἐάν /ean/ by Attic Greek, gradually in Thucydides, who represents an older, more conservative form of Attic Greek.

### *4.1.3 Koine Greek*

In the transition from Classical Greek to Hellenistic Koine Greek the functions of the conditional particles and modal particle ἄν /an/ remain the same, but there are overall changes in the language that are preparing us for the next stage. Changes in the sound system with iotacism and loss of contrastive vowel length resulted in severe homophony in the mood system (Joseph 1978/1990, Horrocks 2010). As a result, nonveridical marking can no longer be signaled on the verb through the mood system and ἵνα /ina/ gradually assumes functions formerly assigned to non-indicative moods (Chatzopoulou 2019: 102–106) and the verb forms by the Late Medieval Greek stage will be left only with temporal and aspectual information. It is worth noting that from all three conditional particles of Attic εἰ /e:/, ἄν /an/ and ἐάν /ean/, the only particle impacted by the general sound changes is the first one, still transcribed as εἰ, but in Koine Greek pronounced /i/. This is the particle that will hardly make it to late medieval texts and is no longer used in Standard Modern Greek. The examples below are representative of the functions performed by the conditional particles and the modal ἄν /an/ in the Koine stage. εἰ /i/, ἄν /an/ and ἐάν /ean/ still introduce conditional antecedents in examples (35) to (39) and the modal ἄν /an/ appears in the apodosis of the counterfactuals (36) to (38) and in the relative clause in (40), as was also the case in Attic Greek. In all cases the modal ἄν /an/ is a marker of nonveridicality, linked to the nonveridicality projection discussed in Section 3.

(35) **Ἐὰν** γὰρ ἀφῆτε τοῖς ἀνθρώποις [...]

*ean gar afite tis anθropis*
if 2P let.AOR.SUB.2PL the.DAT.PL people.DAT.PL
'If you forgive people [...]'

ἀφήσει καὶ ὑμῖν ὁ πατὴρ ὑμῶν [...]

*afisi ke ymin o patir ymon*
let.FUT.IND and you.DAT.PL the father you.GEN.PL
'your father will forgive you too [...].'
(*Novum Testamentum, Secundum Mattheum* 6.14.1)

(36) **εἰ** μὴ γὰρ ἦν Χρύσιππος, οὐκ **ἂν** ἦν στοά.

*i mi ghar in Chrysipos uk an in*
If NEG2 2P be.AOR.IND.3SG Chrysippus NEG1 AN was
*stoá*
Stoa
'If Chrysippus did not exist, Stoicism would not exist.'
(Diogenes Laertius 7.7.183)

(37) **εἰ** ἐκ τοῦ κόσμου ἦτε, ὁ κόσμος **ἂν** τὸ ἴδιον ἐφίλει.

*i εk tu kosmu itε o kosmos an to*
if from the world be.AOR.IND.2PL the world AN the
*iδion εfili*
same love.PRET.IND
'If you were of the world, the world would love you as its own.'
(*Novum Testamentum, Secundum Johannem* 15.19)

(38) **εἰ** ἐν Σοδόμοις ἐγενήθησαν αἱ δυνάμεις [...]

*i εn Soδómis εγεníθisan e*
if in Sodoma make.AOR.IND.3SG the.FEM.NOM.PL
*δynámis*
power.NOM.PL
'If these powers had taken place in Sodoma [...]'

ἔμεινεν **ἂν** μέχρι τῆς σήμερον.

*émιnεn an méxri tis símεron*
stay.AOR.IND.3SG AN until the.GEN today
'they would remain until today.'
(*Novum Testamentum, Secundum Mattheum* 11.23.3)

(39) ἂν μὴ τραγῳδήσω, τραχηλοκοπηθήσομαι

*an mi traγοδíso*
if NEG2 participate-in-tragedy.FUT.IND.1SG
*traxilokopiθísomε*
behead.FUT.IND.1SG
'If I do not take a part in the tragic acting, I shall have my head struck off.' (Epictetus, *Dissertationes* 1.2.15)

(40) εἰς ἣν ἂν οἰκίαν εἰσέλθητε, ἐκεῖ μένετε

*is in an ikían isélθitε ekí*
to that.FEM.ACC AN house.ACC enter.AOR.SUBJ.2PL there
*ménεtε*
stay.PRES.IMP.2PL
'To the house that you enter, there you should stay.'
(*Novum Testamentum, Secundum Lucam* 9.4.1)

It is furthermore worth mentioning that the modal *an*, apart from its use in the protasis or apodosis of conditionals, is very productive both in Classical and in Koine Greek in its attestations, not only in temporal clauses, but also in relative clauses. We have such an example in (40), is in an ikían isélθitε ..., where we find modal *an* after the female relative pronoun ἣν /in/, to refer to the house in which one happens to enter. It is clear that the relative clause itself is a result of movement, as it receives a thematic role lower in the structure from the verb εἰσέλθητε /isélθitε/ ('enter'), which additionally appears in the subjunctive mood. We argue that in these cases too, the modal *an* is an element linked to the Nonveridicality phrase, in its embedded functions in conditional, temporal and relative clauses, while its unembedded functions were presented in Table 3.

### *4.1.4 Late Medieval Greek*

By the late medieval stage all major shifts in the mood system are complete and the modern form of the language is already recognizable, especially with the nonveridical marking of the (ί)να /(i)na/ particle—which replaced the modal *an* in most of its previous functions—and the four combinations of temporal and aspectual marking on the verb forms: perfective past (PP), imperfective past (IP), perfective non past (PNP), imperfective non past (INP) (see Joseph & Philippaki-Warburton 1987, Haberland 2010). The conditional particles of previous stages persist, but they are no longer in complementary distribution but interchangeable. The modal αν /an/ is no longer attested.

(41) **Εάν** γυρεύω δίκαια, τίποτες μη με ποιήσης.

*Ean yirévo dhíkea típotes mi me*
if search.IN.1SG rightfully nothing NEG2 me.ACC
*piísis*
do.PNP.2SG
'If I am searching rightfully, do not harm me in any way.'

**Ει** δε γυρεύω άδικα, κόψε την κεφαλήν μου.

*I δε yirévo ádhika kópse tin kefalín*
if 2P search.IN.1SG wrongfully cut.IMP.2SG the head.ACC
*mu*
my
'If I am searching wrongfully, cut my head.'
(Floris and Blancheflour 1390–1, Wagner 1870)

(42) **Εἰ** δὲ καὶ οὐκ ἔλθης τὸ γοργόν [...]

*i δε κε uk élθis to Γοργόν*
if 2P and NEG1 come.PNP.2SP the fast
'If you do not return fast,'

τὰ τέκνα σου νὰ σφάξουσιν

*ta tékna su na sfáksusin*
the.NEUT.PL children.PL your NA kill.PNP.3PL
'May they kill your children.'
(*Vassilios Digenis Akritis, Asma tou Amira* 284–286)

(43) **Ἂν** οὐδὲν ἔλθης τὸ γοργόν, κατέβην ἔχω εἰς Μάγγε

*i uδén élθis to γοργόν katévin éxo is*
if NEG1 come.PNP.2SG the fast come.INF will.1SG to
*Mágε*
Mage
'If you do not return promptly, I will go to Mage.'
(*Vassilios Digenis Akritis, Asma tou Amira* 288)

(44) Ἐκεῖνοι **ἄν** σε εἶχαν εὑρεῖ, Συρίαν οὐκ ἐθεώρεις

*εkíni **an** se íxan εvrí Sirían uk εθεóris*
they.NOM if you.ACC had found Syria NEG1 see.PRET.2SG
'If they had found you, you would not see Syria again.'
(*Vassilios Digenis Akritis, Asma tou Amira* 141)

In examples (41) and (42), (43) we have semantically identical conditionals, as we actually have the same verbs (yirévo and élθis), but the conditional particle that introduces each one is different, ει /i/ in one case and (ε)αν /(ε)an/ in the other. This would not have been possible at an earlier stage. Interestingly, this transition coincides with two more shifts that took place during the Late Medieval Greek stage: (i) the unavailability of true negative imperatives and (ii) the ban of NEG2 *mi* from the conditional protasis (only NEG1 is now available), both discussed in detail in Chatzopoulou (2019: 159–165). Both shifts were explained there with reference to the syntactic change of status of NEG2 *mi* from phrase to head (cf. Zanuttini 1997 and Giannakidou 2009 especially for Greek) and from an element located in IrrealisP to one located in SpeechActP, where it now appears to compete with the particle *an* in its sole conditional function. However, there may be room for further investigation here, as all these changes point to a general restructuring of the left periphery in this stage and the syntactic status of NEG2 *mi* may not be uniform in all its functions.

The verb forms particular to this stage regarding the expression of conditionals are periphrastic, formed through various auxiliaries, e.g. εἶχα /íxa/ ('had'), ἤθελα /íθela/ ('wanted'), plus a nonindicative verb type (subjunctive or infinitive), with or without the (ι)να /(i)na/ particle (see Markopoulos 2009, Holton, Horrocks, Janssen, Lendari, Manolessou & Toufexis 2019). [18] However relevant, these structures cannot be discussed here to any extent, apart from the fact that this (ι)να /(i)na/ particle, which resulted in the modern Greek *na* (Joseph 1981, 1990, Horrocks 2010), appears now often in the protasis and apodosis of conditionals in functions formerly performed by the modal *an*, but in a more fixed syntactic position. The particle (ι)να /(i)na/ has been claimed to be the head of the Nonveridicality projection in Chatzopoulou (2018, 2019), a change that started in Koine and persisted to Standard Modern Greek. Regarding Late Medieval Greek, it was one of these periphrastic conditional structures, ἤθελα /íθela/ ('wanted') + *na* that formed the modern Greek futurate/modal particle θα, which we argue, is one more nonveridical head of Standard Modern Greek.

### *4.1.5 Standard Modern Greek*

By the Standard Modern Greek stage all other conditional particles are obsolete and the stereotypical particle that introduces conditional antecedents is (ε)αν /(ε)an/ for all types of conditionals, as shown in Table 9. A few examples follow, again not for each type of conditional for reasons of space.

18 See in particular Holton et al. (2019), vol. 3: 1795–1814, vol. 4: 1901–1905, 1939–1940.

| *If*-word | protasis | apodosis | meaning/function |
|---|---|---|---|
| (ε)αν /(ε)an/ | perfective nonpast | imperfective nonpast/ future θα | future more/less vivid |
| | perfective/imperfective nonpast | imperfective nonpast/ future θα/*na* | iterative in nonpast |
| | any tense/aspect combination | any tense/aspect combination | realis |
| | imperfective past | imperfective past | iterative in the past |
| | imperfective past/nonpast | perfective/imperfective past/nonpast | generic/habitual |
| | (fake future θα) + fake past | fake future θα + fake past | counterfactual |

**Table 9** The conditional particle αν /an/ in Standard Modern Greek

(45) (a) **Αν** η Μαρία τηλεφωνήσει, θα απαντήσω.

*an i María tilefonísi θa apantíso*
if the.FEM Maria.NOM.SG call.PNP.3SG FUT reply.PNP.1SG
'If Maria calls, I will respond.' REALIS

(b) **Αν** η Μαρία τηλεφωνούσε, θα απαντούσα.

*an i María tilefonúsε θa apandúsa*
if the.FEM Maria.NOM.SG call.IP.3SG IRR reply.IP.1SG
'If Maria had called, I would have responded.' COUNTERFACTUAL

In (45 a) we have a simple realis conditional, while (45 b) is an unambiguous counterfactual. The only difference between the two examples morphologically is the shift from perfective non past to imperfective past on the verb forms of the protasis and the apodosis. What is crucial for our topic is that in both examples the conditional protasis is introduced with αν /an/, which remains in free variation with εάν /eán/ in modern Greek as well, although εάν /eán/ may be considered more formal by some speakers. The functions of the ancient Greek modal ἄν /an/ are now assumed by other particles, in this case the particle θα /θa/. The particle θα /θa/ is temporal in example (45 a) indicating futurity in the traditional understanding, but in example (45 b) the particle θα /θa/ is epistemic (see Giannakidou 2012 and Giannakidou & Mari 2017, 2020 for a unified account of future as epistemic modality). In our understanding, θα /θa/ is a nonveridical head, an element signaling the nonveridicality projection, like the modal ἄν /an/ of ancient Greek. There

are more particles that appear in this place syntactically and are linked to the nonveridicality projection in modern Greek. Depending on the context, the nonveridical particles θα /θa/ and να /na/, may or may not carry illocutionary force (cf. Roussou 2000), while the exhortative ας /as/ and the prohibitive μην /min/, the modern Greek NEG2, always contribute directivity. Example (46) manifests the syntactic interchangeability of these particles in modern Greek and Table 6, repeated below as Table 10, summarizes the modal particles that pertain to the stages of the language we have examined.

(46) Αν τηλεφωνήσει, θα/να/ας/μην απαντήσεις.

| *an* | *tilefonísi* | *θa/* | *na/* | *as/* | *min* | *apantísis* |
|---|---|---|---|---|---|---|
| if | call.PNP.3SG | FUT/ | NA/ | AS/ | NEG2 | reply.PNP.2SG |

'If s/he calls, you will/should/shouldn't respond.'

| Homeric | Classical | Koine | Late medieval | Standard modern |
|---|---|---|---|---|
| ἄν /an/ κε(ν) /ke(n)/ (all modal functions) | ἄν /an/ (all modal functions) | ἄν /an/ ἵνα /ina/ | (ι)να /(i)na/ θ(έν)α /θ(én)a/ ά(φε)ς /a(fɛ)s/ | να /na/ (teleological) θα /θa/ (informational, stereotypical, future) ας /as/ (bouletic, deontic) |

**Table 10** Modal particles in the history of Greek

The analysis of Giannakidou (2009) regarding the semantic contribution of Modern Greek να /na/ and θα /θa/ as particles that introduce a temporal variable, which the Modern Greek perfective nonpast form lacks,[19] carries over with some restrictions, to the modal particle ἄν /an/ of Homeric and Koine Greek. All the functions of modal *an* are assumed by these particles and by the exhortative ας /as/ ('let'), which further contributes illocutionary force in all its environments. The semantic details of this shift and the exact relation between the modal particles and morphological mood marking in each historical stage deserve individual investigation and however related cannot be further discussed here for reasons of space.

19 Giannakidou (2009) analyzes the perfective nonpast form of the verb as a type of defective tense that cannot perform time reference by itself. From a historical linguistic perspective the these verbs forms, as remnants of reanalysis processes, can be described as deranked verb forms, which are stripped of some of their previous morphological marking, in this case, mood marking (see on deranking in general Croft 2001 and Cristofaro 2003: 217).

### 4.2 *General overview, Beck et al. (2012) and analysis*

The historical data indicate that it was the modal ἄν /an/ of ancient Greek (Homeric, Attic, Koine) that was reanalyzed as an exclusive conditional particle, to the expense of all others. Examples (1 a) and (1 b) are repeated below as (47 a) and (47 b) and manifest this development from the language of the Homeric texts and Hesiod (8th c. BC) up to Standard Modern Greek. Figure 2 shows the conditional and modal particle variation for the language stages that were examined.

(47) (a) κεῖσε δ᾽ **ἂν** οὔ μιν ἐγώ [...] ἐῷμι ἔρχεσθαι.

*kése d' an u: min ego: eo:mi erkʰestʰai*
there 2P IRR NEG1 him I permit.AOR.OPT.1SG come.INF
'I would not allow him to go there [...].' (*Odyssey* 16.85)

(b) **Αν** βρέξει αύριο, θα μείνω σπίτι.

*an vréksi ávrio θa Míno spíti.*
IF rain.PNP.3SG tomorrow will stay.PNP.1SG home
'If it rains tomorrow, I will stay at home.'
(Standard Modern Greek)

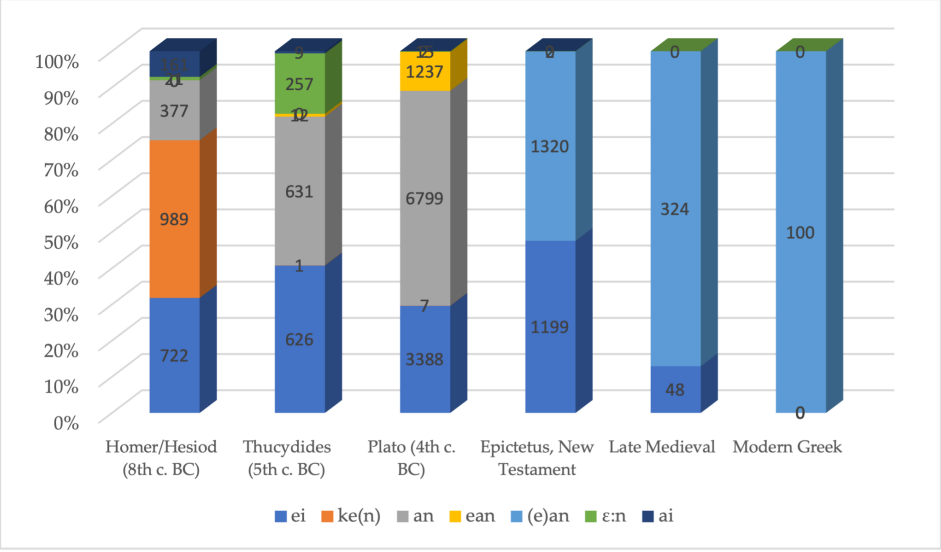



**Figure 2** *If*-words and conditional modals in the history of Greek[20]

It was for the case of Attic Greek ἄν /an/ that Beck et al. (2012) adopt the operator movement analysis for conditionals of Bhatt & Pancheva (2006). They analyze Greek conditionals within situation semantics (see Barwise 1981, Kratzer 2009). They propose the following semantics for ἄν /an/ as a modal universal quantifier ranging over situations (see Beck et al. 2012: 67).

(48) $[[\text{ἄν}]]^{g,w} = \lambda\, p_{<st>}.\lambda\, q_{<st>}.\lambda\, s \leq w\, [(\forall\, s' \in M : p(s') = 1)\ \exists\, s''\ [s' \leq s''\ \&\ q(s'') = 1]]$

*Paraphrase*: The conditional is true of an actual-world situation s iff, whenever the antecedent is true in a situation s′, the consequent is true in a situation s″ which extends s′.

If M contains only maximal situations (worlds): modal AN

If M contains only subsituations of the actual world: iterative AN

If M contains combination of (quantification over non-maximal situations of different possible worlds): conditional AN

Beck et al. (2012) thus provide a uniform analysis of the classical Greek ἄν /an/, following Gerö (2000), who had formerly described the contexts in which the Greek ἄν /an/ appears as semantically intensional. The ἄν /an/ particle is analyzed as a universal quantifier over situations, which can undergo movement in several stages and as a result appear in the antecedent of some conditionals and the consequent of others, although, as they claim, it always is base generated in the consequent. Beck et al. (2012) claim that the motivation for the process is phonological, as the modal particle ἄν /an/ is enclitic, while εἰ /e/ is proclitic. We adopt here their general position with the addition that the motivation for this process is mostly syntactic: the modal ἄν /an/ of Homeric Greek gradually reanalyzed in a higher position, and this is an anticipated syntactic development according to the generative frameworks of van Gelderen (2001, 2004) and Roberts & Roussou (2003). It is in this view that the modal ἄν /an/ moves from the apodosis to the Spec, CP of the protasis. There is evidence for two types of movement regarding the Greek ἄν /an/: one within the conditional clause from Spec, NonVerP to Spec, CP and one from some position in the apodosis to protasis Spec, CP. The Greek data support the suggestion that conditional clauses involve leftward movement of a world operator, an operator located in IrrealisP (Cinque 1999), as argued

20 The intermediate stage of Thucydides' work was here also examined, as it represents and archaic form of Attic and the first text in which the blended conditional morpheme ἐάν /eán/ is attested.

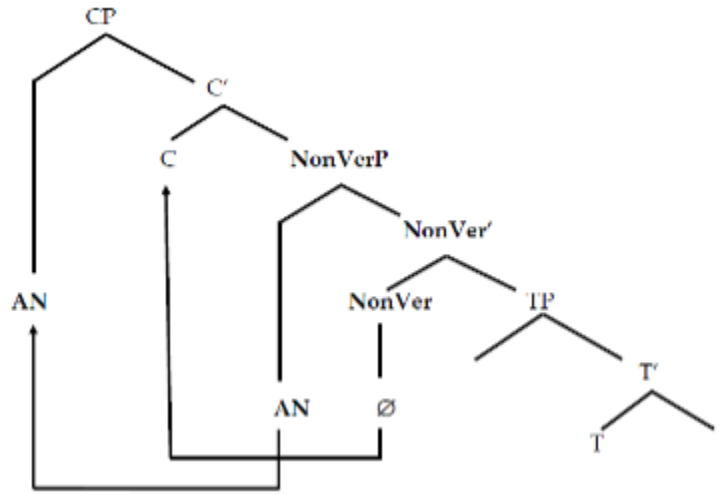



**Figure 3** Operator movement in conditionals from ancient to modern Greek

also in Haegeman (2010). In the present paper such a proposal is verified by the Greek data, for which we suggest the development in Figure 3.

Rullmann, Matthewson & Davis (2008) note that not all languages make a lexical distinction between possibility and necessity modals (cf. also Kratzer 2012: 45). Especially in the Attic Greek stage, ἄν /an/ functions both as a possibility modal (in the modal use), and as a necessity modal, when used as a conditional particle, a particle that involves a universal quantifier.

As represented in Figure 3, our proposal on the syntactic status of ἄν /an/ is that it remains phrasal throughout Greek. This is based for Attic Greek, on a parallel to the Merchant (2006) diagnostic for the status of negation, as shown in (49), and for Standard Modern Greek on conjunction of elliptical structures, as in (50).

(49) τί γὰρ ἄν;

*ti* *gar* *an?*
what/why 2P AN
'Certainly (lit. How could it be differently?)'
(Plato, *Parmenides* 147c)

(50) Θα φύγω μόνο όταν βρέξει και αν [~~φύγω~~].

*θα* *fíγο* *móno* *ótan* *vréksi* *kε* *an* [~~*fíγο*~~]
FUT leave.PP only when rain.PNP and if
'I will leave only when it rains (and perhaps not even then).'

According to the proposed diagnostic of Merchant (2006)—the 'why no(t)?' test—the structural position of modal ἄν /an/ means that its status is phrasal, given that τί /ti/ is a *wh*-element moved to Spec, CP and therefore the rest of the utterance can only be phrasal. This is a position regarding the particle *an* that may be updated in the future, as not all attestations and functions of *an* may be uniform in terms of syntactic status. The phrasal status is adopted here tentatively for the needs of the present discussion. Figure 4 proposes a place for Greek modal particles, since the Homeric Greek stage and indicates differences in syntactic status. Although the anticipation based on the structure economy principles identified in van Gelderen (2004) is for elements of phrasal status to turn into heads, that is merely a tendency, which we don't expect to find in all cases, while we still have a very vague idea regarding how long such developments may take, in different languages, for various reasons.

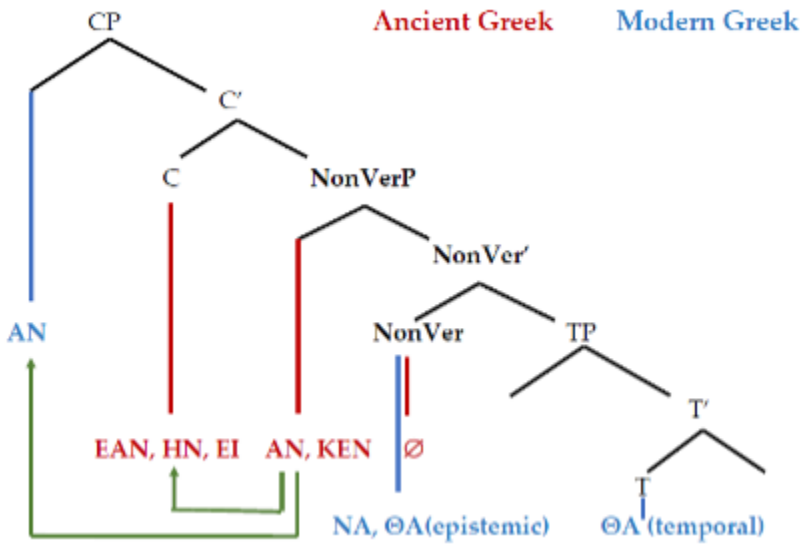
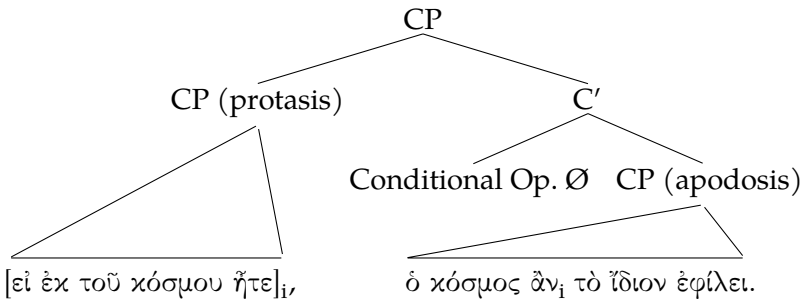



**Figure 4** Conditional & modal particles from ancient to modern Greek: one modal cycle

Regarding the movement of the whole conditional clause in relation to the matrix clause, our data support that movement as well, since ἄν /an/ appears in the protasis of some conditionals and in the apodosis of others, as noted in Beck et al. (2012). The specific attachment location of the conditional adjunct has been discussed in Bhatt & Pancheva (2006), below the IP or inside the VP, depending on the case. It is quite plausible, given the multiplicity of conditional types in all languages that one of the strategies for signaling semantic variation is the difference in attachment height or location, as suggested in the analysis of conditionals already in Haegeman (1984b,c), in Iatridou (1991, 1993), as well as in Wakker (1996), among others.

More recently, the idea that the semantic microvariation of conditionals can be captured through syntactic differences regarding the height and type of attachment and in terms of concord between adjunct and matrix clause was pursued in Endo (2012), for adverbial clauses in general, through an elaborate mapping of Japanese adverbs including conditionals based on their compatibility with different types of voice, aspect, polarity, tense and two types of mood marking. This type of analysis is further discussed in Endo & Haegeman (2019), with emphasis on the connection between internal syntax and external syntax for adverbials, namely how the derivational history of the conditional clause determines its level and manner of attachment to the matrix clause. This is a promising direction for the analysis of Greek conditionals as well, in order to explain the morphological variation of conditional particles in Homeric, Attic and Koine Greek linked to the particulars of the verb forms in the protasis and the apodosis (tense and mood marking), the possible semantic interpretations and the corresponding syntactic structure of each case. Although the movement of the conditional clause in relation to the matrix clause is not anticipated to be of a uniform kind, one suggested derivation is proposed below for the example (37) from Koine repeated below in Figure 5.

In the structure in Figure 5, the conditional protasis as a whole is coindexed with the *an* proform in the matrix clause. In the cases where this proform is not present, the conditional protasis can be represented as coindexed with the covert nonveridical head in the matrix clause (conditional consequent), which is postulated anyway, given that we are currently assuming that the syntactic status of *an* is phrasal (see Figure 5 and 6). This analysis is in agreement with the Beck et al. (2012: 72) movement analysis, which is also inspired by the Bhatt & Pancheva (2006) treatment of all conditional clauses being base generated lower in the matrix clause and subsequently moved to a higher syntactic position. As discussed in Section 2, Bhatt & Pancheva (2002, 2006) describe conditional clauses as free relatives, definite descriptions of




*i ek tu kosmu itε* *o kosmos an to iδion εfili*
if from the world be.AOR.IND.2PL the world AN the same love.PRET.IND
'If you were of the world, the world would love you as its own.'
(*Novum Testamentum, Secundum Johannem* 15.19)

**Figure 5** The protasis as a result of movement and the modal *an* as proform

possible worlds, while building further on Haiman's (1978, 1993) analysis of conditionals as topics, Bhatt & Pancheva (2006) propose the following denotations for the conditional structures (51 a) with the syntactic make-up of topics (see Bhatt & Pancheva 2006: 668) and the correlative in (51 b), (15 a) in Section 2.

(51) (a) [*if*-clause]$_i$ [then$_i$ [$_{TP}$ ... t$_i$]]
(b) [$_{CP}$ [free relative]$_i$ [$_{CP}$ ...proform$_i$...]]

The modal *an* of ancient Greek (Homeric, Attic, Koine) eventually became base generated in its former landing site by the Late Medieval stage, as conditional particle, and was replaced in its functions by the particle ἵνα /ina/, the former purpose complementizer of Homeric and Attic Greek. This shift in the use of ἵνα /ina/ is described as an instance of cross-clausal grammaticalization in Chatzopoulou (2019: 122–123) and represented in Figure 6 below.

The ἵνα /ina/ particle, selected by nonveridical predicates (e.g. volitionals), would get generalized in the following language stages and result in the Modern Greek να /na/ particle, again both in embedded and unembedded functions. This particle is also present in the etymological origin of the epistemic modal θα /θa/ of Modern Greek, as was previously mentioned. These two particles syntactically replaced the modal *an* and a full modal cycle for the case of Greek resulted—which is more clear since all particles discussed so far

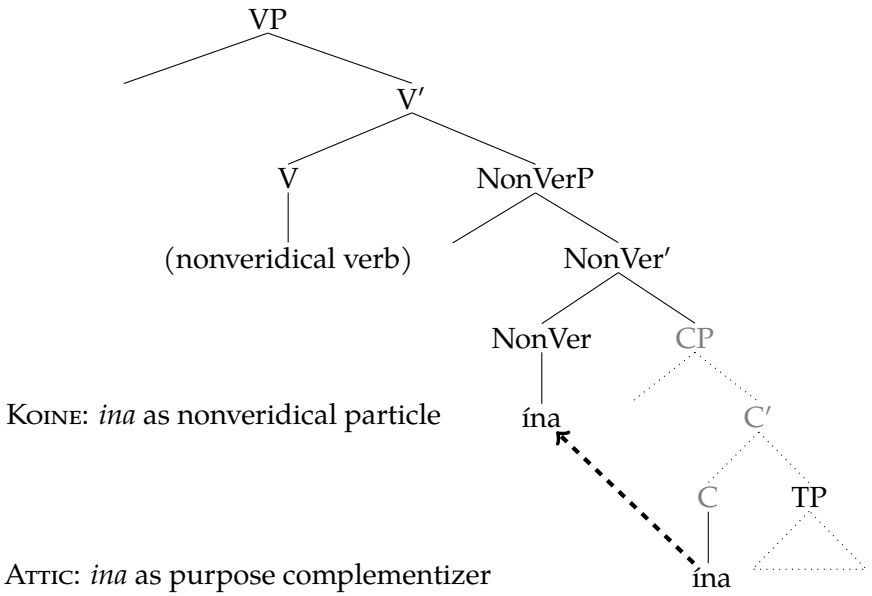



**Figure 6** Renewal of nonveridical marking: ἵνα /ina/ from Attic Greek to Koine

were uninflected forms in all their stages and the cyclicity of the nonveridical marker renewal is not obscured or further complicated by additional temporal, aspectual or other type of marking on the modal, as can be the case in other languages (cf. van Gelderen 2016b). Temporal and aspectual considerations are indeed relevant for the syntactic expression and semantic analysis of conditionality and conditional typology in each stage, but this is a parameter that we must leave for future research. Similarities and differences across attested modal cycles of any type (cf. Gergel 2009 and Nesselhauf 2012 for English) is one more relevant direction to follow and compare diachronic developments regarding nonveridical marking.

## 5 Conclusion

Combining current frameworks of syntactic change with synchronic analyses of conditionals in different stages of a language, in this case Greek, provides individual support for a treatment of conditionals as involving leftward movement of a world operator. We have shown that there is not only phonological motivation for the movement analysis of the Attic Greek particle ἄν

/an/, but also syntactic and semantic motivation. The conditional/modal particle ἄν /an/ from Homeric Greek until modern Greek is eventually base generated in its former landing site. This seems to be an instance of a modal cycle, but its exact relation to other cases in other languages needs further examination. Once more diachronic syntax provides more tangible evidence for the validity of synchronic syntactic operations. Such investigations within diachronic generative syntax further provide ontological support on the abstract processes described as 'movement' regarding the notion of time. In Aristotle's *Physics* (4.10) time is one of the preconditions of motion: if something moves it moves in time. Diachronic generative syntax amends the peculiarity of timeless movements and shows that lexical elements do move in real time. Similarly to other cases of reanalysis, our evidence proves that modal ἄν /an/ does move in real time: from Homeric to Standard Modern Greek.

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## Abbreviations

2P Wackernagel clitic, ACC accusative, AOR aorist, DAT dative, FUT future, GEN genitive, IMP imperative, IND indicative, INF infinitive, INP imperfective non past, IP imperfective past, IRR irrealis marker, NEG1 standard negative marker, NEG2 nonveridical negative marker, NOM nominative, OPT optative, P discourse particle, PCP participle, PL plural, PNP perfective non past, PP perfective past, PRET preterit, PRF perfect, SG singular, SUBJ subjunctive

## Translations

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## Appendix

Attestations of *an* examined: Homeric Greek: Homeric texts: *Iliad* 1 (143, 205, 232, 242, 271, 301, 509, 519), 2 (34, 139, 228, 242, 250, 397, 488, 597), 3 (25, 52, 54, 66, 223, 261, 268, 288, 311, 449), 4 (53, 164, 223), 5 (32, 74, 85, 167, 201, 224, 232, 362, 456, 457, 528, 798), 6 (113, 129, 141, 329, 412, 448, 621), 7 (168, 183, 186, 193, 231, 286, 335, 459), 8 (10, 21, 89, 158, 210, 369, 373, 375, 406, 420, 451, 455, 475), 9 (13, 26, 77, 101, 167, 304, 372, 375, 383, 395, 417, 437, 444, 517, 684, 704), 10 (5, 204, 243, 298, 325, 339, 362), 11 (32, 187, 202, 247, 259, 269, 324, 387, 504), 12 (41, 49, 69, 75, 290), 13 (110, 117, 127, 289, 324, 676, 741), 14 (58, 74, 126, 245, 247, 335, 344, 370), 15 (23, 40, 69, 80, 170, 209, 232, 294, 348), 16 (62, 84, 271, 638, 687, 747), 17 (186, 327, 365, 489, 520, 541, 711), 18 (192, 273, 297, 397, 409, 546), 19 (158, 205, 209, 230, 249, 271, 331, 375), 20 (24, 134, 247, 316, 319, 426), 21 (303, 340, 358, 375, 462, 556, 560), 22 (20, 49, 66, 103, 108, 387, 505), 23 (132, 275, 339, 352, 617, 709, 755, 812, 837, 838, 860, 882, 887, 888), 24 (263, 297, 367, 437, 439, 480, 566, 654), *Odyssea* 1 (41, 65, 192, 288), 2 (62, 76, 77, 184, 219, 374, 376, 416, 419), 3 (227, 232, 353, 481), 4 (78, 204, 240, 347, 477, 579, 672, 749), 5 (39, 100, 177, 188, 361, 394, 456), 6 (57, 221, 253, 259, 300, 303, 304), 7 (22, 293, 319), 8 (3, 110, 115, 118, 208, 239, 352, 377, 444), 9 (17, 211, 228, 241, 277, 334), 10 (216, 308, 342, 508, 573), 11 (4, 17, 18, 328, 380, 496, 517), 12 (81, 138, 213), 13 (32, 75, 101, 137, 179, 402, 412), 14 (2, 286, 432, 474, 530), 15 (80, 274, 284, 321, 513, 538), 16 (84, 85, 169, 196, 297, 318, 400), 17 (10, 138, 186, 291, 298, 320, 323, 362, 387, 455, 497, 586), 18 (22, 27, 31, 194, 246, 364, 380, 414), 19 (107, 286, 311, 332, 348, 410, 489), 20 (135, 322, 392), 21 (294, 329), 22 (132, 176, 193, 325, 377, 468), 23 (136, 233), 24 (334, 360, 435), Hesiod: *Opera et dies* (181, 208, 258, 323, 339, 348, 351, 427, 430, 439, 448, 458, 467, 543, 564, 571, 598, 609, 619, 646, 768), Theogony (91, 130, 392, 754). Classical Greek: Plato, *Republic* 348a7, 371c1, 389d1, 408d6, 500d4, 574b1, 587b13, 329d4, 337d1, 348a4, 348b2, 387b2, 389a1, 415c3, 416d5, 420e8, 441a5, 443e6, 445d6, 451e3, 458b3, 459b4,461a5, 465a8,467d13, 467e6, 475a9, 476c3, 480a9, 484a5,488c2, 489e1, 491a7, 492a1, 526b7, 562d2, 563c5, 564c3, 605d8, 606c3, 621c1, 621c3.

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