# The diachrony of participles in the (pre)history of Greek and Hittite: losing and gaining functional structure*

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**Abstract**

English

This article discusses two case studies of diachronic "voice flipping" in which the syntax of a participle appears to change from active or "subject-oriented" to passive (Ancient Greek *-menos* to Modern Greek *-menos*) and from resultative/stative to active (Proto-Indo-European *-*nt*-; Hittite *-ant-* vs. Ancient Greek *-nt-*). While the first type of change is the result of a diachronic reanalysis by which a functional projection (VoiceP) is lost, the second type *adds* an active Voice head. Both changes are the result of the simultaneous availability of a stative and an eventive reading in deverbal adjectival forms and could belong to a larger "participle cycle". However, unlike in other changes usually discussed under the label "cycle", unidirectional economy principles do not apply in these cases. Rather, they provide evidence that some types of morphosyntactic change, especially those related to event and argument structure, are driven by reanalysis of the feature content of functional heads under local structural ambiguity.

Deutsch

Dieser Aufsatz behandelt zwei Fallstudien, in denen sich die Syntax eines bestimmten Partizipialsuffixes diachron verändert, indem sich dessen Diathese scheinbar "umkehrt": von aktiv bzw. "subjektsorientiert" zu passiv (Altgriechisch *-menos* zu Neugriechisch *-menos*) und von resultativ/stativ zu aktiv (Urindogermanisch *-*nt*- bzw. Hethitisch *-ant-* zu Altgriechisch *-nt-*). Während beim ersten Fallbeispiel eine funktionale Projektion (VoiceP) durch diachrone Reanalyse verloren geht, wird im zweiten Fall eine funktionale Projektion (eine aktive VoiceP) *hinzugefügt*. Beide Arten des Wandels sind das Resultat der gleichzeitigen Verfügbarkeit sowohl einer stativen als auch einer eventiven Lesart bestimmter deverbaler Adjektive und könnten daher einem weitläufigeren "Partizipienzyklus" zugerechnet werden. Anders als bei anderen Wandelstypen, die normalerweise als zyklisch gelten, scheinen unidirektionale Ökonomieprinzipien in diesen Fällen allerdings keine Rolle zu spielen. Sie sind vielmehr Evidenz dafür, dass bestimmte Arten des morphosyntaktischen Wandels, nämlich solche, die mit Ereignis- und Argumentstruktur zu tun haben, ihren Ausgangspunkt in der Reanalyse formaler

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Merkmale unter lokaler struktureller Ambiguität haben.

Français
Cet article traite de deux cas dans lesquels la syntaxe d'un suffixe participiale change en apparemment «inversant» sa diathèse, descriptivement d'un mode actif ou «orienté sujet» á passif (grec ancien -*menos* au grec moderne -*menos*) et de résultatif/statif á actif (proto-indo-européen * -*nt*-; hittite -*ant*- vs. grec ancien -*nt*-). Alors que le premier type de changement est le résultat d'une réanalyse diachronique par laquelle une projection fonctionnelle (VoiceP) est perdue, le second type *ajoute* une tête de voix active. Les deux types de changement résultent de la disponibilité simultanée d'une interpretation stative et éventive de certains adjectifs déverbaux et pourraient appartenir á un «cycle de participe» plus large. Toutefois, contrairement á d'autres types de changement normalement considérés comme des cycles, les principes d'économie unidirectionnelle ne s'appliquent pas dans ces cas. Ils apportent plutôt la preuve que certains types de changement morpho-syntaxique, en particulier ceux liés á la structure des événements et des arguments, résultent d'une réanalyse du contenu des fonctions des têtes fonctionnels dans le cas d'une ambiguïté structurelle locale.

**Keywords**: Participles, voice morphology, adjectives, passives, structural reanalysis, cyclic change, Ancient Greek, Modern Greek, Hittite

# 1 Introduction

A growing body of literature supports the notion that (morpho)syntactic change is *cyclic*, in that functional categories are lost and renewed over time: "Cycles involve the disappearance of a particular word and its renewal by another" (van Gelderen 2016b: 3). As argued by van Gelderen and others in a number of studies (e.g., van Gelderen 2004, 2008, 2009a, 2009b, 2011, 2016a) this cyclicity is the result of two economy principles of the language faculty that come into play during language acquisition, the Head Preference Principle and the Late Merge Principle. While the HPP results in the reanalysis of phrases as heads and effectively reduces the "size" of a functional or lexical category, the LMP results in the reanalysis of material that is lower in the structure as being base-generated higher in the structure. The cyclic nature of (morpho)syntactic change is thereby effectively grounded in general economy principles of the language faculty in interaction with the mechanisms of language acquisition.

However, not all instances of (morpho)syntactic change (cyclic or not) can straightforwardly be captured by the HPP or the LMP.[1] Specifically, it is yet to be shown whether argument structure change is cyclic and directional in the way syntactic changes describable by the HPP and LMP are, though van Gelderen 2018 has made great strides in mapping the regularities and cycles in aspect and argument structure changes.

[1]Cf. the discussion in Walkden 2014: 43f. on the status of these economy principles.

The goal of this paper is to discuss two case studies of morphosyntactic change in participles that do show precisely such regularities with respect to the interaction of argument structure with derivational morphology. Because of these regularities in how participial forms develop and change over time, these could be loosely referred to as instances of a "participle cycle", but it must be stressed that it is not a cycle that results from the HPP or the LMP. Rather, the changes follow from a constrained set of (re)analysis options of a particular string available during language acquisition, that is, from the "ambiguity of analysis" of a particular structure as the precondition for (morpho)syntactic change. Unlike in many other "structural ambiguity" or "structural reanalysis" approaches (cf., e.g., Harris and Campbell 1995, Clark and Roberts 1993, Roberts and Roussou 2003, Roberts 2007), this reanalysis does not appear to be driven by considerations of economy or simplicity (however defined). Crucial evidence from this comes from the second case study, in which functional material is *gained* rather than lost, an understudied empirical domain in diachronic syntax, but which is theoretically predicted by the assumption that there is no strong directional bias in language acquisition other than the constraints posed by the invariant principles of the language faculty and the PLD.[2]

In this article, we will look at two case studies that arose in the history of Greek and Hittite (an Indo-European language spoken in Anatolia in the 2$^{nd}$ millennium BCE) and appear to show "voice flipping" of a given participial form, either from descriptively active or "subject-oriented" syntax to passive or stative-resultative syntax, or vice versa. The first is a case of loss of functional material that leads to an apparent change of active syntax of a participle to passive syntax. The second case is a change of an (apparently) passive, or rather, resultative, participle to an active participle, arguably by gaining additional functional material below the attachment site of the suffix (crucially, the projection VoiceP). In both cases, the "ambiguity of analysis" between stative and resultative/eventive readings in adjectival passives seems to be the starting point of the change. Given that the diachrony of participial morphology is somewhat understudied (but cf. Haspelmath 1994, Lowe 2015, and

[2]This is somewhat reminiscent of the "degrammaticalization" studies of Norde (2009), who argues that reanalysis of structurally ambiguous (functional) items underlies "degrammation", the change of a functional into a lexical item. However, the similarity stops there: as will become clear in the discussion of case study II, even though functional structure is added through a reanalysis, the category itself ("participle", to be defined) stays the same, and even though its selectional properties change, it is unclear how a deverbal adjective could be defined as "more grammatical" than a denominal one. Norde's other defining characteristics of degrammaticalization (deinflectionalization and debonding) likewise do not apply to the case studies discussed in this article. One could argue that the development of *-nt-* discussed in Section 4 displays resemanticization (defined by Norde as increase in semantic substance), and recategorialization (increase in morphosyntactic properties), two of the defining characteristics of "degrammation", but once again one would be hard pressed to find arguments in favor of assuming that, e.g., a deverbal target state participle has "more" semantic substance or categorically different morphosyntactic properties than, e.g., a denominal adjective. I therefore prefer the more neutral term "structural reanalysis" for these case studies.

the papers in Cotticelli-Kurras and Sadovski 2017), this article is also meant as a contribution to a better understanding of the typology and diachrony of participles.

The framework used in the analysis is Distributed Morphology (DM; cf. Halle and Marantz 1993, 1994, Marantz 1997, Harley and Noyer 1999, Harley 2012, Embick and Noyer 2007, Embick 2015, Bobaljik 2017, etc.); a realizational approach to morphology in which morphosyntactic feature bundles on syntactic heads are realized by exponents that compete for insertion at the end of a syntactic derivation. In this approach, "morphological change" means changes in the lexical entries of the exponents in question (in their phonology, feature make-up, or conditions on insertion).[3] We will also discuss how these changes interact with changes in the selectional properties of syntactic heads and argument structure changes.

This article is structured as follows. In the next section, I briefly discuss the theoretical background on participles and the properties of Voice in Greek and in Modern Greek passive participles. Section 3 contains case study I, the development of the participial suffix *-menos* from Ancient Greek (AG) to Modern Greek (MG).[4] Section 4 discusses case study II, the development of Proto-Indo-European (PIE) *-*(o)nt*- to Hittite -*ant*- and AG -*nt*-.[5] While this section relies to a certain extent on the comparative reconstruction of the original function of this suffix as "resultative" (or "theme-oriented"), I also provide evidence for the same "flip" from stative-resultative to active from attested languages (Vedic Sanskrit to Classical Sanskrit). Section 5 contains the conclusion.

# 2 Background

## 2.1 Participles

Pretheoretically, participles can be defined as deverbal nominals[6] which are integrated in a verbal paradigm as non-finite verbal forms (or are perceived as such by descriptive grammar-

[3]See Ringe and Eska 2013: ch. 8 for further discussion of the use of DM in studying morphological change.

[4]Citation forms are the 1sg. present for Ancient and Modern Greek and the 3sg. present for Hittite. Abbreviations are as follows: ABL ablative, ACC accusative, ACT active, AOR aorist, C common gender (≈ animate), non-neuter in Anatolian, DAT dative, GEN genitive, INF infinitive, INSTR instrumental, IPFV imperfect, M masculine, MID middle, N neuter, NACT nonactive, NOM nominative, PASS passive, PTCL particle, PERF perfect, PL plural, PRES present, PTCP participle, SG singular, SUBJ subjunctive, V 'verbalizer', verbal stem-forming affix.

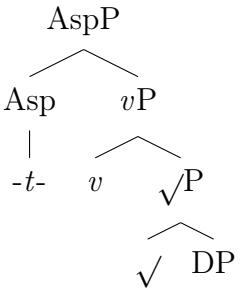
[5]The Ancient Greek suffix has several allomorphs, depending on and fusing partially with the stem forming morphology of the respective verb it is built to, the case endings, and gender and number. For simplicity, I therefore use just -*nt*- as the citation form.

[6]I use the terms "nominal" and "nominalization" more broadly than in much of the literature to include different types of event nominals and agent nouns as well as participles and other "adjectival" deverbal forms, based on the Latin grammatical tradition in which "noun" was used as a cover term with a subdivision into *nōmen substantīvum* 'substantival noun' and *nōmen adjectīvum* 'adjectival noun'.

ians and native speakers). Like other deverbal nominals, they combine "nominal" properties (such as nominal inflection and/or agreement with a head noun) with "verbal" properties (such as voice or verbal stem forming morphology and assignment of structural case to internal arguments; cf. Lowe 2015: 3ff. for a longer discussion of "participial" properties).

Instead of trying to define the category of participles, I follow recent generative approaches in which the differences in participial syntax observed cross-linguistically and within particular languages result from different attachment sites of the nominalizing affix (Anagnostopoulou 2003, 2014, Alexiadou et al. 2007, Alexiadou and Anagnostopoulou 2008, Baker and Vinokurova 2009, Baker 2011, Embick 1997a, 2000, Embick 2004b, Harley 2009, etc.). More precisely, I assume (following the DM-approaches of Embick 2000, 2004b, Alexiadou and Anagnostopoulou 2008, Alexiadou et al. 2015, Bjorkman 2011, etc.) that the "nominalizing" affixes found in participles spell out different verbal functional heads (such as *v* or different types of Asp) when movement of the root or verbal stem to a higher functional category like T is blocked.[7] Example (1) illustrates this for the Latin past passive (perfect) participle *am-ā-t-us* 'loved'. Crucially, the "participial suffix", *-t-*, is analyzed as the default realization of the functional head Asp when Asp has not raised to T, rather than as a designated nominal functional category.

(1) *am-ā-t-us* (Embick 2000: 219, ex. (45))




The vocabulary items for Asp according to Embick are given in (3); (a) is inserted in the

[7] Or agreement with it is impossible, in the version of Bjorkman 2011. *Why* this movement or agreement is sometimes blocked amounts to asking why and when non-finite constructions are used, and is therefore beyond the scope of this article. However, Bjorkman (2011) goes some way towards answering this question for periphrastic verbal constructions: she argues that such auxiliary constructions arise from "stranded" inflectional features that fail to combine with the main verb via Agree when a functional head that is specified for the same feature intervenes. These tend to be marked features, like [pfv] and [pass], which according to her explains why periphrastic constructions are so common in particular environments (e.g., periphrastic perfect or passive constructions). Participles that are used as adjuncts, on the other hand, cannot be explained this way. I assume here that these are default realizations of "low" verbal functional projections in tenseless environments, that is, when higher verbal functional projections like Tense and Agr are missing. The differences between the various participles, gerunds, infinitives, etc., in languages like Ancient Greek, Sanskrit, and Latin would then be due to the presence/absence of different functional projections of the "verbal spine" below the various non-finite "nominalizing" affixes. The details must be left to future research.

present, (b) is inserted in the absence of [pres] for particular, listed stems, (c) is default Asp.

(2) Realization of Asp (not raised to T), Embick 2000: 218 (ex. (44))

a. -nt- ↔ [pres]

b. -s- ↔ [ ]/ _ (List)

c. -t- ↔ [ ]

This approach solves the problem of having to decide on what exactly the category of these participles is (PtcpP, DP, nP, AdjP, etc., see Embick 2000: 211–2[8]) and elegantly accounts for instances of suppletion of periphrastic verbal constructions in otherwise synthetic verbal paradigms (most famously in the Latin perfect passive, cf. again Embick 2000).

Moreover, I assume that there are (at least) two different types of passive constructions, from a semantic point of view: adjectival or "stative" passives and verbal or "eventive" passives (cf. Kratzer 2001, Anagnostopoulou 2003, Embick 2004b), illustrated in (3) for English.[9]

(3) a. Adjectival/stative passive: *The poems are well-written*

b. Verbal/eventive passive: *The poems were written by me*

The difference between them, under the present approach, lies in the relative amount of functional structure included below the participial suffix, crucially the presence of a verbal-eventive $v$P and a VoiceP introducing the agent θ-role. In MG, as in many other languages, verbal/eventive passives are synthetic verbal constructions, while adjectival passives are analytic. The different types of passive participles used in these adjectival passives are discussed in the next section.

## 2.2 Modern Greek "passive" participles

MG has two types of adjectival "passive" participles, one that takes the suffix *-menos* and one that takes *-tos* (Holton et al. 1997: 234ff., Embick 1997a: 134ff., Anagnostopoulou 2003, Alexiadou and Anagnostopoulou 2008, Papangeli and Lavidas 2009), cf. (4).

(4) MG *-menos* vs. *-tos* participles

[8]Cf. also Lowe 2015, 2017, Spencer 2016 on the problem of determining the category of participles and other deverbal nouns and adjectives, especially in PFM.

[9]This somewhat coarse distinction suffices for the purposes of this paper, but note that Embick (2004b) distinguishes between eventive, resultative, and stative passives. The distinction of Anagnostopoulou (2003) between target state and resultant state passives, based on Kratzer 2001, is discussed in section 2.2. See also Ramchand 2018 and Hallman to appear for different decompositional approaches to adjectival vs. verbal passives and perfect participles in English.

| Verb | *-menos* | *-tos* | |
|---|---|---|---|
| *vrazo* | *vras-menos* | *vras-tos* | 'boiled' |
| *psino* | *psi-menos* | *psi-tos* | 'grilled' |
| *anigo* | *anig-menos* | *anih-tos* | 'opened; open' |

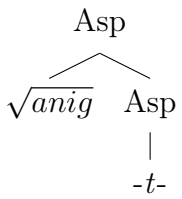
As argued in detail by Anagnostopoulou and collaborators (Anagnostopoulou 2003, Alexiadou and Anagnostopoulou 2008, Alexiadou et al. 2015), the participles made by these suffixes are syntactically and semantically distinct in several respects. The suffix *-menos* has event implications, licenses manner adverbs, (5), can license agent *by*-phrases, (6), and is used in periphrastic verbal constructions, while *-tos* can do none of those things.

(5) To thisavrofilakio itan prosektika anig-meno / *anih-to
the safe was cautiously open-PTCP / open-PTCP
"The safe was cautiously opened" (adapted from Alexiadou et al. 2015: 156, ex. (26a))

(6) To psari itan tiganis-meno / *tigan-ito apo tin Maria
the fish was fry-PTCP / fry-PTCP by the Maria
"The fish was fried by Maria" (adapted from Alexiadou et al. 2015: 156, ex. (23a))

These differences reflect different "attachment sites" of the nominalizing suffixes or "stativizers" (as Alexiadou et al. 2015 aptly call them): *-tos* attaches directly to the root, cf. (7); *-menos* either selects *v* ("target state participles"), (8-a), or *v*+Voice ("resultant state participles"), (8-b), (based on the trees given in Alexiadou et al. 2015: 161 and after head movement has taken place).[10]

(7) MG *tos*-participles: *anih-t(os)* 'open'

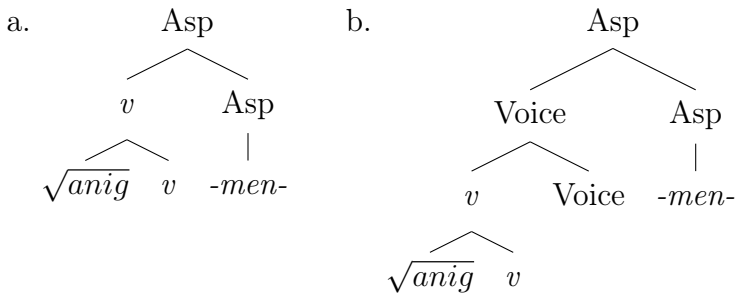



(8) MG *menos*-participles: *anig-men(os)* 'opened'

[10] I use *-tos* and *-menos* as the citation forms; the more exact gloss of these is:

(i) *-men/t-o-s*
ASP-M-NOM.SG

The theme vowel *-o-* also occurs in the neuter and is best analyzed as default realization of *n* (or *n*[-fem]). For reasons of space, I cannot discuss the analysis of noun gender in more detail here; but note that theme (or class) vowels such as *-o-* in (i) are usually analyzed as spelling out (class features adjoined to) nominal or verbal categorizers in DM, and noun gender in particular is linked to the categorizer *n*, cf., e.g., Kramer 2015.




In other words, *-tos-* and *-menos* (or, more precisely, *-t-* and *-men-*) in these forms spell out (different kinds of) *stative* aspect.

The difference between target state and resultant state participles is based on Kratzer 2001 and introduced here to explain the syntactic and semantic variation within *menos*-participles. Thus target state participles like (8-a) express reversible states and can be modified by the adverb *akoma* 'still', (9-a), while resultant state participles like (8-b), which express an irreversible state, are incompatible with *akoma*, cf. (9-b) (examples adapted from Alexiadou et al. 2015: 157, ex. (29a) and (30b)).

(9) a. Ta pedhia ine akoma kri-mena
the children are still hide-PTCP
"The children are still hidden."

b. Ta ruxa ine (*akoma) stegno-mena.
the clothes are (still) dry-PTCP
"The clothes are (still) dried."

Alexiadou, Anagnostopoulou, and Schäfer (2015: 159) argue that this is because "the target state construal of participles is blocked in the presence of Voice in Greek, which forces a resultant state interpretation." This resultant state interpretation of *-menos* is incompatible with *akoma* in (9-b), which has been shown independently to force a target state interpretation.

This structural difference also explains why target state *menos*-participles that are modified by *akoma* are incompatible with agent *by*-phrases, while resultant state participles are fine with them:

(10) Ta lastiha itan (*akoma) fusko-mena apo tin Maria
the tires were (still) inflate-PTCP by the Maria
"The tires were still inflated by Maria" (adapted from Anagnostopoulou 2003: 22, ex. (70))

Since target state participles (compatible with *akoma*) do not include Voice, the projection which usually introduces the external argument, they cannot combine with an agent *by*-

phrase.

What is important for our purposes is that (7) and (8-a) are syntactically "passive" participles because only the internal argument is included below the attachment site (accounting for the fact that these participles are incompatible with an agent *by*-phrase), while (8-b) actually includes the projection Voice([-ext.arg.], see Section 2.3) and is compatible with an agent *by*-phrase, as in canonical finite passives. This important distinction (between participles that display passive syntax as the result of the absence of VoiceP and participles that are passive because they include a passive VoiceP with a demoted agent) will be relevant for the analysis in Sections 3 and 4.

## 2.3 Voice morphology

Both AG and MG distinguish between active and nonactive ("middle") voice endings, whose distribution has remained essentially unchanged. That is, the types of verb classes that can alternate between active and (different functions of) nonactive morphology are essentially the same in AG and MG, as illustrated in (11) and (12).[11]

(11) Voice alternations in AG:

| Function | nonactive | Active |
|---|---|---|
| Anti-causative | *daío-mai* 'burn, blaze' (itr.) | *daí-ō* 'burn sth.' |
| Reflexive | *loúo-mai* 'wash myself' | *loú-ō* 'wash sth.' |
| Self-benefactive | *phéro-mai* 'carry (away) for myself' | *phér-ō* 'carry, bear' |
| (Medio)passive | *theíno-mai* 'am struck, killed' | *theín-ō* 'kill, strike' |

(12) Voice alternations in MG

| Function | nonactive | Active |
|---|---|---|
| Anti-causative | *sikon-ome* 'rise' | *sikon-o* 'raise' |
| Reflexive | *plen-ome* 'wash myself' | *plen-o* 'wash' |
| Self-benefactive | *promithev-ome* 'supply myself' | *promithev-o* 'supply' |
| (Medio)passive | *skoton-ome* 'am killed' | *skoton-o* 'kill' |

AG and MG display voice syncretism (Embick 1997b, 2004a), meaning that one and the

[11] Though the auto- or self-benefactive function is much less productive in MG than in AG, and productive reflexivization in MG requires prefixation with *afto-* for non-inherently reflexive verbs *in addition* to selecting nonactive endings. The use of passive is somewhat restricted in both AG and MG. See the discussion in Holton et al. 1997, Alexiadou and Doron 2012, Alexiadou 2013, Alexiadou et al. 2015, etc., on the distribution and properties on nonactive morphology in Modern Greek.

same morphological exponent is found in different syntactic environments. The canonical environments for nonactive morphology are anticausative, reflexive/reciprocal, self-benefactive and passive/mediopassive,[12] illustrated above and discussed at length in Alexiadou and Doron 2012, Alexiadou 2013, Alexiadou et al. 2015, Zombolou 2004, etc. (on the canonical uses of nonactive/"middle" morphology in AG see Schwyzer and Debrunner 1950: 217ff., Bakker 1994, Allan 2003). This morphology is "postsyntactic" and surfaces whenever VoiceP does not introduce an external argument DP (Embick 1997b, 2004a, Alexiadou et al. 2015), formalized in (13) (from Alexiadou et al. 2015: 102, after Embick 2004a: 150).

(13) Voice → Voice[NonAct]/_ No DP specifier

"Active" is elsewhere morphology and surfaces when Voice has a DP specifier or when it is missing completely (e.g., in certain unaccusatives).

The Spell-Out condition in (13) does not specify *why* there is no DP specifier. That is, Voice can have different features, some of which will lead to spell out with nonactive morphology. For example, Voice can be spelled out as nonactive because the agent θ-role introduced by it has not been saturated by a DP, as in a canonical passive ("passive input Voice", Bruening 2013, Schäfer 2017), or because Voice is semantically inert and does not introduce a θ-role, as in "marked anticausatives" ("expletive Voice", Schäfer 2008, 2017, Alexiadou et al. 2015). In either case, Voice will surface as nonactive by (13). The predicted distribution of active and nonactive morphology is summarized in (14) (based on Kallulli 2013: 349); note that "Voice[-ext.arg.]" is used as a cover term for the different (morphologically nonactive) "flavors" of Voice discussed in Alexiadou et al. 2015 and Schäfer 2017 for "Greek-type" languages.

(14) Distribution of active vs. nonactive morphology

| | +ext.arg. | -ext.arg. |
|---|---|---|
| Voice | ACT | NACT |
| no Voice | n/a | ACT |

This behavior of the Voice head in (Ancient and Modern) Greek predicts that deverbal participles will behave differently depending on what kind of functional categories they select. Crucially, we predict the following possibilities, based on the previous discussion:

(15) a. PTCP (Asp) selects *v*P+Root or Root: stative or resultative "passive" participle

[12] On the distinction between passive and mediopassive see Alexiadou and Doron 2012, Alexiadou et al. 2015, Schäfer 2017. This distinction will not be relevant for the analysis developed below.

(cf. (7), (8-a)); no *by*-phrases allowed

b. PTCP selects Voice[-ext.arg.]+*v*P+Root: eventive passive participle (cf. (8-b)); *by*-phrases allowed

c. PTCP selects Voice[+ext.arg.]+*v*P+Root: syntactically active participle

In the following, we will see that the diachronic differences in the behavior of the participial suffixes *-menos* and *-nt-* can indeed be captured with these parameters, and that changes in their syntax result from the reanalysis of one or more of these options.

# 3 Case study I: Greek *-menos*

## 3.1 Ancient Greek *-menos*

The first case study treats the development of the participial suffix *-menos*. As we have seen in section 2.2, this participle has a passive reading in MG, but contains more verbal functional structure than the likewise passive participle in *-tos* (Anagnostopoulou 2003 and passim).

AG *-menos*, on the other hand, is traditionally called a "middle" (or nonactive) participle and is only formed to formally nonactive finite verbs. To put it another way, any formally nonactive finite verb, independent of its syntax (anticausative, passive, reflexive...) can form a *menos*-participle, including transitive verbs with direct objects, such as self-benefactives, experiencer verbs, and deponents (on which see below). This means that AG *-menos* was compatible with "active" (i.e., transitive, subject-oriented) syntax, even though it is not associated with formally active verbs in AG.[13]

In the following, these different functions are illustrated with some examples. (16) is an instance of a *menos*-participle with (indirect) reflexive use. The verb *títhēmi* means 'put, place' in the active and (among other uses) 'put, place (sth.) for oneself' when used with nonactive morphology (*títhemai* 'I put, place (sth.) for myself'. Its nonactive participle in (16) has the same meaning.

(16) Self-benefactive/reflexive, Hom., *Il.* 10.34:

tòn d' heũr' amph' ómoisi **tithé-men-on** **éntea**
him.ACC PTCL found around shoulders put.PRES-PTCP.NACT-ACC.M armour.ACC
**kalà**
beautiful.ACC

[13] This does not exclude the possibility that a *menos*-participle has, e.g., an oppositional passive or reflexive reading to a finite active paradigm even though the corresponding finite nonactive forms happen to be unattested.

"He found him **putting his beautiful armour** around his shoulders"

Like MG, AG also has a number of verbs that obligatorily take nonactive morphology and do *not* alternate (*media tantum*, "middle only" verbs in the traditional terminology). Most of these can be considered canonical nonactive verbs (cf. Zombolou and Alexiadou 2014). That is, their meaning corresponds to one of the verb classes for which nonactive morphology is cross-linguistically expected. Certain verbs of motion fall into this class, notably *érkhomai* 'come, walk' (MG *erhome*). Its participle has the same meaning and is found in the same syntactic contexts as the finite nonactive verb forms, (17).

(17) Intransitive, motion verbs: Hom., *Il.* 4.514–16:

autàr Akhaioùs õrse (...) kudíst-ē Tritogéneia
but Achaeans.ACC urged most.glorious-NOM.F Tritogeneia.NOM.F
**erkho-mén-ē** **kath' hómilon** (...)
walk.PRES-PTCP.NACT-NOM.F among crowd

"But (as for) the Achaeans; ... the most glorious Tritogeneia urged (them) on, **walking among the crowd** ..."

(18) illustrates a transitive self-benefactive participle. The verb *phérō* means 'carry, bring (sth.)' in the active, and 'carry for oneself; win (for oneself)' in the middle (*phéromai* 'I win'), as does its participle.

(18) Hdt., *Hist.* 1.66.3: Transitive, self-benefactive:

hoi Lakedaimónioi, (...) hoì dè **pédās**
the Lakedaemonians.NOM they PTCL chains.ACC
**pheró-men-oi** epì Tegeétās estrateúonto ...
carry.PRES-PTCP.NACT-NOM.PL on Tegeans.ACC advanced

"The Lakedaemonians, (...) they advanced on the Tegeans (with their army), **carrying chains** ..."

The chain-carrying event described in (18) did not happen for the benefit of the Tegeans, whom the Lakedaemonians were planning to enslave.

The finite nonactive forms of *phérō* 'carry' can also occur with a (medio)passive reading, as expected in a language with voice syncretism.[14] The passage in (19) shows that this reading is also possible for its participle.[15]

[14] Cf. MG *plenome*, usually reflexive 'I wash myself', but also passive 'I am being washed' given the right context (e.g., in a hospital).

[15] *Menos*-participles are also found in passive use in the future passive, whose finite and non-finite forms

(19) Hdt., *Hist.* 2.29.2: (Medio)passive:

tò ploĩon oíkhetai **pheró-men-on** **hupò iskhúos**
the boat.NOM goes.off carry.PRES-PTCP.NACT-NOM.SG.N by strength.GEN
toũ rhóou
the.GEN current.GEN

"... the boat gets lost, **carried off by the strength of the current**."

AG *-menos* can combine with all tense-aspect stems (present, aorist, perfect, future), illustrated in (20), as opposed to its MG counterpart, which is formed from the passive perfective (a.k.a. "simple past", Holton et al. 1997: 162ff.) stem. (20) illustrates this with the respective participles of *títhēmi*, non-act. *títhemai* 'place, put (for myself).'

(20) nonactive finite forms & *menos*-participles of *títhemai* in AG

| stem | finite verb | participle |
|---|---|---|
| present | *títhe-mai* | *tithé-menos* |
| aorist | *(e)thé-mēn* | *thé-menos* |
| perfect | *téthei-mai* | *téthei-menos* |

AG *-menos* can moreover be modified by manner- and event-oriented adverbs such as *eũ* 'well' and *prókhnu* 'with knees forward, kneeling', cf. (21), *pálin* 'again, re-', *biaióteron* 'violently', cf. (22-a) ((22-b) illustrates that this is also the case for formally *active* participles), and *aieì* 'always', cf. (23).

(21) a. Hom., *Od.* 14.128:

hē d' **eũ** **deksa-mén-ē** piléei kaì hékasta
she PTCL well receive.AOR-PTCP.NACT-NOM.F welcomes and each.N.PL
metallãi
inquires

"And she, **having received (him) well**, treats him kindly and inquires about everything."

b. Hom., *Il.* 9.570:

prókhnu kat-hezo-mén-ē
knees.forward.ADV down-sit.PRES-PTCP.NACT-NOM.F

"sitting down with knees forward (i.e., kneeling)"

obligatorily take nonactive morphology. See Grestenberger 2016 for an analysis of the passive aorist and future forms.

(22) a. Thuc., *Pelop. War*, 3.89.5:

... tèn thálassan kaì eksapínēs **pálin epispō-mén-ēn**
the.ACC sea.ACC and suddenly again recoil.PRES-PTCP.NACT-ACC.SG.F
**biaióteron** tèn epíklusin poieĩn
violently the.ACC flood.ACC do.PRES.INF

"... the sea, suddenly **recoiling again violently**, causes the flood."

b. Thuc., *Pelop. War*, 2.5.5:

**anakhōrēsá-nt-ōn** dè **pálin** ek tẽ̃s gẽ̃s
return.AOR-PTCP.ACT-GEN.PL PTCL again from the.GEN land.GEN
apodósein autoĩs toùs ándras
return.FUT.INF them.DAT the.ACC.PL men.ACC

"after [the Thebans$_i$] **having withdrawn again** from their$_j$ land, they$_j$ would return the men to them$_i$."

(23) Hdt., *Hist.* 1.171.5:

allà nomízousi autoì hōutoùs eĩnai autókhthonas
but consider they.NOM themselves.ACC be.PRES.INF original.ACC.PL
ēpeirótas, kaì tõi ounómati tõi autõi **aieì**
inhabitants.ACC and the.DAT name.DAT the.DAT same.DAT always
**diakhreō-mén-ous** tõi per nũn
use.PRES-PTCP.NACT-ACC.PL the.DAT even now

"But they consider themselves to be the original inhabitants and as **always using** the same name as now."

While I could not find any instances with agent-oriented adverbs (which are generally rare), uses of *menos*-participles with agentive *by*-phrases are easily found, cf. (24).[16]

(24) a. Hom., *Il.* 6.133-5:

[16]The status of the demoted agent in (different stages of) Ancient Greek is debated because of the synchronic and diachronic variation with respect to its expression. Unlike English or Modern Greek, which use a single preposition for expressing demoted agents (*by* and *apo*, respectively), Ancient Greek uses a variety of different prepositions with genitive or dative case marking on the NP, cf. Schwyzer 1943, Jankuhn 1969, Luraghi 2003, George 2005, Lavidas 2012, and maybe also dative NPs without a preposition ("dative of agent", cf. Hettrich 1990: 75f., Luraghi 2003: 63ff., George 2005: 58ff.). The selection of these prepositions is at least partially determined by the semantics of the verb and finiteness (Luraghi 2003, George 2005), and some other generalizations are possible, too, but for much of the Ancient Greek corpus there seems to be variation in the marking of the demoted agent. That being said, the *hupó*-phrases in examples like (24) in the main text are most naturally interpreted as agents (rather than sources or causes), and suffice to show that participles in *-menos* with a passive reading are compatible with an agent "*by*-phrase" (like resultant state participles in MG), while those in *-tos* are not. See also Grestenberger Forthcoming b for a more detailed discussion.

haì d' háma pãsai thústhla khamaì kat-ékheuan **hup'**
they.F PTCL together all.F thustla.ACC ground.ADV down-dropped by
**andro-phónoio Lukoúrgou theinó-men-ai**
men-slaying.GEN Lukourgos.GEN strike.PRES-PTCP.NACT-NOM.PL.F
bouplẽgi
ox.goad.DAT

"All together they (= the nymphs who raised Dionysos) dropped their *thusthla* on the ground, **struck** with an ox-goad **by men-slaying Lykourgos**.'

b. Hdt., *Hist.* 1.19.1:

tõi dè duōdekátōi éteï lēíou
the.DAT PTCL twelfth.DAT year.DAT crop.GEN
**empipra-mén-ou hupò tẽs stratiẽs** ...
burn.up.PRES-PTCP.NACT-GEN by the.GEN army.GEN

"In the twelfth year, when the crops **were being burned by the army**, ..." (cf. George 2005: 24)

Finally, AG, like MG, also has a class of formally nonactive verbs that are syntactically agentive transitive verbs and hence cannot be considered canonical nonactive verbs. As I have argued elsewhere (Grestenberger 2014, 2018, 2019) these verbs should be considered deponents in the narrow sense of the term, defined as follows: "In an active–nonactive voice system, a deponent is a verb with an agent subject that appears in a syntactically active context and is morphologically nonactive." (Grestenberger 2018: 23).

Given this narrow definition, most non-alternating nonactive verbs ("media tantum"), such as *érkhomai* in (17) above, are *not* deponents. That is, they do not exhibit the mismatch between form and function that is usually considered typical of deponency (cf. the papers in Baerman et al. 2007 for different approaches of deponency, as well as the surveys in Müller 2013 and Grestenberger 2019).

"Narrow" deponents, on the other hand, are essentially agentive, transitive verbs with an unexpected, "wrong" exponence of Voice, namely nonactive instead of the expected active morphology. This makes them a useful diagnostic for the presence or absence of VoiceP in a given deverbal nominalization: if Voice is present, deponent nominalizations (including participles) are expected to preserve the argument structure and transitive syntax of the corresponding finite forms. If Voice is absent, deponent nominalizations are expected to behave like those of other regular transitive verbs and surface with theme-oriented or "passive" syntax, due to the absence of the external-argument introducing projection (see Grestenberger 2018 for a more elaborate discussion of this prediction).

Deponent verbs in AG make *menos*-participles which are syntactically active and tran-

sitive, like the corresponding finite forms (see Grestenberger 2017), cf. (25). This suggests that they do in fact include VoiceP.

(25) AG deponent: *dízēmai* 'seek sth.', ptcp. *dizḗmenos* 'seeking', Hom., *Od.* 1.261-2:

ǒikheto gàr kaì keĩse thoês epì nēòs Odusseùs **phármakon**
went PTCL and there swift.GEN on ship.GEN Ulysses.NOM poison.ACC
**andro-phónon dizḗ-men-os**
man-slaying.ACC seek.PRES-PTCP.NACT-NOM.M

"And then Ulysses went into his swift ship, **seeking (some) man-slaying poison**."

Taken together, the syntactic and semantic properties of AG *menos*-participles discussed in this section suggest that Voice (specifically, Voice[-ext.arg.], which triggers nonactive morphology) is included below the attachment site of the suffix.

## 3.2 Modern Greek -*menos*

As opposed to its AG counterpart, MG -*menos* forms exclusively *passive* participles that never take direct objects. That is, the self-benefactive, intransitive motion, and deponent participles discussed in section 3.2. are not possible for the productive use of MG -*menos*. This participle is called passive perfect participle in Holton et al. (1997), who state that these participles are generally "formed from transitive verbs which have both an active and a passive voice" (Holton et al. 1997: 236).[17]

MG -*menos* is moreover compatible with morphologically active and nonactive finite verbs, while AG -*menos* is only formed from morphologically nonactive finite verbs (the first *menos*-participles formed to formally active verbs occur in 12$^{\text{th}}$ century Byzantine Greek, Manolessou 2005: 251f.). Descriptively, one could say that MG -*menos* is sensitive to the valency of the base verb, while AG -*menos* is sensitive to the voice morphology of the base verb. Some MG examples are given in (26). Note that passive -*menos* is always accented on the suffix.

(26) MG -*menos*

[17]On the following page, the authors mention *(ine) perpatimenos* '(has) walked' as a counterexample, that is, an intransitive-unergative verb with a non-passive *menos*-participle. I have not been able to find other counterexamples like this. Moreover, formally active stative or inchoative verbs like *gerno* 'grow old', *eftiho* 'am happy', *agripno* 'stay awake' also make regular stative *menos*-participles, e.g., *gerasménos* 'aged', *eftihisménos* 'happy', *agripnisménos* 'awake' (see Holton et al. 1997: 164), even though they do not have finite passive forms, and the same is true for anticausative psych verbs which inflect as active only in the finite forms, like *thimono* 'get angry': *thimoménos* 'angry', cf. Alexiadou and Iordăchioaia 2014: 63, Alexiadou 2018. This is of course fully expected under the analysis of MG -*menos* discussed in section 2.2 and below.

| | verb | meaning | participle | meaning |
|---|---|---|---|---|
| formally active | *agapo* | 'love' | *agapiménos* | 'loved' |
| | *deno* | 'tie' | *deménos* | 'tied' |
| | *kalo* | 'call' | *kalesménos* | 'called' |
| formally nonactive | *metahirizome* | 'use' | *metahirisménos* | 'used' |
| | *varieme* | 'am bored' | *variestiménos* | 'bored' |
| | *ekmetalevome* | 'exploit' | *ekmetalevménos* | 'exploited' |

MG *menos*-participles formally continue AG perfect and aorist participles after the semantic distinction between the aorist and the perfect had collapsed in Koiné Greek (cf. Schwyzer 1939: 779, Holton and Manolessou 2010). They are always built on the passive perfective stem (hence "passive perfect participle"; though often with morphonological irregularities that reveal their mixed origin), and are used in periphrastic passive constructions, (27).

(27) To vivlio ine gra-meno apo tin Maria
the book is write-PTCP by the Maria
"The book is written by Maria" (after Alexiadou et al. 2015: 168)

This construction is considered equivalent to the perfect passive *to vivlio ehi grafti* "the book has been written" according to Holton et al. (1997: 236).

Moreover, in MG the *menos*-participles of deponent verbs are always *passive*, cf. *metahirisménos* and *ekmetalevménos* in (26), and the minimal pairs in (28)-(29).

(28) MG non-deponent vs. deponent participles

| | 1sg.pres. | | *menos*-ptcp. | |
|---|---|---|---|---|
| non-deponent | *grafo* | 'write' | *graménos* | 'written' |
| deponent | *metahirizome* | 'use' | *metahirisménos* | 'used' |

(29) a. Non-deponent:

To gramma ine gra-meno
The letter is write-PTCP

"The letter is written"

b. Deponent :

To lexiko ine metahiris-meno
The dictionary is use-PTCP

"The dictionary is used"

In other words, deponent *menos*-participles are syntactically indistinguishable from non-deponent *menos*-participles. The behavior of MG -*menos* with respect to adverbial modification and *by*-phrases has already been discussed in Section 2.2. The following table summarizes the properties of AG vs. MG -*menos*.

(30) Properties of -*menos* in AG vs. MG

| | AG | MG |
|---|---|---|
| transitive, ACC-object possible | ✔ | ✗ |
| periphrastic passives | (✔[18]) | ✔ |
| deponent -*menos* | active syntax | passive syntax |
| sensitive to finite verb voice morphology | ✔ | ✗ |
| sensitive to valency | ✗ | ✔ |
| passive reading possible | ✔ | ✔ |
| *by*-agent possible | ✔[19] | ✔[20] |

## 3.3 Analysis

### 3.3.1 AG vs. MG -*menos*

As we have seen, AG *menos*-participles can be transitive, have the same range of functions as finite nonactive forms ("voice syncretism"), and are compatible with manner- and event-oriented adverbs and with agent *by*-phrases. This suggests that they must have contained VoiceP and *v*P, much like their finite counterparts, and that -*menos* spells out Voice in the absence of an external argument when the verb cannot move to T.[21] (31) illustrates the

[18] Only the *menos*-participles formed from the *perfect* stem are used in periphrastic passive constructions (≈ adjectival passives), but not *menos*-participles formed to the present or aorist stem. The reason is probably that AG perfect participles were stative-resultative, while present and aorist participles were dynamic (cf. Napoli 2006, 2017 and section 3.3.2 below).

[19] With restrictions, cf. fn. 16.

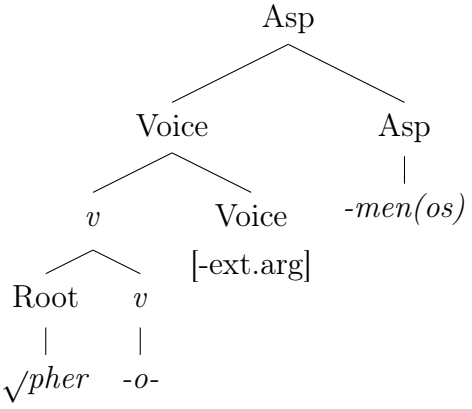
[20] In resultant state participles, cf. section 2.2.

[21] Verb movement to T in Ancient Greek is suggested by the fact that 1) rich verbal inflection is generally interpreted as showing agreement with and movement to T (cf. Koeneman and Zeijlstra 2014 for an overview and defense of the "rich agreement hypothesis"), 2) the underlying or "base" word order of Ancient Greek at least until the 5$^{th}$ century is OV (though this gradually changed to VO starting at least with Herodotus, cf. Taylor 1994), and 3) finite auxiliaries in Homer generally *follow* their participial complements, suggesting that they are base-generated in a right-headed TP, cf. Hearn Forthcoming. Taken together, and pending further and more detailed studies, this suggests finite verb movement to a head-final TP in unmarked contexts.

structure of an AG *menos*-participle after head movement to Asp.[22]

(31) a. *pher-ó-men-o-s* 'carrying (for one's own benefit)'
carry-V-PTCP.NACT-M-NOM.SG

b.




In this approach the active participle suffix *-nt-* (which will be discussed in more detail in Sections 4.2 and 4.4) and the nonactive suffix *-menos* are allomorphs of Asp when the verb does not move to T, along the lines of Embick's (2000) analysis of the Latin perfect participles in *-tus*. The Spell-Out rules for the Greek participal suffixes are given in (32) (see Grestenberger 2018 for more details).

(32) Spell-Out rules for AG participles:

a. Asp ↔ *-men(os)*/ _ Voice[-ext.arg]

b. Asp ↔ *-nt-*: elsewhere

As discussed in section 2.3, Voice is the head that triggers Spell-Out of active or nonactive morphology depending on the syntactic context. Therefore participles containing VoiceP are expected to show the same voice syncretism and the same range of syntactic functions as the finite forms, provided that participial morphology is sensitive to [+/-ext.arg.] just like finite verbal morphology is. This is indeed the case in AG.[23]

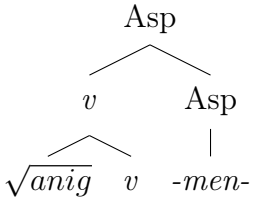
Furthermore, deponency in the narrow sense is also caused by VoiceP (in a particular configuration with a lower functional projection, see Grestenberger 2018, 2019). The presence of VoiceP below the attachment site of the participial suffix will therefore cause deponent behavior to be preserved in participles, which is the case in AG (see Section 3.1).

[22]On verbal "theme vowels" as instantiations of $v$ (or adjoined to $v$) cf. Oltra-Massuet and Arregi 2005, Embick 2012 on Spanish, Panagiotidis et al. 2017 on Modern Greek, and Grestenberger 2016, 2018 on Ancient Greek and Sanskrit. Note that the traditional labels "present stem" and "aorist stem" are used for these affixes in the glosses.

[23]But not, for instance, in Latin: as Embick (2000) has argued, the Latin participle suffixes *-ns* and *-tus* are underspecified for Voice, i.e., they are not sensitive to whether Voice is [+ext.arg.] or [-ext.arg.] (cf. also Grestenberger 2018).

MG *target* state *menos*-participles, on the other hand, have the structure in (33), with the participial suffix selecting *v*P (cf. section 2.2).

(33) MG *menos*-participles: *anig-menos* 'opened' :




The crucial change that occurred in the development of this suffix from AG to MG was therefore the loss of VoiceP below its attachment site in target states. Losing VoiceP effectively meant losing the "middle" properties that this suffix had in AG, such as the ability to occur in transitive (self-benefactive, etc.) contexts with an accusative object and the ability to be formed to deponent verbs.

Target state "passive" interpretation remained of course available; with the apparently passive interpretation arising from the fact that only (eventive) *v* and the internal argument are included in the nominalization. That this passive differs from canonical passives, which do include VoiceP, is shown by the fact that target state participles do not license agent arguments in MG. Anagnostopoulou (2003), Alexiadou and Anagnostopoulou (2008) and Alexiadou et al. (2015) show that target state participles are compatible with the adverb *akoma* 'still', as in (34) (adapted from Alexiadou et al. 2015: 157), while resultant state participles are incompatible with it.

(34) ta lastiha ine akoma fusko-mena
the tires are still inflate-PTCP
"The tires are still inflated"

On the other hand, adding an agent *by*-phrase to (34) forces the resultant state reading, which means that *akoma* now causes the sentence to be ungrammatical, (35) (adapted from Alexiadou et al. 2015: 158); cf. section 2.2.

(35) ta lastiha ine (*akoma) fusko-mena apo tin Maria
the tires are (still) inflate-PTCP by the Maria
"The tires are (still) inflated by Mary"

This suggests that VoiceP was well and truly lost in target state participles, but that resultant state participles can still select a particular type of VoiceP, namely exclusively VoiceP without a specifier, but with an implicit external argument variable that can be expressed by the adjunct *by*-phrase ("thematic nonactive Voice" in Alexiadou et al. 2015,

"thematic passive Voice" or "passive input Voice" in Schäfer 2017; see also Bruening 2013 on *by*-phrases in passives). Other types of Voice ("expletive Voice", "thematic active Voice") cannot be selected in MG, since in that case we would expect to see the full range of "middle" meanings of *menos*-participles that we see in AG.

It is interesting that remnants of the older use of *-menos* seem to be preserved in the MG *(ó)menos*-participle, or "present passive participle", in which the stress falls on the (stem-forming) vowel before the participial suffix, e.g., *-ómenos* instead of *-ménos*. The *ómenos*-participle has been described as belonging to Katharevousa Greek and seems to be of limited or no productivity (Holton et al. 1997: 235ff., Manolessou 2005: 255). However, *-ómenos* is interesting in that it preserves the mismatch when formed to deponent verbs. Thus *metahirizómenos* means 'using' while *metahirisménos* means 'used', and likewise *epitithémenos/epitithómenos* 'attacking', *ekmetalevómenos* 'taking advantage of, exploiting', *dehómenos* 'accepting', etc. These participles have the same active, transitive syntax as the finite forms, e.g., (36).

(36) Kerdise lefta ekmetalev-ómenos tus ergates
won money.ACC exploit-PTCP the.ACC workers.ACC
"He won money (by) exploiting the workers'

Thus it seems that while the productive suffix *-menos* does not include VoiceP in (target state) deponent participles, the suffix *-ómenos* does. This seems to be an archaizing feature of Katharevousa Greek and therefore no counterevidence to the analysis presented above for *-menos* (cf. also Grestenberger 2018).

### 3.3.2 Diachrony of *-menos*

I have argued in the previous section that the crucial change from AG *-menos* to MG *-menos* was the loss of the projection VoiceP below the attachment site of the suffix in its target state uses.

This scenario suggests that the starting point for the loss of the syntactically "active" uses of *-menos* were (medio)passive contexts in which an eventive/resultant state *menos*-participle could be misinterpreted or "misanalyzed" as a target state participle. As Anagnostopoulou (2003, among others) has shown, there are a number of MG *menos*-participles that are *synchronically* ambiguous between the two readings, but can be distinguished through a number of syntactic and semantic tests (cf. the ambiguity between "adjectival" and "verbal" readings of passive participles in English). If the same ambiguity already existed in the (medio)passive reading of the *menos*-participle in AG, we can surmise that VoiceP failed to be acquired during L1 acquisition in these contexts at some point—that is, some of the

functional structure below the participial affix was lost during L1 acquisition, parallel to other instances of loss of functional structure.[24] However, it is important to emphasize that unlike cyclic change describable by the HPP and LMP, this change cannot be strictly unidirectional, as there are also instances in which the opposite occurs (addition of functional structure, see section 4). Rather, we are dealing with a change that is based purely on the synchronically available structural analyses of the input, very much like the changes in Brythonic described by Willis 2011 as instances of "local directionality".[25] That L1 acquisition plays a crucial role in this kind of diachronic reanalysis has recently been defended by Cournane (2014, 2017), and there is some evidence that children acquiring English first acquire adjectival/stative passives before they acquire eventive ones (Israel et al. 2000), suggesting (in our terms) that they begin with the lower functional projections before adding the higher ones.[26] If there is insufficient unambiguous evidence for higher projections like Voice in eventive passives (i.e., resultant state passives), we may therefore expect these higher projections to be lost.

Concerning our *menos*-participles, this loss-through-reanalysis seems to have begun in AG oppositional nonactive perfects of transitive verbs, which are usually syntactically passive already in Homeric Greek (cf. Chantraine 1926: 7ff., Schwyzer and Debrunner 1950: 237, Napoli 2017), although the passive reading of -*menos* is of course also found with other stems, cf. (37). Moreover, perfect participles in -*menos* are the only *menos*-participles used in periphrastic constructions in AG, namely in the nonactive perfect subjunctive, optative and (partially) indicative (Schwyzer 1939: 811–13, Schwyzer and Debrunner 1950: 407), cf. (38), and they are also predominantly used in these contexts in Early Post-Classical Greek (cf. Bentein 2012).

(37) Hdt., *Hist.* 1.9.2.:

ópisthe tẽ̃s **anoigo-mén-ēs** **thúrēs**
behind the.GEN.F open.pres-PTCP.NACT-GEN.F door.GEN.F

"behind the **open(ed) door**"

[24] E.g., the "structural simplification" of biclausal to monoclausal structures, cf. Roberts and Roussou 2003, Roberts 2007.

[25] E.g., Willis 2011: 409: "Reanalyses are not completely unconstrained: a successful reanalysis must have had some basis in the earlier grammar. Some sentences must have manifested acquisitional ambiguity, the possibility of two different structural analyses at the point of transition and the output of that earlier grammar cannot have been radically different from its immediate successor. These facts can be used to 'reverse' reanalysis without any appeal to universal directionality of change. Directionality can be assessed at a purely local level: often, in a given case, a plausible reanalysis can be proposed for one possible historical scenario but not for another."

[26] Similarly, Cournane 2014 shows that children acquire "low" root modals before "high" epistemic modals, and that the errors children make during the acquisition of modals mirror the historical development of epistemic modals from root modals observed over and over again in the historical record.

(38) Hdt., *Hist.* 6.98.3:

kaì en khrēsmõi **ẽn gegram-mén-on** perì autẽs hõde: ...
and in oracle was write.PERF-PTCP.NACT-NOM.N about self.GEN thus

"And in the oracle thus **(it) was written** about it(self) (the island Delos): ..."

(38) shows an example of the passive use of the perfect nonactive participle of *gráphō* 'write' in Herodotus' *Histories*. In the same work, we find the present nonactive participle *graphómenos* and the aorist nonactive participle *grapsámenos* used as syntactically active, transitive participles, e.g., (39).

(39) a. Hdt., *Hist.* 2.82.2.:

genoménou gàr tératos phulássousi **graphó-men-oi**
occurred.GEN PTCL portent.GEN watch.3PL write.PRES-PTCP.NACT-NOM.PL
**tōpobaĩnon**
the.event.ACC

"When a portent occurs, they watch (it) **writing down the result**"

b. Hdt., *Hist.* 3.128.2:

bublía grapsá-men-os pollà
letters.ACC write.AOR-PTCP.NACT-NOM.M many.ACC

'having written many letters'

An important factor that caused the gradual predominance of the passive reading of *menos*-participles like (38) at the expense of the active use like in (39) seems to have been the increase of periphrastic constructions using participles in the indicative in Late Classical and Early Medieval Greek (ca. 3rd century BCE to 8th century CE), after the loss of the synthetic perfect and pluperfect (or rather, after the merger of these with the aorist into a unified perfective stem). Although there is more variation with respect to what kind of participles are used in periphrastic constructions with *eimí* 'am' and *ékhō* 'have' (that is, active vs. nonactive, present vs. aorist vs. perfect participles), there is a clear predominance of continuants of perfect participles in resultative use, and among these, passive *menos*-participles are much more common than formally active participles by Middle Post-Classical Greek (1st to 3rd century CE, Bentein 2012: 231). In his detailed study of the use of participles in periphrastic constructions, Bentein notes that *menos*-participles from *present* stems also occur in resultative periphrastic perfect constructions with *eimí* and *ékhō* in the relevant period; compare the use of a perfect stem *menos*-participle in (40-a) to that of a present stem *menos*-participle in (40-b-c), all in resultative use.[27]

[27]The first example is from Middle Post-Classical Greek, the second from Early Post-Classical Greek,

(40) a. oukh hēmeis tas thuras ēsphalisametha kai pōs nun
not we the doors.F fastened and how now
**aneōig-men-ai** **eisin** kai hoi desmōtai endon
open.PERF-PTCP.NACT-NOM.PL.F are and the prisoners inside
"did not we fasten the doors? And how **are they** now **open**, and the prisoners within?" (*A. Thom.* 122.11–12, 2nd century CE, adapted from Bentein 2012: 232)

b. en tēi hēmerai ekeinēi **estai** pas topos **dianoigo-men-os**
in the day this it.will.be every place open.PRES-PTCP.NACT-NOM.SG
en tōi oikōi David
in the house of.David
"in that day every place **shall be opened** to the house of David" (*Zach.* 13.1, 3rd–2nd century BCE, adapted from Bentein 2012: 228)

c. memuk-ōta gar eskhe ta ommata, kai mēdamōs
shut.PERF-PTCP.ACT.PL.N for had the eyes.PL.N and not.at.all
**anoigo-men-a**
open.PRES-PTCP.NACT-PL.N
"he had his eyes closed and not at all **opened**" (Sophr. H., *Mir. Cyr. et Jo.* 46.14, 7th century CE, adapted from Bentein 2012: 264)

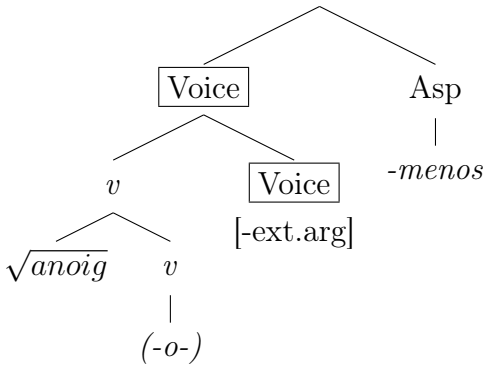
The use of periphrastic *-menos* in these contexts would have provided language acquirers with ample evidence for the (target state) passive use of *-menos*, and hence with the kind of "acquisitional ambiguity" necessary for reanalyis. This does not mean that this reanalysis immediately took place once the ambiguity arose, or that the resultant state reading with selection of Voice[-ext.arg.] was immediately excluded once it did take place (we have already seen that Modern Greek shows that the ambiguity is synchronically attested), but that the relevant "local" conditions for reanalysis are attested at various stages of the Classical, Post-Classical, and Early Byzantine Greek corpus.

The proposed reanalysis is summarized in the trees in (41-a-b), with the boxed material being lost through (structural) reanalysis (see Section 4.1) of resultant state passive participles as target state participles. I use AG *anoigómenos* 'opened' and MG *anigménos* 'opened' as (somewhat idealized,[28] but representative) examples. (41-a) illustrates an AG passive/MG resultant state *menos*-participle and (41-b) a MG target state *menos*-participle.

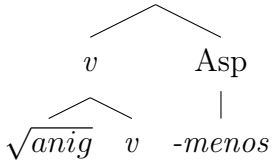
and the third from Early Byzantine Greek. Bentein shows that both types occur throughout the entire Post-Classical/Early Byzantine literature (though the use of the present stem *menos*-participle in these construction is much less frequent than the "dominant" construction with the perfect stem *menos*-participle at all stages), so I have selected these examples because they all use the same verb, "open".

[28]That is, the MG form is not directly descended from the AG form (but cf. the parallelism in ex. (40) in the main text).

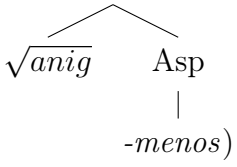
(41) a.




b.




(c.




I include (41-c) here as a possible conjecture concerning the future development of -*menos*, namely that there is a diachronic trajectory for participles by which functional categories of the "verbal spine" are successively lost below the participial suffix. That is, the loss of the boxed projection in (41-b) would result in a "verbal adjective" structure, (41-c), for -*menos*, exactly equivalent to the one posited for MG -*tos* in Section 2.2. This is, of course, a purely hypothetical (but possible) future development.

## 3.4 Summary

In this section, we have traced the development of the participial suffix -*menos* from AG, where it obligatorily included (different types of) nonactive VoiceP below its attachment site, to MG, where it includes only *v*P (except in resultant state participles, where passive VoiceP only is included). I have argued that the "active syntax" of AG -*menos*, as exemplified by its ability to occur with direct objects in self-benefactives, its compatibility with intransitive unergative verbs, and its active syntax when formed to deponent verbs, is a diagnostic for the presence of Voice, more precisely, for the types of Voice for which the Spell-Out condition in (13) applies). This ability to select different kinds of nonactive VoiceP was lost on the way to MG (with remnants preserved in Katharevousa Greek). The starting point for the loss of this projection was the ambiguity between target and resultant state interpretation of AG *menos*-participles with a passive reading, especially the perfect participle.

# 4 Case study II: "passive"/stative → active

## 4.1 Losing and gaining functional projections

As we have seen, case study I is an instance of structural reanalysis (or "structural simplification"[29], cf. Roberts and Roussou 2003, Roberts 2007, etc.), by which the functional projections of a given construction are reduced. As Roberts and Roussou (2003: 16) put it, structural simplification "... results in recategorising a class of lexical elements as inflectional items; (...) Another kind of structural simplification involves reanalysis of an XP, a category with a certain amount of internal syntactic structure, as a simple head X, a category with no internal syntactic structure." However, it is clear that case study I does not involve recategorization of a lexical element as inflectional, and while "internal syntactic structure" along the verbal spine is indeed reanalyzed on the way to Modern Greek, it is not a reanalysis of a phrase or XP as a head. Similarly, the discussion in Roberts 2007 of reanalysis as resulting from a previous parameter change, targeting lexical categories and turning them into functional categories, does not apply: the morphosyntactic category ("participle") does not change, only its selectional properties do, and no related parameter has changed in Greek.

A broader definition of reanalysis is provided by Walkden (2014), which I adopt here (cf. also fn. 25 above).

> "Another definition of reanalysis (...) is as a process whereby the hearer assigns a parse to the input that does not match the structure assigned by the speaker." (...) Reanalysis here is a 'mechanism' in that it is a descriptive term for both process, misparsing, and results, instances of misparsing: it has no independent existence psychologically or genetically, nor is it causal, except in the very limited sense that the reanalysis 'causes' the hearer to update his syntactic lexicon (...). Reanalysis does not cause syntactic change, it *is* syntactic change."
> Walkden 2014: 39

The precondition for reanalysis, as we have seen, was "structural ambiguity", in the sense that the same surface string was ambiguous between two (possibly synchronically co-occurring) underlying structural analyses. However, it is not necessary to assume that these two analyses were directly competing from the language acquirer's perspective (see Hale 2007: 172ff. for arguments against "grammar competition" approaches, cf. also Walkden 2014: 40),

[29] I prefer the former term, since even if there were some sort of universally accepted simplicity metric for evaluating structural complexity, it would not work for cases like that of *-nt-* discussed below, in which functional structure is *added*, making the resulting form/phrase arguably more "complex". See also Hale 2007: 156ff. for a critical discussion of simplicity and economy in syntactic change.

merely that the language aquirer(s) at some point made a different choice than the previous generation. In the case of *-menos* in MG, this may in principle be due to some sort of bias towards a simpler or "more economic" structure. However, this cannot be the only possible development for participles, since new participial forms arise constantly, often from adjectival forms that arguably contained *less* functional structure than the resulting participle, as will be shown in the following sections. So the question is, *how* do new participles arise? How is it possible to *gain* functional structure, in addition to losing it?

If we take structural reanalysis as a mechanism of language change seriously, ending up with *more* functional structure than the previous generation should in principle be possible, since in a "structural ambiguity" situation without a strong bias in either direction, children might be expected to chose either structural option, possibly as a result of some change in the "triggering experience"/the PLD (cf. Lightfoot 2006). Whatever the ultimate cause of the change in the parse, "causal explanation is not a prerequisite for successful reconstruction" (Walkden 2014: 38), which is what this section aims to provide.

In the following, I discuss an example of a reanalysis that results in the addition of functional structure: the development of the Proto-Indo-European suffix *-*nt*- into the AG active participle in -*nt*- and its Indo-European cognates, especially the Hittite "passive" participle in -*ant*-.

## 4.2 PIE *-*nt*-

Reflexes of the suffix *-*nt*- are found as synchronic *active* participle suffixes in most of the attested older Indo-European languages, notably in the Indo-Iranian, Greek, Italic, and Germanic branches (and with some modifications in Tocharian, see Fellner 2014). In all these languages, whether a verb can form an active *nt*-participle descriptively depends on whether its finite forms are formally active. That is, the valency of the verb is not important, but the presence of a morphologically *active* finite paradigm is (much like we saw with AG -*menos* and formally nonactive finite forms in Section 3). Some examples are given in (42).[30]

(42) -*nt*- in Indo-European

| | Act. | NAct. | Ptcp. |
|---|---|---|---|
| Skt. | *bhár-a-ti* 'carries' | *bhár-a-te* 'carries for oneself' | *bhár-a-**nt**-* 'carrying' |
| | *é-ti* 'goes', 3pl. *y-ánti* | — | *y-**ánt**-* 'going' |
| AG | *phér-ō* 'carry' | *phér-o-mai* 'carry for myself' | *phér-o-**nt**-* 'carrying' |
| | *eĩ-mi* 'go', 3pl. *í-āsi* | — | *i-**ónt**-* 'going' |

[30]In ablauting stems, the *nt*-participle is generally built on the stem shape of the 3pl., which is why I give the 3pl. forms in addition to the citation forms in (42).

| | | | |
|---|---|---|---|
| Lat. | *fer-ō* 'carry' | *fer-or* 'am carried' | *fer-**ent**-* 'carrying' |
| | *e-ō* 'go', 3pl. *e-unt* | — | *e-u**nt**-* 'going' |

This pattern suggests that the same Spell-Out rule that governs the distribution of active and nonactive morphology in the finite forms in these languages, (13), also governs the distribution of their voice-marked participial forms (at least in Greek and Sanskrit; for Latin cf. fn. 23).

This contrasts markedly with the use of the suffix *-nt-* in the Anatolian branch of Indo-European and its best-attested language, Hittite (attested ca. 1650–1200 BCE in modern-day Turkey and Syria). Anatolian is generally considered the "first to branch off" the common Indo-European proto-language (cf. Melchert 1998, 2017b, 2018, To appear, Rieken 2009, and the recent synopsis in Anthony and Ringe 2015) and has been argued to preserve a number of archaisms in its nominal and verbal systems compared to the other Indo-European languages (e.g., Oettinger 1986, Hajnal 1994, Jasanoff 2003, 2008, Jasanoff 2017). While the status and extent of these archaic features are hotly debated (cf. Melchert To appear for a detailed discussion), the "Schwundhypothese", that is, the idea that Anatolian has simply lost all the morphological features that distinguish it from the other older Indo-European languages (e.g., the optative, feminine gender on nouns and adjectives, the reduplicated perfect, etc.) is no longer tenable. In principle, it would thus not be too shocking to find archaisms in its participial morphology as well.

For a start, there is no trace of the "middle" participial suffix (reconstructed as *-$mh_1no$-, cf. AG *-menos*, Skt. *-(m)ā́na-*) in Anatolian,[31] and the descendant of *-*nt*-, Hittite *-(a)nt-*, is syntactically *passive* (or "theme-oriented") rather than active like in the other older Indo-European languages.[32] Given that there are independent reasons to think that Anatolian left first, this looks like a classic case of a shared innovation, by which the post-Anatolian Indo-European languages innovated the active participle use of *-*nt*-. In this section, I provide additional arguments for why it is more likely that the active use innovated from (an earlier stage of) what we see in Anatolian, rather than the other way around. I begin by describing the synchronic uses of Hittite *-ant-* in the next section.

[31]See Melchert 2014, Melchert To appear, Fellner and Grestenberger 2018. The Luvian and Lycian participial suffixes *-Vmma/i-*, *-Vme/i-* and the Hieroglyphic Luvian 'gerundive' *-mina-*, which have been suspected of continuing *-$mh_1no$-, have been argued to have other sources on phonological, morphological, and syntactic grounds (cf. Oettinger 1986: 35, fn. 119, Melchert 2014: 206ff., To appear: 28, fn. 18, García Ramón 2017, Giusfredi 2017).

[32]It is also passive/"theme-oriented" in the other Anatolian languages where it is attested, e.g., Cuneiform Luvian *walant(i)-/ulant(i)-* 'dead', Lycian *lãta-* 'dead', cf. Melchert 2017a: 217.

## 4.3 Hittite *-ant-*

Hittite *-ant-* (nom.sg.c. *-anza*, n. *-an*) makes adjectival passive participles functionally similar to MG (target state) *-menos* and is used in periphrastic passive and perfect/pluperfect constructions. Like MG *-menos*, it can be formed to morphologically active or nonactive finite verbs (that is, valency is important, not voice morphology). Some representative examples are given in (43) (for a more detailed discussion of the properties of *-ant-* and its origins see Hoffner and Melchert 2008, Frotscher 2013, Melchert 2017a, Oettinger 2017, Fellner and Grestenberger 2018); like in the other IE languages, the participle is formed from the same stem as the 3pl.

(43) Hittite *-ant*-formations

| active | | nonactive | |
|---|---|---|---|
| verb | ptcp. | verb | ptcp. |
| *ēp-zi*, 3pl. *app-anzi* 'seize' | *app-ant-* 'seized' | *paršiy-a(ri)* 'breaks' | *paršiy-ant-* 'broken' |
| *pāi*, 3pl. *piy-anzi* 'give' | *piy-ant-* 'given' | *ḫuett(i)-a(ri)* 'pulls' | *ḫuetti-ant-* 'pulled' |
| *pai-zzi*, 3pl. *pā-nzi* 'go' | *pā-nt-* 'gone' | *kīš-a(ri)*, pl. *kiš-* 'happen' | *kiš-ant-* 'happened' |

Frotscher (2013: 202–68) provides an insightful discussion of the semantics of the Hittite *ant*-participles based on the lexical aspect of their verbal bases. He shows that by far the largest class of *ant*-forms (235) are built to transitive, "completive" (accomplishment) verbs and are always resultative and object-oriented (p. 211); these are also productively used in the periphrastic passive construction. The second largest class (45) is built to "transformative" change-of-state verbs (achievements); all of these are resultative. Participles built to stative verbs (26) are stative as well. Finally, there are 13 participles to "continuative" activity verbs which are subject-oriented and therefore semantically similar to the active *nt*-participles discussed in section 4.2. (44) gives representative examples of these four classes.

(44) Hittite *ant*-participles according to semantic class (cf. Frotscher 2013, Fellner and Grestenberger 2018)

a. transitive, accomplishment (235)
   (i) *appă̆nt-* 'seized, taken' (*epp-*$^{zi}$*/app-*) 'seize, take')
   (ii) *(i)yant-* 'made' (*iye/a-*$^{zi}$ 'make, do')
   (iii) *kankant-*, *gangant-* 'hung' (*kānk-*$^{i}$*/kank-* 'hang')
   (iv) *kunant-* 'killed, slain' (*kuen-*$^{zi}$*/kun-* 'kill, slay')

b. change-of-state, achievement (45)
   (i) *akkant-* 'dead, deceased' (*āk-*$^{i}$*/akk-* 'die')

(ii) *arănt-* 'arrived' (*ār-*$^{i}$/*ar-* 'arrive')

(iii) *kištant-* 'extinguished' (*kišt-*$^{āri}$ 'extinguish')

(iv) *mauššant-* 'fallen' (*mau-*$^{i}$/*mu-*, *maušš-*$^{zi}$ 'fall')

c. stative (26)

(i) *ānt-* 'hot' (*ai-*$^{ari}$ 'be hot')

(ii) *tarrant-* 'able, capable' (*tarra-*$^{tta(ri)}$ 'be able, capable')

(iii) *kardimiant-* 'angry' (*kartimmiye/a-*$^{zi}$ 'be angry')

(iv) *lalukkiyant-* 'bright, shiny' (*lalukkiye/a-*$^{zi}$ 'be bright, shine')

d. continuative/activity (13)

(i) *aršant-* 'flowing' (*ăršš-*$^{zi}$ 'flow')

(ii) *šašant-* 'sleeping' (*šeš-*$^{zi}$/*šaš-* 'sleep')

(iii) *iyanniyant-* 'striding' (*iyanna, -i-*$^{i}$ 'march, stride')

(iv) *palwant-* 'cheering' (*palwae-*$^{zi}$ 'cheer, yell')

While (44-a-c) all fall under the generalization that *-ant-* expresses an (attained) state and is 'object-oriented' (i.e., contains only the internal argument of the base), assuming a standard unaccusative analysis of anticausative change-of state verbs like (44-b) and statives like (44-c), the verbs in (44-d) seem to be unergative[33] and therefore a problem for the generalization. Moreover, there are a few verbs whose *ant*-participles seem to be both subject- and object-oriented (*adăn*t- 'eating/eaten', *šakkant-*/*šekkant-*/*šikkant-* 'known/knowing', *ḫŭ(i)yant-*, *ḫūwant-* 'gone, run off'/running, fleeing', etc.). Both of these exceptional types will be addressed in section 4.4.

Hittite *ant*-participles from transitive, agentive verbs can occur with agent *by*-phrases, as in (45). The Akkadogram[34] *IŠTU* is regularly used to mark demoted agents, as well as ablative and instrumental adverbial NPs.

(45) Adjectival passive with *by*-phrase: KUB 26.84 ii 7 (NH):

k]uit ***IŠTU*** **$^{LÚ}$KÚR arḫa warnuw-anza**
because ABL.INSTR enemy up burned-PTCP.NOM

"because he was **burned up by the enemy**"

[33]Though some of Frotscher's examples in this class may be analyzable as stative verbs, e.g., *arant-* 'standing' (*ar-*$^{tta(ri)}$ 'stand') and *šašant-* 'sleeping' in (43); though whether all of these are also unaccusatives is a different matter (see, e.g., Levin and Rappaport Hovav 1995, Rothmayr 2009 on statives and unaccusativity).

[34]Hittite orthography uses a number of Akkadian and Sumerian signs. Akkadograms are usually transcribed in upper case and italics, Sumerograms in upper case, cf. Hoffner and Melchert 2008: 10ff. Abbreviations used for example passages are OH: Old Hittite, MH = Middle Hittite, NH = New Hittite, OS = old script, MS = middle script, NS = new script; cf. Hoffner and Melchert 2008: xvii.

(45) also illustrates modification of the event ($v$) layer through the preverb (or "local adverb") *arḫa*, which marks completive *Aktionsart*. Other types of event-related adverbial modification are possible as well. (46) illustrates modification with an instrument adverbial (marked again by *IŠTU*) and the adverb *karū* 'already; before', cf. also (47).

(46) KUB 30.15 Vs. 13 (MH(?), NS):

paḫḫur=ma=kan ***IŠTU*** **KAŠ GEŠTIN karū kištanuw-an**
fire=PTCL=PTCL ABL.INSTR beer wine already extinguish-PTCP.NOM.N

"The fire (was) **already extinguished with beer and wine**."

(47) illustrates the attributive use of the *ant*-participle.

(47) Attributive use, KBo 15.10 ii 8-10 (OH/MS):

... $^{\text{GIŠ}}$**GIDRU** ***ŪL*** **walḫ-ant-an** UDU-un šipantaḫḫun
stick.INSTR NEG beat-PTCP-ACC sheep-ACC sacrificed.1SG

"I sacrificed the sheep **not beaten with a stick**"

(48) illustrates the use of the *ant*-participle in a periphrastic pluperfect construction. The periphrastic perfect and pluperfect are formed using the finite present and preterit forms of *ḫark-* 'hold, have', respectively, plus the *ant*-participle.

(48) Pluperfect: KBo 5.8 i 23–25 (NH):

nu=mu **ištamašš-an** kuit **ḫarker** ...
PTCL=me.DAT-ACC hear-PTCP.NOM.N because held.3PL ...

"Because **they had heard** about me ..."

Finally, *ant*-participles formed to deponent verbs have a "passive" reading, illustrated in (49), much like the *menos*-participles formed to MG deponents (cf. section 3.2), and unlike the syntactically active, transitive AG deponent participles discussed in section 3.1.

(49) Deponent *paršiya(ri)* 'breaks' (tr.): KUB 10.52 vi 8–9 (OH/NS; Hoffner and Melchert 2008: 339):

ḫarkišš=a $^{\text{NINDA}}$ḫaršiš **karū paršiy-anza**
white=and Ḫarši-bread.NOM already broken-PTCP.NOM

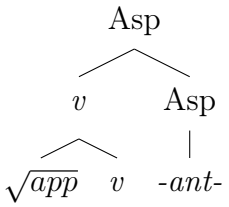
"And the white *Ḫarši*-bread was **already broken** (into pieces)."

## 4.4 Analysis

### 4.4.1 The problem: active or passive?

Given its properties, the Hittite participles in *-ant-* functionally correspond fairly closely to the MG target and resultant state "passive participles" in *-menos* discussed in section 2.2 (cf. example (8)) in that they can be modified by various adverbs (event, manner, agent-oriented) and appear in periphrastic constructions. This suggests that they have at least the following "target state" structure, with $v$ included.

(50) Hitt. *app-ant-* 'seized'




Examples like (44), with an agent *by*-phrase, moreover suggest that a resultant state reading that includes (passive) VoiceP is also possible for agentive verbs. What is *not* possible, however, is the use of *-ant-* with active or "middle" VoicePs.

This is different in AG and Sanskrit, where the synchronic *active* participle in *-nt-* must contain active VoiceP (Voice[+ext.arg.]), given that it is syntactically active, transitive rather than passive when formed to transitive verbs, and sensitive to the morphological distinction between active and nonactive morphology on Voice. That is, the active participial suffix only surfaces in the right conditions as specified by the Spell-Out rules in (32), repeated in (51) for convenience.

(51) Spell-Out rules for AG participles:

a. Asp ↔ *-men(os)*/ _ Voice[-ext.arg]

b. Asp ↔ *-nt-*: elsewhere

Some representative examples from AG are given below. (52) illustrates the active (present) participles of *phérō* 'bring', which means 'bringing' (contrast this with Hittite *piyant-* 'given', not 'giving', in (43)); (53) is an example of the active participle of *eĩmi* 'go', which means 'going' (contrast this with Hittite *pānt-* 'gone', not 'going', in (43)).

(52) Hdt., *Hist.* 4.133.2:

| | | | | |
|---|---|---|---|---|
| ándres | Íōnes, | **eleutheríēn** | hékomen | **humīn** |
| men | Ionian.PL | freedom.ACC | be.present.1PL | you.DAT.PL |

**phéro-nt-es**
bring.PRES-PTCP.ACT-NOM.PL

"Ionians, we are here to bring you freedom/**bringing you freedom**"

(53) Hdt., *Hist.* 1.9.3:

soì melétō tò entheũten hókōs mḕ se ópsetai
you.DAT take.care.IPV thereupon such.that NEG you.ACC will.see
**i-ónt-a** **dià** **thuréōn**
go.PRES-PTCP.ACT-ACC through doors.GEN

"Take care thereupon so that she does not see you **going through the door**."

The same holds for the Latin[35] and Sanskrit cognates of the suffix, cf. (54).

(54) a. Latin: Hor., *Satyrarum libri*, 2.8.85–87:

deinde secuti pueri ... **discerpta**
then followed.NOM.PL. boys.NOM severed.ACC.PL
**fere-nt-es** **membra**
carry-PTCP.ACT-NOM.PL limbs.ACC

"Then followed (the) boys ... **carrying the severed limbs** ..." (of a crane)

b. Sanskrit: RV 3.36.7b:

índrāya **sómaṃ** **sú-ṣutam** **bhára-nt-aḥ**
Indra.DAT soma.ACC well-pressed.ACC carry.PRES-PTCP.ACT-NOM.PL

"(The rivers, uniting with the sea,) are **carrying well-pressed soma** to Indra, ..." (transl. Jamison and Brereton 2014)

We are faced with an interesting problem of comparative reconstruction: while the Hittite (Anatolian) reflexes of *-*nt*- are "passive" (parallel to target/resultant state -*menos* in MG), they are syntactically active in Tocharian, AG, Sanskrit, etc. This "glaring discrepancy" has led Melchert 2017a, Melchert To appear to argue that active, "Core Indo-European" -*nt*- and Anatolian -*nt*- actually have different origins.[36] However, given their strong derivational and

[35]The Latin reflex of the *nt*-participle differs from its Sanskrit and AG counterparts in that it seems to be underspecified for Voice[+/-ext.arg], as argued by Embick 2000 (cf. also Grestenberger 2018). That is, VoiceP is included below the attachment site of the suffix, but unlike in Greek and Sanskrit the [+/-ext.arg] feature does not trigger different Spell-Out allomorphs, as evidenced by the fact that *media tantum* and deponents regularly form participles in -*nt*, unlike in Greek and Sanskrit. However, the compatibility with active, transitive syntax is of course the same as in these languages.

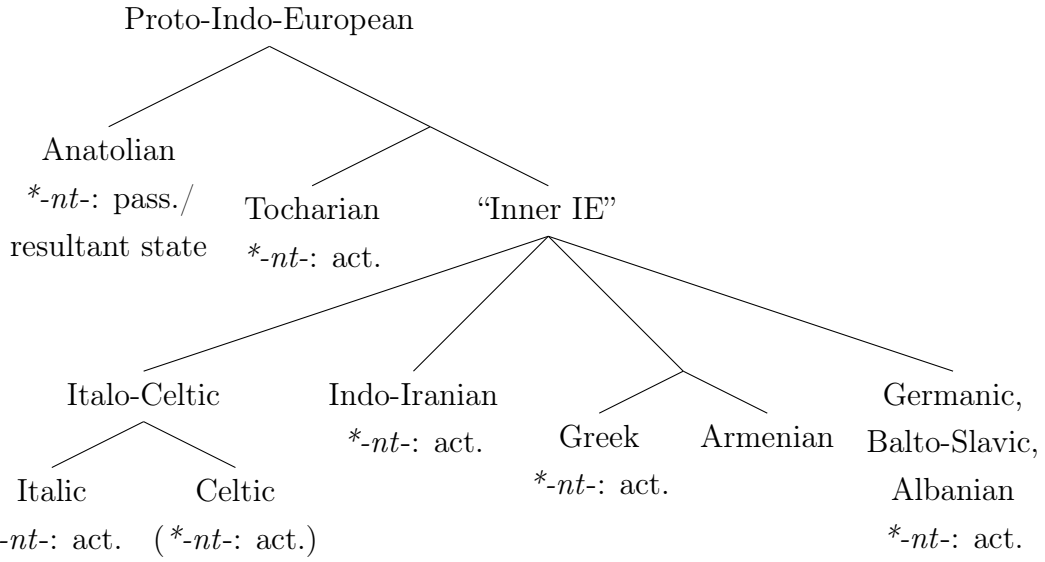
[36]Based on Oettinger 2001, who argues that active, "Core Indo-European" *-*e/ont*- is to be segmented as *-*e/on-t*-, that is, individualizing *-*e/on*- ("*Catō*-type") plus individualizing/substantivizing *-*t*-, and that this explains the "active" voice orientation. This is not the place to criticize this proposal, but note that the derivational chain cited by Melchert 2017a: 219 after Oettinger would suggest that the active *-*nt*-participle

inflectional similarities and general considerations of reconstruction economy (and Occam's razor), this seems too extreme a conclusion, especially since Melchert himself stresses that the main problem with "single source" approaches to the origin of the two disparate functions of *-*nt*- is the lack of "an explicit plausible step-by-step account of how their very different functions may be reconciled" (Melchert 2017a: 219). The following discussion attempts to provide such a step-by-step account.

### 4.4.2 The origins of *-*nt*- revisited

As already mentioned, it is commonly assumed that Anatolian branched off first, and there is increasing consensus that Tocharian was second to split off.[37] The following tree illustrates the functions of *-*nt*-, correlated with the commonly assumed "split-off points" for the different branches.[38]

(55)




There are several reasons to assume that the Tocharian and "inner IE" active participles represent a shared innovation. First, these branches share other innovations to the exclusion of Anatolian (notably primary thematic presents, the optative, the *$eh_2$-feminine, etc., cf. Jasanoff 2017). Second, there are several exact equations between active participles in these branches (cf. Fellner and Grestenberger 2018), including the formation of the feminine forms of the participle. Finally, while there is a possible grammaticalization path from the Ana-

was originally associated with *thematic* formations, and hence thematic verbal stems, for which no evidence exists (active participles are made from thematic and athematic stems alike in the older IE languages).

[37]Cf. Melchert 1998, 2017b, 2018, To appear (with lit.), Rieken 2009 on Anatolian, Ringe 1988-1990[1991], Ringe et al. 1998, Ringe et al. 2002, Schmidt 1992, Jasanoff 2003 & passim, Winter 1998 on Tocharian, and especially Anthony and Ringe 2015 for a synopsis of the contemporary consensus.

[38]This tree and the analysis in this section are based on that of Fellner and Grestenberger 2018, cf. also Anthony and Ringe 2015: 209.

tolian or pre-Anatolian stative-resultative use of *-*nt*- to its active use, there is no obvious path from the active use of the post-Anatolian languages to a stative-resultative ("passive") use. That is, it is unclear how L1 learners might ever have reanalyzed active participles such as the ones in (52)–(54) as (resultant/target-)state oriented or as passive, while there is a reasonable (and paralleled) path for the reanalysis of stative-resultative participles as eventive, active ones—specifically, a reanalysis path by which *-*nt*- changed from selecting (minimally) *v*P to selecting *active* VoiceP.

Hittite itself provides evidence for the starting point of such a reanalysis. As noted by Hoffner and Melchert (2008: 339) and Frotscher (2013: 267), Hittite *ant*-participles from stative verbs (cf. (44c) above), lacking telicity, can only have a "contemporary"[39] reading. Depending on the context, this means that these participles can be interpreted as referring to an ongoing "stative event", rather than an unstructured state, or property. Rothmayr (2009: 7, 28 ff.) refers to these distinct types of states as "Davidsonian states", like Engl. *sit, stand, lie, wait, gleam*, which have a "stative event argument", vs. "Kimian states", like Engl. *be intelligent/tired/angry*, *weigh*, *resemble*, which express properties. The latter tend to be expressed by adjectival rather than verbal morphology in English and many other languages, but this is merely a tendency. Crucially, in the older Indo-European languages, both classes can occur as finite verbs and are therefore syntactically and semantically very similar,[40] and this similarity extends to their participles. This is especially the case for verbs of emotion and body posture, cf. (56).

(56) a. *ā-nt-* 1. 'hot' (property), 2. 'being hot' (state/process) ↔ *āri* 'is hot'
b. *naḫḫ-ant-* 1. 'afraid, fearful' (property), 2. 'being afraid, fearing' (state/process) ↔ *nāḫḫi* 'is afraid of, fears'
c. *šā-nt-* 1. 'angry (with)' (property), 2. 'being angry (with)' (state/process) ↔ *šāizzi* 'is angry (with)'
d. *ar-ant-* 1. 'upright, standing' (property), 2. '(being) upright, standing' (state/process) ↔ *arta(ri)* 'stands'

The first reading corresponds closely to a reversible state, while the second reading denotes a process. This ambiguity is especially clear in contexts with predicatively used participles from stative verbs with a null copula, e.g., (57).

(57) a. KUB 15.32 i 46 (MH/NS, Hoffner and Melchert 2008: 363):

[39] *Kontemporär*, Frotscher's term for an ongoing state or process, cf. Melchert's use of "processual" (e.g., Melchert 2017a).

[40] Rothmayr 2009: 28ff. provides several diagnostics for distinguishing between these classes.

man=wa=za šā-nt-eš
if-QUOT-PTCL angry-PTCP-NOM.PL

'if you are angry'

b. KUB 24.3 ii 55 (MH/NS, CHD: 341):

kuiš DINGIR.MEŠ-naš *UL* naḫḫ-anza
who gods-DAT/LOC not afraid-PTCP.NOM.SG

"He who is not respectful of the gods/who does not fear the gods"

This suggests that a participle like, e.g., (57-a), *šānt-* could have two possible interpretations: a (target) state 'angry' including *v*P, and an event of 'being angry' including some version of active VoiceP with an agent-like subject,[41] providing a possible starting point for a structural reanalyis.

Moreover, there is a second, smaller group of *ant*-participles that is ambiguous between what Frotscher characterizes as "resultative" and "contemporary" readings, namely those formed to verbs of consumption, (58-a), verbs of perception and cognition, (58-b), and verbs of movement, (58-c).

(58) a. *ed/ad-*$^{zi}$ 'eat (sth.)': *adănt-* 'eating'/'eaten'; *eku-/aku-*$^{zi}$ 'drink': *akuwant-* 'drinking' (? 'drunk')

b. *ištammašš-*$^{zi}$ 'hear': *ištam(m)aššant-* 'hearing'/'heard'; *šākk-/šakk-*$^{i}$ 'know': *ša/e/ikkant-* 'knowing'/'known'

c. *ḫuwai-/ḫui-*$^{i}$ 'run (ahead), flee (from)': *ḫŭ(i)yant-*, *ḫūwant* 'running, fleeing'/'run, fled; fugitive'; *iye/a-*$^{tta(ri)}$, *i-*$^{zi}$ 'go, come, proceed': *iyant-* 'going'/'arrived, gone to'

Frotscher argues that the ambiguity between a subject- and an object-oriented reading in these participles mirrors the difference between a telic/transformative/completive and an atelic/continuative construal in the corresponding finite verbs (that is, whether or not 'eat' and 'run' are construed with direct objects that cause the event to be bounded). From the processual reading of statives like (56) via the subject-oriented reading of participles like (58), L1 acquirers could then have generalized a subject-oriented reading to participles of transitive, agentive verbs as well. This did evidently not happen in Hittite, but my claim is that it was a shared innovation of the post-Anatolian IE languages, starting from forms like (56), the stative group, and culminating in a structural reanalysis that resulted in obligatorily including active VoiceP not only in stative-intransitive verbs like 'stand', 'be angry', etc., but in *all* verbs, including agentive-transitive ones.

[41] Cf. the agentive uses of Engl. *hate*, as in "X is hating on sbdy.", "X is a hater", etc."

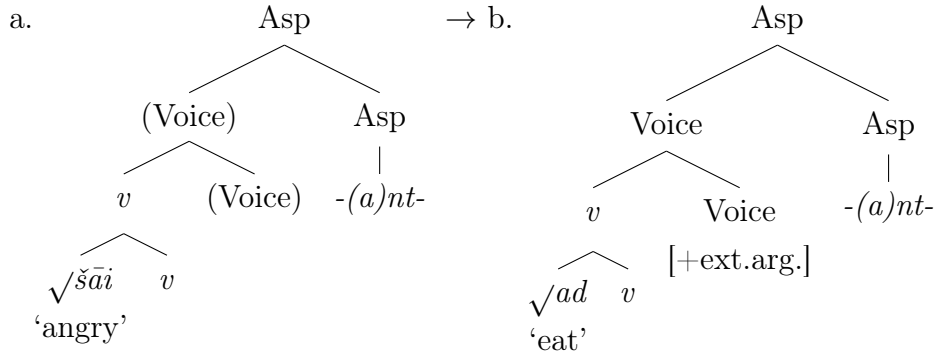
That is, starting from verbs like the ones in (56), post-Anatolian L1 learners generalized the 'processual'/VoiceP structure to *all* verbs, effectively resulting in active participles.[42]

This "voice switching" is usually framed as "proportional analogy", illustrated in (59).

(59) a. *šāizzi* 'is angry': *šānt-* '(being) angry' →
b. *ištammašzi* 'hears': x, x = *ištammaššant-* 'hearing' (besides 'heard') →
c. *ēzzi* 'eats' (3pl. *adanzi*): x, x = *adănt-* 'eating' (besides 'eaten')

However, assuming such a "proportion" is not strictly necessary. All we need is to assume that the selectional properties of *-*nt-* changed during L1 acquisition based on verbs like (56), and that *-*nt-* was therefore able to select active VoiceP, independent of the type of verb in question. This would naturally lead to agentive transitive verbs surfacing with "active participles", rather than stative-resultative ones. This reanalysis is sketched out in (60).

(60) Reanalysis of *-ant-*




In other words, the selectional criteria of (*)-*nt-* changed from selecting *v*P to selecting (a particular type of) VoiceP. For transitive verbs, this resulted in a quite dramatic surface change from transitive object- (more accurately, theme-) orientedness to subject-orientedness.

While there is some evidence for the initial stages of such a development in Hittite, it must have become much more general after Anatolian left the family, resulting in the active *nt*-participles of AG, Latin, Sanskrit, etc., which are by then consistently associated with finite active paradigms. In other words, selecting Voice became obligatory for this suffix in these languages, where it became the unmarked allomorph for spelling out Asp in the context of active Voice.[43]

[42]Such "selectional slip-ups" seem to be common during L1 acquisition. A pertinent example from English was provided to me by Lauren Clemens: language acquirer B, 2,6 years old, spontaneously produced the following while trying to climb up a hill after fresh snowfall: "I can't do it! My body is too *slippable*!", suggesting a generalization of *-able* from transitive verbs that can undergo middle formation to unergative verbs.

[43]Sc. when movement to or agreement with finite T is not possible, cf. Section 2.1.

The question is now whether there is corroborating evidence of the intermediate, non-Voice-selecting stages of this development in any of the older IE languages, to which the answer is yes. Remnants of the older stative-intransitive, non-VoiceP use of *-*nt*- are found in Ancient Greek, for instance. Examples are given in (61): (61-a-b) are *nt*-forms which are not synchronically associated with a finite active verbal paradigm (and comparative reconstruction suggests that no such verbal paradigm ever existed), (61-c) is an example of an -*nt*-participle that is synchronically associated with a finite *nonactive* verbal paradigm, reminiscent of the Hittite situation but otherwise excluded in Greek.

(61) Ancient Greek 'stative' -*nt*-

a. *kré-ont-* 'having power, powerful; ruler'

b. *gér-ont-* 'old; old man'

c. *méd-ont-* 'ruler' (: *médo-mai* 'take care of' = always nonactive[44])

(61) seem to be remnants of the *v*P-selecting stage of *-*nt*- in Greek, some of which actually have cognate parallels in other Indo-European languages, e.g., Sanskrit *járant-*/*juránt-* 'old' (cognate with (61-b)).[45] Further examples from Sanskrit include *uśánt-* 'willing', *dhṛṣánt-* 'bold', and *bhrā́jant-* 'sparkling', all of which look like synchronic active participles to stative verbs, but probably exemplify the *v*-selecting stage of the suffix.[46]

Finally, some examples are also found in Latin, where it has been observed that the active participle in -*ns* occasionally has the syntactic behavior corresponding to the *nonactive* forms of alternating change-of-state/causative alternation verbs (in addition to that of the corresponding active finite forms), (62-a-b), or corresponding to a non-alternating nonactive stative, (62-c) (cf. Leumann 1977: 583, Grestenberger 2018: 518).

(62) a. *vertēns* 'turning' (tr./itr.): act. *vert-ō* 'turn' (tr.) : nonact. *vert-or* 'turn' (itr.)

b. *volvēns* 'rolling' (tr./itr.): act. *volv-ō* 'roll' (tr.) : nonact. *volv-or* 'roll' (itr.)

c. *līquēns* 'fluid' : nonact. *līqu-or* 'become fluid, melt'

Moreover, there is evidence for an even earlier stage in which *-*(o)nt*- was denominal

[44]The active form *médō* found in standard etymological dictionaries (e.g., DELG, GEW, Beekes 2010) is a *transponat* based solely on the apparently active (formally, that is) participle *médōn*, *médont-*. Finite active forms are not found before Sophocles (mid-5$^{th}$ century BCE) and are clearly backformed from the participle, as in Soph. *Antigone* 1119 and Aristoph. *Frogs* 665 where they mean 'rule' (+ ACC) rather than 'take care of, provide for' (= *médomai* + GEN.).

[45]And *not* the synchronic participle of active causative *járati* 'make old', cf. Rau 2009: 71–2, 148, Lowe 2015: 286–8.

[46]See Lowe (2015: 283–94), who shows that these forms are not synchronically associated with finite active verbs, or differ semantically and syntactically from the corresponding finite active verbs. Lowe argues that these forms arose as (denominal or primary) adjectives to property concept roots associated with the 'Caland system'.

(cf. Nussbaum 1976: 18f., Rau 2009: 71f., Frotscher 2013, Lowe 2014, 2015: 283ff., Melchert 2017a, Oettinger 2017), (63), and it is possible that the Greek forms in (61) were also originally denominal.

(63) Denominal *-nt-*

a. Hittite: *nāta/i-* 'straw, reed' → *natānt-* 'with/having a straw'; *lalaḫḫima-* 'excitement' → *lalaḫḫimant-* 'excited'

b. Avestan: *xrū-* 'blood, gore' → *xruu-aṇt(a)-* 'bloody',[47] *bərəz-* 'height, high' → *bərəz-aṇt-* 'high'[48]

c. Sanskrit: *sáh-* 'victory, victorious' → *sáh-ant-* 'victorious',[49] *śúc-* 'shine, glow' → *śuc-ánt-* 'shining, glowing'[50]

Taken together, these forms suggest that **-nt-* successively acquired more and more verbal functional structure in the course of its development to Hittite and the post-Anatolian Indo-European languages; that is, its selectional properties changed over time. The following example illustrates these changes; the verbal functional projections that are added at each step are boxed. (64-a) shows the Proto-Indo-European (possibly also Proto-Anatolian) structure of the suffix **-nt-*, which selected nouns (possibly roots) to form denominal adjectives, based on the evidence of archaic forms like the ones in (63).

(64-b) shows the Anatolian, probably already late PIE stage: the apparent "passive" (theme-) orientation of the *nt*-participle is due to the fact that only *v*P, not VoiceP is selected, so that only the internal argument is part of the resulting participle. The next step of the Anatolian development, in which Voice[-ext.arg.] is selected and causes the resultant state ("eventive passive") reading of, e.g., (45) is not illustrated here.

(64-c) shows the Ancient Greek (and generally post-Anatolian) situation, in which *-nt-* selects (active) VoiceP.

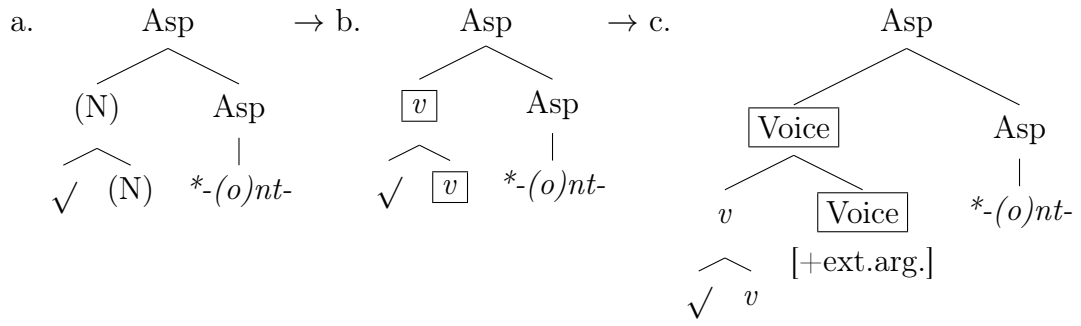
(64) **-(o)nt-*: PIE/Proto-Anatolian (a.) → Proto-Anatolian/late PIE (b.) → Inner IE (AG, Indo-Iranian, Latin, etc.) (c.)

[47] That this *nt*-form is even older is suggested by its Latin near-cognate *cruentus* 'bloody' < **-nt-o-*.

[48] This *-nt*-adjective actually has cognates in Sanskrit (*bṛhánt-* 'high'), Old Irish (personal name *Brigit*), Germanic (Proto-Germanic **burgund(i)-*, cf. the place name *Burgundy*), etc., which suggests that this was an inherited, PIE denominal adjective **$b^h\underset{\circ}{r}\hat{g}^h$-(o)nt-* 'high', cf. NIL: 30ff.

[49] This cannot be the synchronic participle of *sáhate* 'is victorious, conquers', since the finite present forms of this verb are always middle.

[50] Cf. also the Sanskrit examples in the main text above and the discussion in Lowe 2015: 283–91.




The second step, the reanalysis of (64-b) as (64-c) involves statives such as the ones in (56), as argued above. The first step, the reanalysis of (64-a) as (64-b) started with denominal adjectives as in (63), many of which denote property concepts. These are often described as "possessive adjectives" in the Indo-Europeanist literature, the intuition being that the adjectival suffix contributes possessive meaning to the derivative.[51] To give some (idealized) examples, a Vedic *nt*-form like *dviṣ-ánt-* from *dvíṣ-* 'hatred' would originally have meant 'having hatred; hateful', *śuc-ánt-* from *śúc-* 'shine, glow' originally meant 'having shine, shiny', etc., before being reanalyzed as atelic, deverbal statives. This scenario fits well with the typological survey provided by Haspelmath (1994), who argues that adjectival derivational suffixes are one of the main sources of participles diachronically. Parallels for the development from denominal-possessive suffix to verbal-eventive participial suffix abound in the older Indo-European languages, cf. the Sanskrit suffix *-ín-*, which originally formed possessive adjectives (e.g., *áśva-* 'horse' → *aśv-ín-* 'having horses/a horse', *vájra-* 'mace' → *vajr-ín-* 'having a mace'), but later on acts as a deverbal adjectival, quasi-participial suffix (e.g., *ay-/e-/i-* 'go' → *-ay-ín-* 'going', *yaj-* 'sacrifice' → *yāj-ín-* 'sacrificing', cf. AiG II,2: 328–50, Grestenberger Forthcoming a). It is especially noteworthy that some of these forms appear to have both an active and a passive interpretation, betraying their denominal origin, e.g., Vedic Sanskrit *ukth-ín-* 'praising' and 'praised' < *'having praise' (derived from *ukthá-* 'song of praise'; cf. Nussbaum 2014, 2017 on this observation). This "structural ambiguity" of denominal adjectives is exactly what led to the split in the development of *-*nt-* to a passive participle in Hittite, but an active participle in AG and the other older Indo-European languages.[52]

[51] See Francez and Koontz-Garboden 2015 for a formal account of the possessive semantics of (a subclass of) property concept adjectives.

[52] For the further development of the AG *nt*-participle into the MG gerund in *-ondas* see Tsimpli 2000, Manolessou 2005, Gorton 2013.

# 5 Conclusion

The two case studies discussed in this article illustrate the diachrony of the loss and addition of functional projections in the structure of two different participial suffixes, PIE/Anatolian (*)-*nt*- and (Ancient/Modern) Greek -*menos*. In both cases, the ambiguity of interpretation found in deverbal participles and adjectives (between target and resultant states, or stative and eventive participles) was crucial to explaining the reanalyses that took place. We have seen that this ambiguity also exists in modern languages and results from the interaction of the argument and event structure of different classes of verbs with the selectional properties of different adjectival suffixes ("stativizers").

The question is now whether these changes are part of a "cycle". At first glance, the answer seems to be "no", since neither the HPP nor the LMP apply in the changes discussed in sections 3 and 4. Rather, we are dealing with a type of structural reanalysis by which functional structure is lost or gained during language acquisition because language learners acquire and/or generalize a different underlying representation than the previous generation.

Viewed from this perspective, adding functional structure should be no more difficult than losing it, given the right kind of "acquisitional ambiguity", and there are plenty of additional instances that could be argued to show addition of functional structure, but that cannot be discussed here for reasons of space.[53]

However, although the HPP and LMP are not involved in the changes discussed here, and although these changes are not unidirectional, there are some striking convergences in the development of the participles under discussion. Especially striking is the parallelism between (target state) MG -*menos* and Hittite -*nt*- in terms of their syntax and functions, even though these come from completely different sources and time spans. The reason for these convergences is the inherent ambiguity of different types of stative aspect and their interpretation. Concretely, we can distinguish between two types of developments, illustrated in (65)–(66). The first represents the diachronic development of "stativizers", exemplified by Greek -*menos* in case study I. This development produces "object-orientedness" (or passive participles) by decreasing functional structure.

[53]E.g., the Sanskrit suffix -*ín*- briefly mentioned in section 4.4. or the development of the PIE suffix *-*to*- (cf. AG/MG -*tós*) to Latin -*tus*, which can appear in transitive constructions with accusative objects when formed to deponents, cf. (i), unlike its AG and Sanskrit cognates.

(i) Deponent *sequor* 'follow', ptcp. *secū-tus* 'having followed', Livy, *Ab urbe condita* 4.20.5:

**omnes** ante mē **auctōres** **secū-tus** ...
all.ACC before me authors.ACC follow-PERF.PTCP.NOM

"Having followed all authors before me ..." (not: "having been followed")

(65) Diachrony of "stativizers"

| | resultant state | → | target state | → | (property) |
|---|---|---|---|---|---|
| selection | Voice([-ext.arg.]) | | $v$ | | ($\sqrt{}$) |
| meaning | attained, irreversible state | | attained, reversible state | | ('with/having $\sqrt{}$') |

The second development was exemplified with case study II on Anatolian *-nt-* and produces "subject-oriented", active participles by increasing functional structure.

(66) Diachrony of dynamic/processual participles

| | denominal/property | → | state/process | → | action w/agent |
|---|---|---|---|---|---|
| selection | n, $\sqrt{}$ | | $v$ | | Voice[+ext.arg.] |
| meaning | 'with/having n/$\sqrt{}$' | | process (dynamic) | | "subject-oriented" |

It must be emphasized that each step in these developments is constrained by the synchronic properties of the input grammar(s), just as in any other instance of language change (be it phonological, morphological, or syntactic change). That is, participles do not arbitrarily flip from active to passive (or "theme-oriented") syntax or vice versa, but develop via a series of subsequent reanalyses, each of which is grounded in the structural possibilities of the preceding synchronic stage.[54]

So is this development cyclic? Even if we use "cycle" in the broad sense to mean that cycles "involve the disappearance of a particular word and its renewal by another" (van Gelderen 2016b: 3) and extend this to "a particular suffix", the answer is not entirely clear. On the one hand, Greek *-menos* did not "disappear", it just changed in terms of its function and selectional properties. On the other hand, additional examples in which "verbal adjectives" or participles developed from denominal or property-denoting adjectives abound (e.g., PIE **-to-* in Skt. *-tá-*, e.g., *kṛ-tá-* 'made', AG *-tó-*, e.g., *the-tó-s* 'placed', Latin *-tus*, e.g., *fac-tus* 'made'; PIE **-no-* in Skt. *-na-*, e.g., *pūr-ṇá-* 'filled; full', Old Church Slavonic *-nъ*, e.g., *o-dě-nъ* 'done', cf. Old High German *(gi)tā-n* 'done', Engl. *done*, etc., and PIE **-lo-* in Arm. *gerc-al* 'caught', Old Church Slavonic *-lъ*, e.g., *nes-lъ* 'carried', etc.), showing that the same function is effectively "renewed" again and again. I am not claiming that some sort of "gap" in the system or "functional pressure" led to this renewal, but merely that the inherent ambiguity of different types of adjectival statives invites this type of reanalysis. In this respect, the persistent rise of "stativizers" is then similar to what has been observed in other "pervasive" instances of cyclical change, e.g., the observation by van Gelderen (2008:

[54]Crucially, the directionality implied by (65)–(66) is only apparent, as each reanalysis event (represented by an arrow) should in principle be able to go in either direction.

198) that "[t]he reason the negative cycle is so pervasive is that there are always ready-to-be-recycled negative objects and adverbials and minimizers, such as *pas* 'step' in French and *a bit* in English." In the same vein, future work will certainly unearth additional instances of "pervasive recycling" of adjectival and participial affixes.

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