

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

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## Abstract

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 in fact 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, these cases 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.

**Keywords:** Participles, voice morphology, voice flipping, 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 2008, 2009, 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 (HPP) and the Late Merge Principle (LMP). While the HPP results in the reanalysis of phrases as heads and effectively

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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 can be straightforwardly captured by the HPP or the LMP. 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 in this domain).

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 and derivational morphology. Such regularities in the development of participles over time 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., Clark & Roberts 1993; Harris & Campbell 1995; Roberts & Roussou 2003; Roberts 2007), this reanalysis does not appear to be driven by considerations of economy or simplicity (however defined). Crucial evidence 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 primary linguistic data (PLD).

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 2nd millennium BCE) and that appear to show “voice flipping” of a given participial form, either from descriptively active or “subject-oriented” syntax to passive/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 the papers in Le Feuvre et al. 2017 and Cotticelli-Kurras & Sadovski 2017), this article is also intended 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., e.g., Halle & Marantz 1993; Marantz 1997; Harley & Noyer 1999; Embick & Noyer 2007; Bobaljik 2017); a realizational approach to morphology in which morphosyntactic feature bundles on syntactic heads are realized by exponents that compete for insertion after the syntactic derivation is completed. 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).<sup>1</sup> 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 §2, I briefly discuss the theoretical background on participles and the properties of Voice in Modern Greek. Section 3 contains case study I, the development of the participial suffix *-menos* from Ancient Greek (AG) to Modern Greek (MG).<sup>2</sup> Section 4 discusses case study II, the development of Proto-Indo-European (PIE) *\*(o)nt-* to Hittite *-ant-* and AG *-nt-*.<sup>3</sup> 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 further discussion and the conclusion.

## 2. Background: Participles and Voice

### 2.1 Participles

Pretheoretically, participles can be defined as deverbal nominals<sup>4</sup> which are integrated in a verbal paradigm as non-finite verbal forms (or are perceived as such by descriptive grammarians 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

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<sup>1</sup>See Ringe & Eska (2013: ch. 8) for further discussion of the use of DM in studying morphological change.

<sup>2</sup>Citation forms are the 1sg. present for Ancient and Modern Greek and the 3sg. present for Hittite.

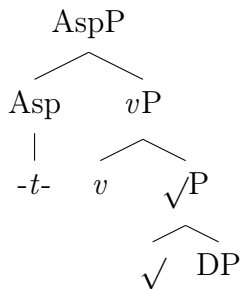
<sup>3</sup>The Ancient Greek suffix partially fuses with the stem forming morphology of its respective verbal base and/or the inflectional endings. For simplicity, I therefore use just *-nt-* as the citation form.

<sup>4</sup>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 substantivum* ‘substantival noun’ and *nōmen adjectivum* ‘adjectival noun’.

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 (Embick 1997a, 2000, 2004b; Anagnostopoulou 2003; Alexiadou et al. 2007; Alexiadou & Anagnostopoulou 2008; Baker & Vinokurova 2009; Harley 2009, etc.). More precisely, I assume (following the DM-approaches of Embick 2000, 2004b; Alexiadou & Anagnostopoulou 2008; Alexiadou et al. 2015, 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.<sup>5</sup> 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 (2); (2a) is inserted in the present, (2b) in the absence of [pres] for particular listed stems, (2c) 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 determining the category of these participles<sup>6</sup> 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,

<sup>5</sup>Or agreement with it is impossible, see Bjorkman (2011) for a detailed discussion.

<sup>6</sup>See Embick (2000: 211f.); cf. also Lowe (2015, 2017) and Spencer (2016) on the problem of determining the category of participles and other deverbal nouns and adjectives.

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.<sup>7</sup>

- (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 *vP* and a VoiceP introducing the agent  $\theta$ -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 & Anagnostopoulou 2008; Papangeli & Lavidas 2009), cf. Table 1.

**Table 1.** MG *-menos* vs. *-tos* participles

Verb	<i>-menos</i>	<i>-tos</i>	
<i>vrazo</i>	<i>vras-menos</i>	<i>vras-tos</i>	‘boiled’
<i>psino</i>	<i>psi-menos</i>	<i>psi-tos</i>	‘grilled’
<i>anigo</i>	<i>anig-menos</i>	<i>anih-tos</i>	‘opened; open’

As argued in detail by Anagnostopoulou and collaborators (Anagnostopoulou 2003; Alexiadou & 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 (4), can license agent *by*-phrases (5) and is used in periphrastic verbal constructions, while *-tos* can do none of those things.

- (4) Modern Greek

*To thisavrofilakio itan prosektika anig-meno / \*anih-to.*  
 the safe was cautiously open-PTCP / open-PTCP

<sup>7</sup>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 §2.2.

“The safe was cautiously opened” (adapted from Alexiadou et al. 2015: 156, ex. (26a))

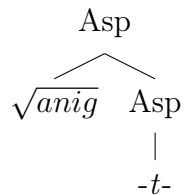
(5) Modern Greek

*To psari itan tiganis-meno / \*tigan-ito apo tin Maria.*  
 the fish was fry-PTCP / fry-PTCP by the Maria

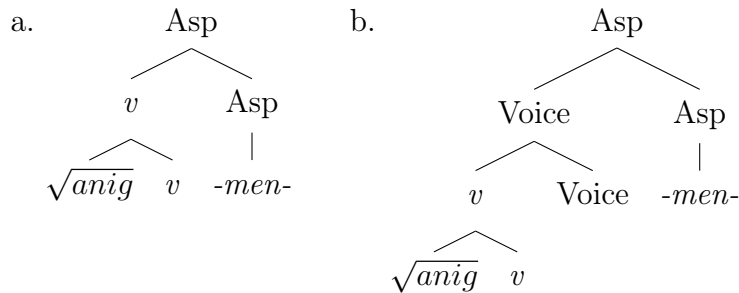
“The fish was fried by Maria” (adapted from Alexiadou et al. 2015: 156, ex. (23a))

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. (6); *-menos* either selects *v* (“target state participles”), (7a) or *v*+Voice (“resultant state participles”), (7b), (based on the trees given in Alexiadou et al. 2015: 161 and after head movement has taken place).<sup>8</sup>

(6) MG *tos*-participles: *anig-t(os)* ‘open’



(7) MG *menos*-participles: *anig-men(os)* ‘opened’



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-*

<sup>8</sup>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*]); 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.

participles. Thus target state participles like (7a) express reversible states and can be modified by the adverb *akoma* ‘still’, (8a), while resultant state participles like (7b), which express irreversible states, are incompatible with *akoma*, cf. (8b) (examples adapted from Alexiadou et al. 2015: 157, ex. (29a) and (30b)).

(8) Modern Greek: target vs. resultant states

- 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 & 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 (8b), 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:

(9) Modern Greek

- 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 (6) and (7a) 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 (7b) actually includes the projection Voice([-ext.arg.], see §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 §§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 Tables 2 and 3.<sup>9</sup>

**Table 2.** Voice alternations in AG

Function	Nonactive	Active
Anti-causative	<i>daío-mai</i> ‘burn, blaze’ (itr.)	<i>daí-ō</i> ‘burn sth.’
Reflexive	<i>loúo-mai</i> ‘wash myself’	<i>loú-ō</i> ‘wash sth.’
Self-benefactive	<i>phéro-mai</i> ‘carry (away) for myself’	<i>phér-ō</i> ‘carry, bear’
(Medio)passive	<i>theíno-mai</i> ‘am struck, killed’	<i>theín-ō</i> ‘kill, strike’

**Table 3.** Voice alternations in MG

Function	Nonactive	Active
Anti-causative	<i>sikon-ome</i> ‘rise’	<i>sikon-o</i> ‘raise’
Reflexive	<i>plen-ome</i> ‘wash myself’	<i>plen-o</i> ‘wash’
Self-benefactive	<i>promithev-ome</i> ‘supply myself’	<i>promithev-o</i> ‘supply’
(Medio)passive	<i>skoton-ome</i> ‘am killed’	<i>skoton-o</i> ‘kill’

AG and MG display voice syncretism (Embick 1997b, 2004a), meaning that one and the same morphological exponent is found in different syntactic environments. The canonical environments for nonactive morphology are anticausative, reflexive/reciprocal, self-benefactive and passive/mediopassive,<sup>10</sup> illustrated above and discussed at length in Zombolou (2004); Alexiadou & Doron (2012); Alexiadou (2013); Alexiadou et al. (2015), etc. (on the canonical uses of nonactive/“middle” morphology in AG see Schwyzer & Debrunner 1950: 217ff.; Bakker 1994; Allan 2003). This morphology is “postsyntactic” and surfaces whenever VoiceP does not introduce an external argument DP, formalized in (10) (from Alexiadou et al. 2015:

<sup>9</sup>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 & Doron (2012); Alexiadou (2013); Alexiadou et al. (2015), etc., on the distribution and properties on nonactive morphology in Modern Greek.

<sup>10</sup>On the distinction between passive and mediopassive see Alexiadou & Doron (2012); Alexiadou et al. (2015); Schäfer (2017). This distinction will not be relevant for the analysis developed below.



102, after Embick 2004a: 150).

(10) Voice  $\rightarrow$  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 condition in (10) 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 realized as nonactive because the agent  $\theta$ -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  $\theta$ -role, as in “marked anticausatives” (“expletive Voice”, Schäfer 2008, 2017; Alexiadou et al. 2015). In either case, Voice will surface as nonactive by (10). The predicted distribution of active and nonactive morphology is summarized in Table 4 (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.

**Table 4.** 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:

- (11) a. PTCP (Asp) selects *vP*+Root or Root: stative or resultative “passive” participle (cf. (6), (7a)); no *by*-phrases allowed
- b. PTCP selects Voice[-ext.arg.]+*vP*+Root: eventive passive participle (cf. (7b)); *by*-phrases allowed
- c. PTCP selects Voice[+ext.arg.]+*vP*+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 §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.<sup>11</sup>

In the following, these different functions are illustrated with some examples. The verb *títhēmi* means ‘put, place’ in the active and, among other uses, (indirect) reflexive ‘put, place (sth.) for oneself’ when used with nonactive morphology (*títhēmai* ‘I put, place (sth.) for myself’). Its nonactive participle in (12) has the same meaning.

(12) Ancient Greek: self-benefactive/reflexive

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

“He found him **putting his beautiful armour** around his shoulders”

(Hom., *Il.* 10.34)

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 & 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, (13).

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<sup>11</sup>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.

- (13) Ancient Greek: intransitive/motion verb

*autàr Akhaioùs*      *ōrse* (...) *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 ...**” (Hom., *Il.* 4.514–16)

(14) 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.

- (14) Ancient Greek: transitive, self-benefactive

*hoi Lakedaimónioi,*      (...) *hoi dè*      *pédās*  
 the Lakedaemonians.NOM      they PTCL chains.ACC  
*phéró-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 ...**” (Hdt., *Hist.* 1.66.3)

The chain-carrying event described in (14) 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.<sup>12</sup> The passage in (15) shows that this reading is also possible for its participle.<sup>13</sup>

- (15) Ancient Greek: (medio)passive

*tò ploïon*      *oíkhetai* *phéró-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.**” (Hdt., *Hist.* 2.29.2)

<sup>12</sup>Cf. MG *plenome*, usually reflexive ‘I wash myself’, but also passive ‘I am being washed’ given the right context (e.g., in a hospital).

<sup>13</sup>*Menos*-participles are also found in passive use in the future passive, whose finite and non-finite forms obligatorily take nonactive morphology (cf. Grestenberger 2016).

AG *-menos* can combine with all tense-aspect stems (present, aorist, perfect, future), as opposed to its MG counterpart, which is formed from the passive perfective (a.k.a. “simple past”, Holton et al. 1997: 162ff.) stem. Table 5 illustrates this with the respective participles of *títhēmi*, non-act. *títhēmai* ‘place, put (for myself).’

**Table 5.** Nonactive finite forms & *menos*-participles of *títhēmai* in AG

	stem	finite verb	participle
present		<i>títē-mai</i>	<i>títē-menos</i>
aorist		<i>(e)thé-mēn</i>	<i>thé-menos</i>
perfect		<i>téthei-mai</i>	<i>téthei-menos</i>

AG *-menos* can moreover be modified by manner- and event-oriented adverbs such as *eũ* ‘well’ and *prókhnu* ‘with knees forward, kneeling’ in (16a-b) and *pálin* ‘again, re-’ and *biaióteron* ‘violently’ in (17a) ((17b) illustrates that this is also the case for formally active participles).

(16) Ancient Greek: adverbial modification

- a. *hē d’ eũ deksa-mén-ē píleei kai hékasta*  
 she PTCL well receive.AOR-PTCP.NACT-NOM.F welcomes and each.N.PL  
*metallāi*  
 inquires  
 “And she, **having received (him) well**, treats him kindly and inquires about everything.” (Hom., *Od.* 14.128)
- b. *prókhnu kat-hezo-mén-ē*  
 knees.forward.ADV down-sit.PRES-PTCP.NACT-NOM.F  
 “sitting down with knees forward (i.e., kneeling)” (Hom., *Il.* 9.570)

(17) Ancient Greek: adverbial modification

- a. ... *tēn thálassan kai eksapínēs pálin epispō-mén-ēn*  
 the.ACC sea.ACC and suddenly again recoil.PRES-PTCP.NACT-ACC.SG.F  
*biaióteron tēn epíklusin poieĩn*  
 violently the.ACC flood.ACC do.PRES-INF  
 “... the sea, suddenly **recoiling again violently**, causes the flood.”  
 (Thuc., *Pelop. War.* 3.89.5)
- b. *anakhōrēsá-nt-ōn de pálin ek tēs gēs*  
 return.AOR-PTCP.ACT-GEN.PL PTCL again from the.GEN land.GEN  
*apodósein autoĩs toũs ándras*  
 return.FUT-INF them.DAT the.ACC.PL men.ACC  
 “after [the Thebans<sub>i</sub>] **having withdrawn again** from their<sub>j</sub> land, they<sub>j</sub> would

return the men to them<sub>i</sub>.”

(Thuc., *Pelop. War*, 2.5.5)

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. (18).<sup>14</sup>

(18) Ancient Greek: demoted agents

- a. *hai d' hama p̄asai thústhla khamai 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  
*bouplēgi*  
ox.goad.DAT

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

(Hom., *Il.* 6.133-5)

- b. *tōi dè duōdekátōi étei lēiou*  
the.DAT PTCL twelfth.DAT year.DAT crop.GEN  
***empipra-mén-ou hupò tēs stratiēs ...***  
burn.up.PRES-PTCP.NACT-GEN by the.GEN army.GEN

“In the twelfth year, when the crops **were being burned by the army**, ...”

(Hdt., *Hist.* 1.19.1; 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 (13) 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, as well as the surveys in Müller 2013 and Grestenberger

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<sup>14</sup>The status of the demoted agent in 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 (and, at the oldest stage, dative NPs without a preposition), cf. Schwyzer (1943), Jankuhn (1969), Luraghi (2003), George (2005), Lavidas (2012). That being said, the *hupó*-phrases in examples like (18) 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 Grestenberger (Forthcoming b) for a more detailed discussion.

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 2017, 2018 for a more elaborate discussion).

Deponent verbs in AG make *menos*-participles which are syntactically active and transitive, like the corresponding finite forms, cf. (19). This suggests that they do in fact include VoiceP.

(19) AG deponent: *dízēmai* ‘seek sth.’, ptcp. *dizēmenos* ‘seeking’

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

“And then Ulysses went into his swift ship, **seeking (some) man-slaying poison.**”  
(Hom., *Od.* 1.261-2)

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 §3.1 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).<sup>15</sup>

<sup>15</sup>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’,

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 12th 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 Table 6. Note that passive *-menos* is always accented on the suffix.

**Table 6.** MG *-menos* and its base verbs (present stem)

	verb	meaning	participle	meaning
formally active	<i>agapo</i>	‘love’	<i>agapiménos</i>	‘loved’
	<i>deno</i>	‘tie’	<i>deménos</i>	‘tied’
	<i>kalo</i>	‘call’	<i>kalesménos</i>	‘called’
formally nonactive	<i>metahirizome</i>	‘use’	<i>metahirisménos</i>	‘used’
	<i>varieme</i>	‘am bored’	<i>variestiménos</i>	‘bored’
	<i>ekmetalevome</i>	‘exploit’	<i>ekmetalevménos</i>	‘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 (Schwyzer 1939: 779; Holton & 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, (20).

(20) Modern Greek: periphrastic passive

*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)

Moreover, in MG the *menos*-participles of deponent verbs are always PASSIVE, cf. *metahirisménos* and *ekmetalevménos* in Table 6, and the minimal pairs in Table 7.

**Table 7.** MG non-deponent vs. deponent participles

verb	meaning	participle	meaning
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*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 & Iordăchioaia (2014: 63), Alexiadou (2018: 18). This is of course fully expected under the analysis of MG *-menos* discussed in §2.2 and below.

	1sg.pres.		<i>menos-ptcp.</i>	
non-deponent	<i>grafo</i>	‘write’	<i>graménos</i>	‘written’
deponent	<i>metahirizome</i>	‘use’	<i>metahirisménos</i>	‘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 §2.2. Table 8 summarizes the properties of AG vs. MG *-menos*.

**Table 8.** Properties of *-menos* in AG vs. MG

	AG	MG
transitive, ACC-object possible	✓	✗
periphrastic passives	(✓ <sup>16</sup> )	✓
deponent <i>-menos</i>	active syntax	passive syntax
sensitive to finite verb voice morphology	✓	✗
sensitive to valency	✗	✓
passive reading possible	✓	✓
<i>by</i> -agent possible	✓(cf. fn. 14)	✓(cf. §2.2)

### 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* appears in the context of Voice without an external argument when the verb cannot move to T.<sup>17</sup> Example (21)

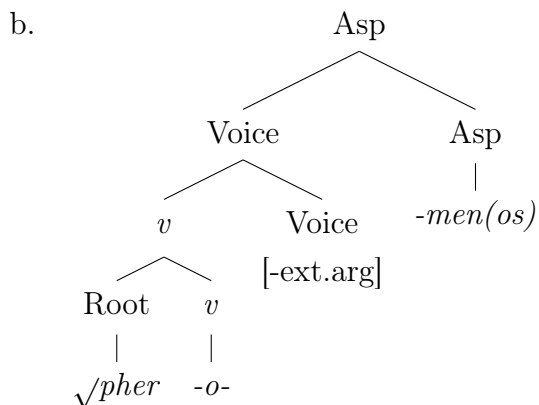
<sup>16</sup>Only the *menos*-participles formed from the PERFECT stem are used in periphrastic passive constructions ( $\approx$  adjectival passives), but not *menos*-participles formed to the present or aorist stem. The reason is probably that AG perfect participles were stative-resultative, while present and aorist participles were dynamic (cf. Napoli 2017 and §3.3.2 below).

<sup>17</sup>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. Koenen & 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 5th 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



illustrates the structure of an AG *menos*-participle after head movement to Asp.<sup>18</sup>

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



In this approach the active participle suffix *-nt-* (which will be discussed in more detail in §§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 conditions for the Greek participial suffixes are given in (22) (see Grestenberger 2018 for more details).

- (22) Spell-Out conditions for AG participles:  
 a. Asp ↔ *-men(os)*/ Voice[-ext.arg] \_  
 b. Asp ↔ *-nt-*: elsewhere

As discussed in §2.3, Voice is the head that determines the realization 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.

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 §3.1).

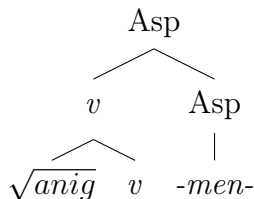
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that they are base-generated in a right-headed TP, cf. Hearn (Forthcoming). Taken together, and pending further and more detailed studies, this suggests finite verb movement to a head-final TP in unmarked contexts.

<sup>18</sup>I follow the literature in treating verbal “theme vowels” as instantiations of *v* (or adjoined to *v*; this difference is not relevant here), cf., e.g., Oltra-Massuet (1999), Oltra-Massuet & Arregi (2005), Embick (2015), Panagiotidis et al. (2017); specifically on Ancient Greek cf. Grestenberger (2016, Forthcoming b). Note that the traditional labels “present stem” and “aorist stem” are used for these affixes in the example glosses.

MG TARGET state *menos*-participles, on the other hand, have the structure in (23), with the participial suffix selecting *v*P (cf. §2.2).

(23) 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 resultant 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 (cf. the discussion in 2.2 and especially examples (8–9)).

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.<sup>19</sup>

### 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*-

<sup>19</sup>Remnants of the older use of *-menos* are preserved in the MG (*ó*)*menos*-participle, or “present passive participle”, described as an unproductive Katharevousa feature in Holton et al. (1997: 235ff.) and Manolessou (2005: 255); cf. Grestenberger (2018: fn. 33).

participle could be misinterpreted or “misanalyzed” as a target state participle. As Anagnostopoulou (2003, *passim*) has shown, there are a number of MG *menos*-participles that are SYNCHRONICALLY ambiguous between the two readings, but that 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 (cf. Roberts & Roussou 2003; Roberts 2007). 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 §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”.<sup>20</sup> That L1 acquisition plays a crucial role in this kind of diachronic reanalysis has recently been defended by Cournane (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. 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 and resultative already in Homeric Greek (cf. Chantraine 1926: 7ff.; Schwyzer & Debrunner 1950: 237; Napoli 2017), although the passive reading of *-menos* is of course also found with other stems, cf. (24). 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 & Debrunner 1950: 407), cf. (25), and they are also predominantly used in these contexts in Early Post-Classical Greek (cf. Bentein 2012).

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<sup>20</sup>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.”

(24) Ancient Greek: stative/resultative present participle

*óπισθε τῆς ανοίγο-μέν-ēs θύρῆς*  
behind the.GEN.F open.PRES-PTCP.NACT-GEN.F door.GEN.F

“behind the **open(ed) door**” (Hdt., *Hist.* 1.9.2.)

(25) Ancient Greek: stative/resultative perfect participle

*καὶ ἐν κηρῆσμοι ἔν γεγραμ-μέν-ον περὶ αὐτῆς ἡδὲ: ...*  
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): ...”  
(Hdt., *Hist.* 6.98.3)

Example (25) illustrates the passive use of the perfect nonactive participle of *γράφω* ‘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., (26).

(26) Ancient Greek: transitive aorist participle

*βυβλία γραψά-μέν-ος πολλὰ*  
letters.ACC write.AOR-PTCP.NACT-NOM.M many.ACC

“having written many letters” (Hdt., *Hist.* 3.128.2)

An important factor that caused the gradual predominance of the passive reading of *menos*-participles like (25) at the expense of the active use like in (26) 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 *ékho* ‘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, see Bentein 2012: 231). In his detailed study of the use of participles in periphrastic constructions, Bentein (2012) notes that *menos*-participles from PRESENT stems also occur in resultative periphrastic perfect constructions with *eimí* and *ékho* in the relevant period; compare the use of a perfect stem *menos*-participle in (27a) to

that of a present stem *menos*-participle in (27b), both in resultative use.<sup>21</sup>

(27) Postclassical Greek: resultative participles

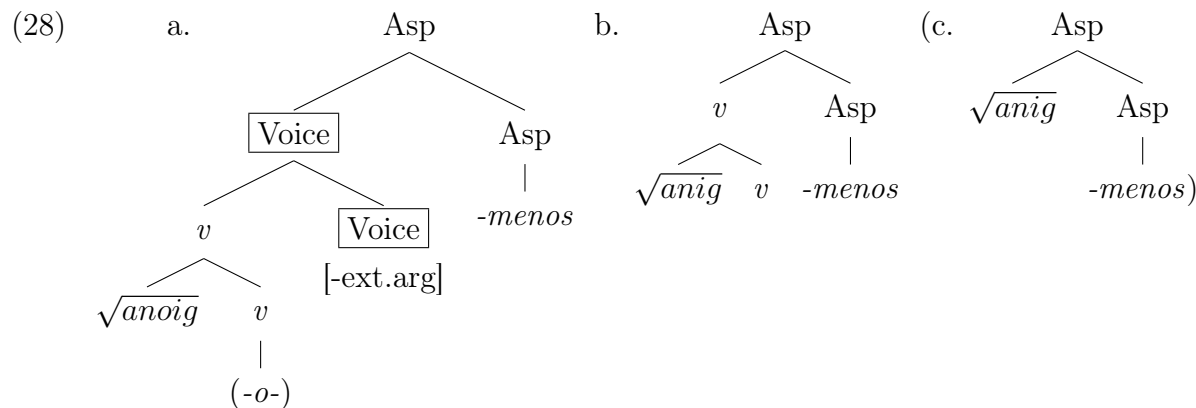
- a. *oukh hēmeĩs tās thúras ēsphalisámetha kai pōs nūn*  
 not we the doors.F fastened and how now  
*aneōig-mén-ai* *eisìn kai hoi desmōtai éndon*  
 open.PERF-PTCP.NACT-NOM.PL.F are and the prisoners inside  
 “did not we fasten the doors? And how **are they** now **open**, and the prisoners  
 within?” (A. Thom. 122.11–12, cited after Bentein 2012: 232)
- b. *memuk-ōta gār éskhe tà ómmata, kai mēdamōs*  
 shut.PERF-PTCP.ACT.PL.N for had the eyes.PL.N and not.at.all  
*anoigó-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, cited after 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 reanalysis. 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 (28a-b), with the boxed material being lost through (structural) reanalysis of resultant state passive participles as target state participles. I use AG *anoigómenos* ‘opened’ and MG *anigménos* ‘opened’ as (somewhat idealized,<sup>22</sup> but representative) examples. (28a) illustrates an AG passive/MG resultant state *menos*-participle and (28b) a MG target state *menos*-participle.

<sup>21</sup>The first example is from Middle Post-Classical Greek and the second 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 use the same verb, “open”.

<sup>22</sup>That is, the MG form is not directly descended from the AG form (but cf. the parallelism in ex. (27)).



I include (28c) 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 (28b) would result in a “verbal adjective” structure, (28c), for *-menos*, exactly equivalent to the one posited for MG *-tos* in §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 (10) applies. This ability to select different kinds of nonactive VoiceP was lost on the way to MG (with remnants preserved in Katharevousa Greek, cf. fn 19). 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”, Roberts & Roussou 2003; Roberts 2007), by which the functional projections of a

given construction are reduced. As Roberts & 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. 20 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, is “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), merely that the language acquirer(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 Ancient Greek 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 §3). Some examples are given in Table 9.<sup>23</sup>

**Table 9.** *-nt-* in Indo-European

	Act.	NAct.	Ptcp.
Skt.	<i>bhár-a-ti</i> ‘carries’ <i>é-ti</i> ‘goes’, 3pl. <i>y-ánti</i>	<i>bhár-a-te</i> ‘carries for oneself’ —	<i>bhár-a-nt-</i> ‘carrying’ <i>y-ánt-</i> ‘going’
AG	<i>phér-ō</i> ‘carry’ <i>eĩ-mi</i> ‘go’, 3pl. <i>í-āsi</i>	<i>phér-o-mai</i> ‘carry for myself’ —	<i>phér-o-nt-</i> ‘carrying’ <i>i-ónt-</i> ‘going’
Lat.	<i>fer-ō</i> ‘carry’ <i>e-ō</i> ‘go’, 3pl. <i>e-unt</i>	<i>fer-or</i> ‘am carried’ —	<i>fer-ent-</i> ‘carrying’ <i>e-unt-</i> ‘going’

This pattern suggests that the same condition that governs the distribution of active and nonactive morphology in the finite forms in these languages (10) also governs the distribution of their voice-marked participial forms (at least in Greek and Sanskrit; for Latin cf. fn. 28).

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. 1600–1200 BCE in modern-day Turkey and Syria). Anatolian is generally considered the “first to branch off” the common

<sup>23</sup>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 Table 9.



Indo-European proto-language (cf. Melchert 1998, 2017b, 2018, To appear; Rieken 2009 and the synopsis in Anthony & Ringe 2015); there is increasing consensus that Tocharian was second to split off (Ringe 1988-1990[1991]; Schmidt 1992; Winter 1998; Ringe et al. 2002; Jasanoff 2003 & passim).

Anatolian in particular 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; 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)āna-*) in Anatolian,<sup>24</sup> 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.<sup>25</sup> 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 syntactically active 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.

### 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 Table 10 (for a more detailed discussion of the properties of *-ant-* and its origins see Hoffner & Melchert 2008; Frotscher 2013; Melchert 2017a; Oettinger 2017; Fellner & Grestenberger 2018; Inglese 2018); like in the other IE languages, the participle is formed from the same stem as the 3pl.

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<sup>24</sup>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: 206f.; To appear: 28, fn. 18; García Ramón 2017).

<sup>25</sup>It is also passive/“theme-oriented” in the other Anatolian languages in which it is attested, cf. Melchert (2017a: 217).

**Table 10.** Hittite *-ant*-formations

active		nonactive	
verb	ptcp.	verb	ptcp.
<i>ēp-zi</i> , 3pl. <i>app-</i> ‘seize’	<i>app-ant-</i> ‘seized’	<i>paršiy-a(ri)</i> ‘breaks’	<i>paršiy-ant-</i> ‘broken’
<i>pāi</i> , 3pl. <i>piy-</i> ‘give’	<i>piy-ant-</i> ‘given’	<i>huet(i)-a(ri)</i> ‘pulls’	<i>hueti-ant-</i> ‘pulled’
<i>pai-zzi</i> , 3pl. <i>pā-</i> ‘go’	<i>pā-nt-</i> ‘gone’	<i>kīš-a(ri)</i> , 3pl. <i>kīš-</i> ‘happen’	<i>kīš-ant-</i> ‘happened’

Frotscher (2013: 202–268) 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 §4.2. (29) gives representative examples of these four classes.

- (29) Hittite *ant*-participles according to semantic class (cf. Frotscher 2013; Fellner & Grestenberger 2018)
- a. transitive, accomplishment (235)
    - (i) *appānt-* ‘seized, taken’ (*epp-<sup>z</sup>i/app-* ‘seize, take’)
    - (ii) *(i)yant-* ‘made’ (*iye/a-<sup>z</sup>i* ‘make, do’)
    - (iii) *kunant-* ‘killed, slain’ (*kuen-<sup>z</sup>i/kun-* ‘kill, slay’)
  - b. change-of-state, achievement (45)
    - (i) *akkant-* ‘dead, deceased’ (*āk-<sup>i</sup>/akk-* ‘die’)
    - (ii) *arānt-* ‘arrived’ (*ār-<sup>i</sup>/ar-* ‘arrive’)
    - (iii) *kīštant-* ‘extinguished’ (*kīšt-<sup>āri</sup>* ‘extinguish’)
  - c. stative (26)
    - (i) *ānt-* ‘hot’ (*ai-<sup>ari</sup>* ‘be hot’)
    - (ii) *tarrant-* ‘able, capable’ (*tarra-<sup>tta(ri)</sup>* ‘be able, capable’)
    - (iii) *kardimiant-* ‘angry’ (*kartimmiye/a-<sup>z</sup>i* ‘be angry’)
  - d. continuative/activity (13)
    - (i) *aršant-* ‘flowing’ (*ārš-<sup>z</sup>i* ‘flow’)
    - (ii) *iyanniyant-* ‘striding’ (*iyanna, -i-<sup>i</sup>* ‘march, stride’)
    - (iii) *palwant-* ‘cheering’ (*palwae-<sup>z</sup>i* ‘cheer, yell’)

While (29a-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 (29b) and statives like (29c), the verbs in (29d) seem to be unergative<sup>26</sup> and therefore a problem for the generalization. Moreover, there are a few verbs whose *ant*-participles can be both subject- and object-oriented (*adānt-* ‘eating/eaten’, *šakkant-/šekkant-/šikkant-* ‘known/knowing’, *hū(i)yant-*, *hūwant-* ‘gone, run off’/running, fleeing’, etc.). Both of these exceptional types will be addressed in §4.4.

Hittite *ant*-participles from transitive, agentive verbs can occur with agent *by*-phrases, as in (30). The Akkadogram<sup>27</sup> *IŠTU* is regularly used to mark demoted agents, as well as ablative and instrumental adverbial NPs (see Hoffner & Melchert 2008: 267–269).

(30) Hittite: adjectival passive with *by*-phrase

k|uit *IŠTU* <sup>LÚ</sup>KÚR arḫa warnuw-anza  
 because ABL.INSTR enemy up burned-PTCP.NOM

“because he was **burned up by the enemy**” (KUB 26.84 ii 7, NH)

Example (30) 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. (31) illustrates modification with an instrument adverbial (marked again by *IŠTU*) and the adverb *karū* ‘already; before’, cf. also (32).

(31) Hittite: adverbial modification

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.**”

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

Example (32) illustrates the attributive use of the *ant*-participle.

(32) Hittite: attributive participle

<sup>26</sup>Though some of Frotscher’s examples in this class may be analyzable as stative verbs, e.g., *arant-* ‘standing’ and *šašant-* ‘sleeping’; though whether all of these are also unaccusatives is a different matter (see, e.g., Levin & Rappaport Hovav 1995; Rothmayr 2009 on statives and unaccusativity; specifically on Hittite Garrett 1996).

<sup>27</sup>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 & 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 & Melchert 2008: xvii.

... <sup>GIŠ</sup>GIDRU <sup>ŪL</sup> walḫ-ant-an UDU-un šipantahḫun  
 stick.INSTR NEG beat-PTCP-ACC sheep-ACC sacrificed.1SG

“I sacrificed the sheep **not beaten with a stick**” (KBo 15.10 ii 8-10, OH/MS)

Example (33) 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’ and *eš-* ‘be’, plus the *ant*-participle (Hoffner & Melchert 2008: 310ff.).

(33) Hittite: periphrastic pluperfect

nu=kan antuḫšātar kuit INA URU.DIDLI.ḪI.A=ŠUNU EGIR-pa  
 CONN=PTCL population.NOM.N because into cities=their back  
**pā-n ēšta**  
 go-PTCP.NOM.N be.3SG.PRET

“Because the population **had gone** back into their cities”

(KBo 5.6 i 19–20, NH, cited after Hoffner & Melchert 2008: 311)

Finally, *ant*-participles formed to deponent verbs have a “passive” reading, illustrated in (34), much like the *menos*-participles formed to MG deponents (cf. §3.2), and unlike the syntactically active, transitive AG deponent participles discussed in §3.1.

(34) Hittite: deponent *paršiya(ri)* ‘breaks’ (tr.)

ḫarkišš=a <sup>NINDA</sup>ḫaršiš karū paršiy-anza  
 white=and Ḫarši-bread.NOM already broken-PTCP.NOM

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

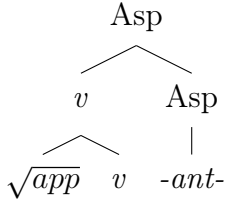
(KUB 10.52 vi 8–9, OH/NS; Hoffner & Melchert 2008: 339)

## 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 §2.2 (cf. example (7)) 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.

(35) Hitt. *app-ant-* ‘seized’



Examples like (30), 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 under the conditions specified in (22), repeated in (36) for convenience.

(36) Spell-Out conditions for AG participles:

- a. Asp ↔ *-men(os)/* Voice[-ext.arg] \_
- b. Asp ↔ *-nt-*: elsewhere

Some representative examples from AG are given below. Example (37) illustrates the active (present) participles of *phérō* ‘bring’, which means ‘bringing’ (contrast this with Hittite *piyant-* ‘given’, not ‘giving’, in Table 10); (38) is an example of the active participle of *eĩmi* ‘go’, which means ‘going’ (contrast this with Hittite *pānt-* ‘gone’, not ‘going’, in Table 10).

(37) Ancient Greek: active participle

*ándres Íōnes, eleutheriēn 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**”

(Hdt., *Hist.* 4.133.2)

(38) Ancient Greek: active participle

*soi melétō tò entheūten hókōs mē 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<sup>28</sup> and Sanskrit cognates of the suffix, cf. (39).

- (39) a. Latin: active participle

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

- b. Sanskrit: active participle

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

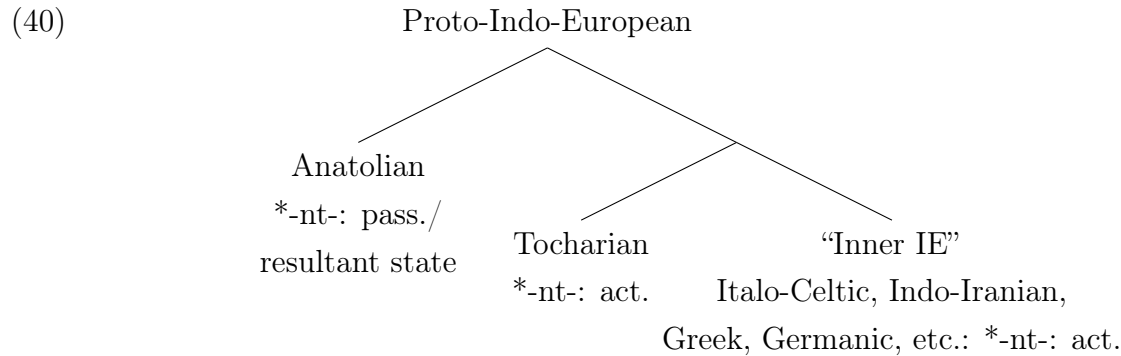
“(The rivers, uniting with the sea,) are **carrying well-pressed soma** to Indra”  
 (Vedic Sanskrit, RV 3.36.7b, transl. Jamison & Brereton 2014)

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 discrepancy has led Melchert (2017a, To appear, based on Oettinger 2001) to argue that active, “Core Indo-European” *-nt-* and Anatolian *-nt-* actually have different origins. However, given their strong derivational and 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.

<sup>28</sup>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.

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

The following tree illustrates the functions of the reflexes of \*-nt-, correlated with the commonly assumed “split-off points” for the different branches.<sup>29</sup>



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<sub>2</sub>-feminine, etc., cf. Jasanoff 2017). Second, there are several exact equations between active participles in these branches (cf. Fellner & Grestenberger 2018), including the formation of the feminine forms of the participle. Finally, while there is a possible grammaticalization path from the Anatolian 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 (37)–(39) as (resultant/target-)state oriented or as passive, while there is a reasonable (and paralleled) path for the reanalysis of stative 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 & Melchert (2008: 339) and Frotscher (2013: 267), Hittite *ant*-participles from stative verbs (cf. (29c) above), lacking telicity, can only have a “contemporary”<sup>30</sup> 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

<sup>29</sup>This tree and the analysis in this section are based on that of Fellner & Grestenberger (2018), cf. also Anthony & Ringe (2015: 209).

<sup>30</sup>*Kontemporär*, Frotscher’s term for an ongoing state or process, cf. Melchert’s use of “processual” (e.g., Melchert 2017a).

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,<sup>31</sup> and this similarity extends to their participles. This is especially the case for verbs of emotion and body posture, cf. (41).

- (41) Hittite: stative participles
- a. *ā-nt-* 1. ‘hot’ (property), 2. ‘being hot’ (state/process) ↔ *āri* ‘is hot’
  - b. *naḥḥ-ant-* 1. ‘afraid, fearful’ (property), 2. ‘being afraid, fearing’ (state/process) ↔ *nāḥḥi* ‘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., (42).

- (42) Hittite: stative participles
- a. *man=wa=za šā-nt-eš*  
if-QUOT-PTCL angry-PTCP-NOM.PL  
“if you are angry” (KUB 15.32 i 46, MH/NS, Hoffner & Melchert 2008: 363)
  - b. *kuiš DINGIR.MEŠ-naš UL naḥḥ-anza*  
who gods-DAT/LOC not afraid-PTCP.NOM.SG  
“He who is not respectful of the gods/who does not fear the gods”  
(KUB 24.3 ii 55, MH/NS, CHD: 341)

This suggests that a participle like, e.g., (42a), *šānt-* could have two possible interpretations: a (target) state ‘angry’ including *vP*, and an event of ‘being angry’ including some version of active VoiceP with an agent-like subject,<sup>32</sup> providing a possible starting point for a structural reanalysis.

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, (43a), verbs of perception and cognition, (43b), and verbs of movement, (43c).

<sup>31</sup>Rothmayr (2009: 28ff.) provides several diagnostics for distinguishing between these classes.

<sup>32</sup>Cf. the agentive uses of Engl. *hate*, as in “X is hating on s.o.”, “X is a hater”, etc.



- (43) Hittite: verbs of consumption, perception/cognition and movement
- a. *ed/ad*-<sup>zi</sup> ‘eat (sth.)’: *adānt-* ‘eating’/‘eaten’; *eku-/aku*-<sup>zi</sup> ‘drink’: *akuwant-* ‘drinking’ (? ‘drunk’)
  - b. *ištammašš*-<sup>zi</sup> ‘hear’: *ištam(m)aššant-* ‘hearing’/‘heard’; *šākk-/šakk*-<sup>i</sup> ‘know’: *ša/e/ikkant-* ‘knowing’/‘known’
  - c. *ḫuwai-/ḫui*-<sup>i</sup> ‘run (ahead), flee (from)’: *ḫū(i)yant-*, *ḫūwant* ‘running, fleeing’/‘run, fled; fugitive’; *iye/a*-<sup>ta(ri)</sup>, *i*-<sup>zi</sup> ‘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 (41) via the subject-oriented reading of participles like (43), 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 (41), 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.

That is, starting from verbs like the ones in (41), post-Anatolian L1 learners generalized the ‘processual’/VoiceP structure to ALL verbs, effectively resulting in active participles.<sup>33</sup>

This “voice switching” is usually framed as “proportional analogy”, illustrated in (44).

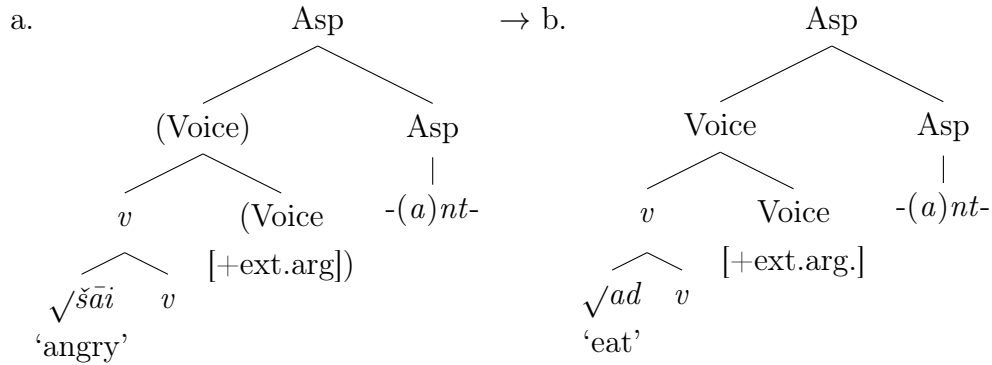
- (44) Hittite: hypothetical proportional analogy
- a. *šāizzi* ‘is angry’: *šānt-* ‘(being) angry’ →
  - b. *ištammašzi* ‘hears’: x, x = *ištammaššant-* ‘hearing’ (besides ‘heard’) →
  - c. *ēzzi* ‘eats’ (3pl. *adanzi*): x, x = *adānt-* ‘eating’ (besides ‘eaten’)

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 (41), and that \*-nt- was therefore able to select an active VoiceP, independent of the type of verb in question. This would naturally lead to agentive transitive verbs surfacing with

<sup>33</sup>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.

“active participles”, rather than stative-resultative ones. This reanalysis is sketched out in (45).

(45) Reanalysis of *-ant-*



In other words, the selectional criteria of *(\*)-nt-* changed from selecting *vP* to selecting (a particular type of) *VoiceP*. For transitive verbs, this resulted in a quite dramatic surface change from transitive object- or 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*.<sup>34</sup>

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 (46): (46a-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), (46c) 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.

(46) 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<sup>35</sup>)

<sup>34</sup>Sc. when movement to or agreement with finite T is not possible, cf. §2.1.

<sup>35</sup>The active form *médō* found in the standard etymological dictionaries is a “transponat” based solely on the apparently active (formally, that is) participle *médōn, médont-*. Finite active forms are not found before

The examples in (46) seem to be remnants of the *v*-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 (46b)). Further examples from Sanskrit include *usánt-* ‘willing’, *dhṛṣánt-* ‘bold’ and *bhrájjant-* ‘sparkling’, all of which look like synchronic active participles to stative verbs, but probably exemplify the *v*-selecting stage of the suffix.<sup>36</sup>

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), (47a–b), or corresponding to a non-alternating nonactive stative, (47c) (cf. Leumann 1977: 583; Grestenberger 2018: 518).

(47) Latin: “alternating” participles

- 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. *liquēns* ‘fluid’ : nonact. *liqu-or* ‘become fluid, melt’

Moreover, there is evidence for an even earlier stage in which \*(o)nt- was denominal (cf. Nussbaum 1976: 18f.; Rau 2009: 71f.; Frotscher 2013; Lowe 2014, 2015: 283ff.; Melchert 2017a; Oettinger 2017), (48), and it is possible that the Greek forms in (46) were also originally denominal.

(48) Denominal *-nt-* in IE languages

- a. Hittite: *nāta/i-* ‘straw, reed’ → *natānt-* ‘with/having a straw’; *lalahhima-* ‘excitement’ → *lalahhimant-* ‘excited’.
- b. Avestan: *xrū-* ‘blood, gore’ → *xruu-ant(a)-* ‘bloody’,<sup>37</sup> *bərəz-* ‘height, high’ → *bərəz-ant-* ‘high’.<sup>38</sup>
- c. Sanskrit: *sáh-* ‘victory, victorious’ → *sáh-ant-* ‘victorious’, *śúc-* ‘shine, glow’ → *śuc-ánt-* ‘shining, glowing’.<sup>39</sup>

Sophocles (mid-5th 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.).

<sup>36</sup>See Rau (2009: 71–2, 148), Lowe (2015: 283–94). Lowe shows that these forms are not synchronically associated with finite active verbs, or differ semantically and syntactically from the corresponding finite active verbs. He argues that these forms arose as (denominal or primary) adjectives to property concept roots associated with the ‘Caland system’.

<sup>37</sup>That this *nt*-form is even older is suggested by its Latin near-cognate *cruentus* ‘bloody’ < \*-nt-o-.

<sup>38</sup>This *-nt*-adjective actually has cognates in Sanskrit (*bṛhánt-* ‘high’), Old Irish (personal name *Brigit*) and other IE languages, which suggests that this, too, was an inherited denominal adjective, cf. Wodtko et al. (2008: 30ff).

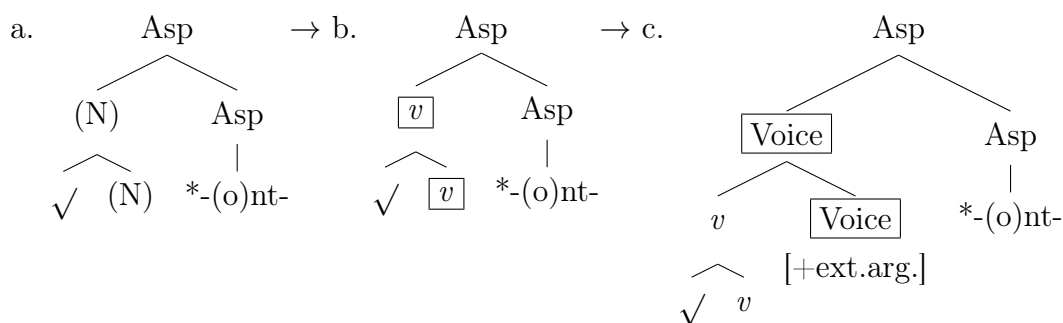
<sup>39</sup>Cf. also the Sanskrit examples in the main text above and the discussion in Lowe (2015: 283–91).

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. (49a) 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 (48).

(49b) 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., (30) is not illustrated here.

(49c) shows the Ancient Greek (and generally post-Anatolian) situation, in which *-nt-* selects (active) VoiceP.

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



The second step, the reanalysis of (49b) as (49c) involves statives such as the ones in (41), as argued above. The first step, the reanalysis of (49a) as (49b) started with denominal adjectives as in (48), 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.<sup>40</sup> To give some (idealized) examples, a Vedic *nt*-form like *dvīṣ-ánt-* from *dvīṣ-* ‘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 diachronic sources of participles. Parallels for the

<sup>40</sup>See Francez & Koontz-Garboden (2015) for a formal account of the possessive semantics of (a subclass of) property concept adjectives.

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., *ásva-* ‘horse’ → *aśv-ín-* ‘possessing horses’, *vájra-* ‘mace’ → *vajr-ín-* ‘having a mace’), but later on acts as a deverbal adjectival, quasi-participial suffix (e.g.,  $\sqrt{ay/i}$  ‘go’ → *-ay-ín-* ‘going’,  $\sqrt{yaj}$  ‘sacrifice’ → *yāj-ín-* ‘sacrificing’, cf. AiG II,2: 328–350; 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., e.g., Nussbaum 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.

## 5. Discussion and 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) is 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 §§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 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.<sup>41</sup>

However, although the HPP and LMP are not involved in the changes discussed here,

<sup>41</sup>E.g., the Sanskrit suffix *-ín-* briefly mentioned in §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, unlike its AG and Sanskrit cognates (cf. Grestenberger 2017, 2018 for further discussion).

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 (50)–(51). 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.

(50) Diachrony of “stativizers”

	resultant state	→	target state	→	(property)
selection	Voice([-ext.arg.])		<i>v</i>		(√)
meaning	attained, irreversible state		attained, reversible state		(‘with/having √’)

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

(51) Diachrony of dynamic/processual participles

	denominal/property	→	state/process	→	action w/agent
selection	n, √		<i>v</i>		Voice[+ext.arg.]
meaning	‘with/having n/√’		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.<sup>42</sup>

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

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<sup>42</sup>Crucially, the directionality implied by (50)–(51) is only apparent, as each reanalysis event (represented by an arrow) should in principle be able to go in either direction.

\*-to- in Skt. *-tá-*, e.g., *kr-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 *-нъ*, 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 *-лъ*, e.g., *nes-лъ* ‘carried’, etc.), showing that the same function is effectively “renewed” again and again—not because of some sort of “gap” in the system or “functional pressure”, but because 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, such as the negative cycle (cf. van Gelderen 2008), and it is likely that future work will unearth additional instances of “pervasive recycling” of adjectival and participial affixes.

## Abbreviations

ABL ablative	N neuter
ACC accusative	NACT nonactive
ACT active	NOM nominative
AOR aorist	PASS passive
C common gender ( $\approx$ animate), non-neuter	PTCL particle
DAT dative	PERF perfect
GEN genitive	PL plural
INF infinitive	PRES present
INSTR instrumental	PTCP participle
IPFV imperfect	QUOT quotative
LOC locative	SG singular
M masculine	SUBJ subjunctive
MID middle	V ‘verbalizer’, verbal stem-forming affix.

## References

- AiG II,2 = Debrunner, Albert. 1954. *Altindische Grammatik*, vol. II,2: *Die Nominalsuffixe*. Göttingen: Vandenhoeck & Ruprecht.
- Alexiadou, Artemis. 2013. Where is non-active morphology? In Stefan Müller (ed.), *Proceedings of the 20th International Conference on Head-Driven Phrase Structure Grammar*, 244–262. CSLI publications.
- Alexiadou, Artemis. 2018. *-able* adjectives and the syntax of psych verbs. *Glossa* 3(1): 74, 1–27.

- Alexiadou, Artemis & Elena Anagnostopoulou. 2008. Structuring participles. In Charles B. Chang & Hannah J. Haynie (eds.), *Proceedings of the 26th West Coast Conference on Formal Linguistics*, 33–41. Somerville, MA: Cascadilla.
- Alexiadou, Artemis, Elena Anagnostopoulou & Florian Schäfer. 2015. *External arguments in transitivity alternations: A layering approach*. Oxford: Oxford University Press.
- Alexiadou, Artemis & Edit Doron. 2012. The syntactic construction of two non-active voices: Passive and middle. *Journal of Linguistics* 48: 1–34.
- Alexiadou, Artemis, Liliane Haegeman & Melita Stavrou. 2007. *Noun Phrase in the Generative Perspective*. Berlin: Mouton de Gruyter.
- Alexiadou, Artemis & Gianina Iordăchioaia. 2014. The psych causative alternation. *Lingua* 148: 53–79.
- Allan, Rutger J. 2003. *The middle voice in Ancient Greek*. Amsterdam: Gieben.
- Anagnostopoulou, Elena. 2003. Participles and voice. In Artemis Alexiadou, Monika Rathert & Armin von Stechow (eds.), *Perfect Explorations*, 1–36. Berlin: Mouton de Gruyter.
- Anthony, David W. & Don Ringe. 2015. The Indo-European homeland from linguistic and archaeological perspectives. *Annual Review of Linguistics* 2015(1): 199–219.
- Baerman, Matthew, Greville G. Corbett, Dunstan Brown & Andrew Hippisley (eds.). 2007. *Deponency and morphological mismatches* Proceedings of the British Academy 145. Oxford: Oxford University Press.
- Baker, Mark & Nadya Vinokurova. 2009. On agent nominalizations and why they are not like event nominalizations. *Language* 85(3): 517–556.
- Bakker, Egbert. 1994. Voice, aspect and Aktionsart: Middle and passive in Ancient Greek. In Barbara Fox & Paul J. Hopper (eds.), *Voice: Form and function*, 23–47. Amsterdam: Benjamins.
- Bentein, Klaas. 2012. Perfect periphrases in Post-Classical and Early Byzantine Greek: An ecological-evolutionary account. *Journal of Greek Linguistics* 12: 205–275.
- Bjorkman, Bronwyn. 2011. *BE-ing Default: The Morphosyntax of Auxiliaries*. Massachusetts Institute of Technology dissertation.
- Bobaljik, Jonathan D. 2017. Distributed morphology. Oxford research encyclopedia of linguistics. doi:10.1093/acrefore/9780199384655.013.131.
- Bruening, Benjamin. 2013. *By*-phrases in passives and nominals. *Syntax* 16(1): 1–41.
- Chantraine, Pierre. 1926. *Histoire du parfait grec*. Paris: Champion.
- CHD = Güterbock, Hans G. and Harry A. Hoffner. 1989. *The Hittite dictionary of the Oriental Institute of the University of Chicago, vol. L–N*. Chicago.
- Clark, Robin & Ian Roberts. 1993. A computational model of language learnability and language change. *Linguistic Inquiry* 24(2): 299–345.



- Cotticelli-Kurras, Paola & Velizar Sadovski (eds.). 2017. *“In participle we predicate”: Contributions of the comparative and historical linguistics to grammar and semantics of participle*. Wien: Holzhausen.
- Cournane, Ailís. 2017. In defense of the child innovator. In Éric Mathieu & Robert Truswell (eds.), *Micro-change and macro-change in diachronic syntax*, 10–24. Oxford: Oxford University Press.
- Embick, David. 1997a. *Voice and the interfaces of syntax*. University of Pennsylvania dissertation.
- Embick, David. 1997b. Voice systems and the syntax/morphology interface. In Heidi Harley (ed.), *Papers from the UPenn/MIT roundtable on argument structure and aspect*, 41–72. MITWPL 32.
- Embick, David. 2000. Features, syntax, and categories in the Latin perfect. *Linguistic Inquiry* 31(2): 185–230.
- Embick, David. 2004a. Unaccusative syntax and verbal alternations. In Artemis Alexiadou, Elena Anagnostopoulou & Martin Everaert (eds.), *The unaccusativity puzzle*, 137–158. Oxford: Oxford University Press.
- Embick, David. 2004b. On the structure of resultative participles in English. *Linguistic Inquiry* 35(3): 355–392.
- Embick, David. 2015. *The morpheme*. Boston: De Gruyter Mouton.
- Embick, David & Rolf Noyer. 2007. Distributed morphology and the syntax/morphology interface. In Gillian Ramchand & Charles Reiss (eds.), *Oxford handbook of linguistic interfaces*, 289–324. Oxford: Oxford University Press.
- Fellner, Hannes A. 2014. Tocharian special agents: The *nt*-participle. *Tocharian and Indo-European Studies* 15: 53–67.
- Fellner, Hannes A. & Laura Grestenberger. 2018. Die Reflexe der *\*-nt-* und *\*-mh<sub>1</sub>no-* Partizipien im Hethitischen und Tocharischen. In Elisabeth Rieken (ed.), *100 Jahre Entzifferung des Hethitischen: Morphosyntaktische Kategorien in Sprachgeschichte und Forschung. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 21. bis 23. September 2015 in Marburg*, 63–82. Wiesbaden: Reichert.
- Francez, Itamar & Andrew Koontz-Garboden. 2015. Semantic variation and the grammar of property concepts. *Language* 91(3): 533–563.
- Frotscher, Michael. 2013. *Das hethitische -ant-Partizip und seine indogermanischen Grundlagen: Semantik, Morphologie, Syntax*. Università degli Studi di Verona dissertation.
- García Ramón, José Luis. 2017. Heterogenous correspondences and reconstruction: The ‘gerundive’ in *-mi-na* in Hieroglyphic Luvian. In Claire Le Feuvre, Daniel Petit & Georges-Jean Pinault (eds.), *Verbal adjectives and participles in Indo-European languages. Pro-*

- ceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*, 85–103. Bremen: Hempen.
- Garrett, Andrew. 1996. Wackernagel’s Law and unaccusativity in Hittite. In Aaron L. Halpern & Arnold M. Zwicky (eds.), *Approaching second: Second position clitics and related phenomena*, 85–134. Stanford: CSLI publications.
- van Gelderen, Elly. 2008. Negative cycles. *Linguistic Typology* 12: 195–243.
- van Gelderen, Elly (ed.). 2009. *Cyclical change*. Amsterdam: Benjamins.
- van Gelderen, Elly. 2011. *The linguistic cycle: Language change and the language faculty*. Oxford: Oxford University Press.
- van Gelderen, Elly (ed.). 2016a. *Cyclical change continued*. Amsterdam: Benjamins.
- van Gelderen, Elly. 2016b. Cyclical change continued: Introduction. In Elly van Gelderen (ed.), *Cyclical change continued*, 3–17. Amsterdam: Benjamins.
- van Gelderen, Elly. 2018. *The diachrony of verb meaning: Aspect and argument structure*. New York: Routledge.
- George, Coulter H. 2005. *Expressions of agency in Ancient Greek*. Cambridge: Cambridge University Press.
- Grestenberger, Laura. 2014. *Feature mismatch: Deponency in Indo-European languages*. Harvard University dissertation.
- Grestenberger, Laura. 2016. More span-conditioned allomorphy: Voice morphology in Classical Greek. In Christopher Hammerly & Brandon Prickett (eds.), *Proceedings of NELS 46*, vol. 2, 1–10. Amherst: GLSA.
- Grestenberger, Laura. 2017. On the syntax of the participles of Indo-European deponent verbs. In Claire Le Feuvre, Daniel Petit & Georges-Jean Pinault (eds.), *Verbal adjectives and participles in Indo-European languages. Proceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*, 105–117. Bremen: Hempen.
- Grestenberger, Laura. 2018. Deponency in finite and nonfinite contexts. *Language* 94(3): 487–526.
- Grestenberger, Laura. 2019. Deponency in morphology. Oxford research encyclopedia of linguistics. doi:10.1093/acrefore/9780199384655.013.553.
- Grestenberger, Laura. Forthcoming a. The *ín*-group: Indo-Iranian *ín*-stems and their Indo-European relatives. In a forthcoming Festschrift, Ann Arbor: Beech Stave.
- Grestenberger, Laura. Forthcoming b. Two types of passive? Voice morphology and “low passives” in Vedic Sanskrit and Ancient Greek. In Kleantes K. Grohmann, Akemi Matsuya & Eva-Maria Remberger (eds.), *Passives cross-linguistically: Theoretical and experimental approaches*, Leiden: Brill.
- Hajnal, Ivo. 1994. Die lykischen *a*-stämme. Zum Werdegang einer Nominalklasse. In

- Jens Elmegård Rasmussen & Benedikte Nielsen (eds.), *In honorem Holger Pedersen. Kolloquium der Indogermanischen Gesellschaft, Kopenhagen 1993*, 307–330. Wiesbaden: Reichert.
- Hale, Mark. 2007. *Historical linguistics: Theory and method*. Malden: Blackwell.
- Halle, Morris & Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In Kenneth L. Hale & Samuel J. Keyser (eds.), *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, 111–176. Cambridge: MIT Press.
- Harley, Heidi. 2009. The morphology of nominalizations and the syntax of *v*P. In Monika Rathert & Anastasia Giannadikou (eds.), *Quantification, definiteness and nominalization*, 320–342. Oxford: Oxford University Press.
- Harley, Heidi & Rolf Noyer. 1999. State-of-the-article: Distributed Morphology. *GLOT International* 4: 3–9.
- Harris, Alice C. & Lyle Campbell. 1995. *Historical syntax in cross-linguistic perspective*. Cambridge: Cambridge University Press.
- Haspelmath, Martin. 1994. Passive participles across languages. In Barbara Fox & Paul J. Hopper (eds.), *Voice: Form and function*, 151–177. Amsterdam: Benjamins.
- Hearn, Ryan. Forthcoming. Disharmonic headedness in Homeric Greek and Tocharian and implications for Proto-Indo-European reconstruction. Proceedings of DiGS 20, University of York, June 18–21, 2018.
- Hoffner, Harry A. Jr. & H. Craig Melchert. 2008. *A grammar of the Hittite language. Part I: Reference grammar*. Winona Lake: Eisenbrauns.
- Holton, David, Peter Mackridge & Irene Philippaki-Warbuton. 1997. *Greek: A comprehensive grammar of the modern language*. London: Routledge.
- Holton, David & Io Manolessou. 2010. Medieval and Early Modern Greek. In Egbert J. Bakker (ed.), *A companion to the Ancient Greek language*, 539–563. Malden: Wiley-Blackwell.
- Inglese, Guglielmo. 2018. *The Hittite middle voice*. University of Bergamo dissertation.
- Israel, Michael, Christopher Johnson & Patricia J. Brooks. 2000. From states to events: The acquisition of English passive participles. *Cognitive Linguistics* 11(1–2): 1003–1029.
- Jamison, Stephanie W. & Joel P. Brereton. 2014. *The Rigveda: The earliest religious poetry of India, vol. I-III*. Oxford: Oxford University Press.
- Jankuhn, Harald. 1969. *Die passive Bedeutung medialer Formen untersucht an der Sprache Homers*. Göttingen: Vandenhoeck & Ruprecht.
- Jasanoff, Jay H. 2003. *Hittite and the Indo-European verb*. Oxford: Oxford University Press.
- Jasanoff, Jay H. 2017. The impact of Hittite and Tocharian: Rethinking Indo-European in the 20<sup>th</sup> Century and beyond. In Jared Klein, Brian Joseph & Matthias Fritz (eds.), *Hand-*

- book of comparative and historical Indo-European linguistics* (Handbücher zur Sprach- und Kommunikationswissenschaft 41(1)), 220–238. Berlin: De Gruyter Mouton.
- Kallulli, Dalina. 2013. (Non-)canonical passives and reflexives: Deponents and their like. In Artemis Alexiadou & Florian Schäfer (eds.), *Non-canonical passives*, 337–358. Amsterdam: Benjamins.
- Koeneman, Olaf & Hedde Zeijlstra. 2014. The Rich Agreement Hypothesis rehabilitated. *Linguistic Inquiry* 45(4): 571–615.
- Kratzer, Angelika. 2001. Building statives. In *Proceedings of the twenty-sixth annual meeting of the Berkeley Linguistics Society: General session and parasession on aspect (2000)*, 385–399. Berkeley: Berkeley Linguistics Society.
- Lavidas, Nikolaos. 2012. Passive in the history of Greek: Evidence for the role of the passive suffix. *Folia Linguistica Historica* 33: 87–121.
- Le Feuvre, Claire, Daniel Petit & Georges-Jean Pinault (eds.). 2017. *Verbal adjectives and participles in Indo-European languages. Proceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*. Bremen: Hempen.
- Leumann, Manu. 1977. *Lateinische Laut- und Formenlehre*. Lateinische Grammatik, vol. I. München: Beck.
- Levin, Beth & Malka Rappaport Hovav. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge: MIT Press.
- Lightfoot, David. 2006. *How new languages emerge*. Cambridge: Cambridge University Press.
- Lowe, John J. 2014. Indo-European Caland adjectives in \*-nt- and participles in Sanskrit. *Historische Sprachforschung* 127: 166–195.
- Lowe, John J. 2015. *Participles in Rigvedic Sanskrit: The syntax and semantics of adjectival verb forms*. Oxford: Oxford University Press.
- Lowe, John J. 2017. *Transitive nouns and adjectives: Evidence from early Indo-Aryan*. Oxford: Oxford University Press.
- Luraghi, Silvia. 2003. *On the meaning of prepositions and cases: The expression of semantic roles in Ancient Greek*. Amsterdam: Benjamins.
- Manolessou, Io. 2005. From participles to gerunds. In Melitta Stavrou & Arhonto Terzi (eds.), *Advances in Greek generative syntax: In honor of Dimitra Theophanopoulou-Kontou*, 241–283. Amsterdam: Benjamins.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In Alexis Dimitriadis, Laura Siegel, Clarissa Surek-Clark & Alexander Williams (eds.), *Proceedings of the 21<sup>st</sup> annual Penn Linguistics Colloquium*. University of Pennsylvania Working Papers in Linguistics, vol. 4(2), 201–225.

- Melchert, H. Craig. 1998. The dialectal position of Anatolian within Indo-European. In Benjamin K. Bergen, Madelaine C. Plauché & Ashlee C. Bailey (eds.), *Proceedings of the 24th meeting of the Berkeley Linguistics Society, special session on Indo-European subgrouping and internal relations*, 24–31. Berkeley: Berkeley Linguistics Society.
- Melchert, H. Craig. 2014. Anatolian nominal stems in \*-(C)o-. In Norbert Oettinger & Thomas Steer (eds.), *Das Nomen im Indogermanischen. Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*, 205–214. Wiesbaden: Reichert.
- Melchert, H. Craig. 2017a. The source(s) of Indo-European participles in \*-e/ont. In Claire Le Feuvre, Daniel Petit & Georges-Jean Pinault (eds.), *Verbal adjectives and participles in Indo-European languages. Proceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*, 217–220.
- Melchert, H. Craig. 2017b. “Western affinities” of Anatolian. In Bjarne Simmeljaer Sandgaard Hansen, Benedicte Nielsen Whitehead, Thomas Olander & Birgit Annette Olsen (eds.), *Etymology and the European Lexikon. Akten der 14. Fachtagung der Indogermanischen Gesellschaft, Kopenhagen, 17.–22. Sept., 2012*, 297–305.
- Melchert, H. Craig. 2018. Hittite and Indo-European: Revolution and counter-revolution. In Elisabeth Rieken (ed.), *100 Jahre Entzifferung des Hethitischen — Morphosyntaktische Kategorien in Sprachgeschichte und Forschung: Arbeitstagung der Indogermanischen Gesellschaft, Philipps-Universität Marburg, 21. bis 23. September 2015*, 289–294. Wiesbaden: Reichert.
- Melchert, H. Craig. To appear. The position of Anatolian. In Andrew Garrett & Michael Weiss (eds.), *Handbook of Indo-European studies*, Oxford: Oxford University Press.
- Müller, Gereon. 2013. Approaches to deponency. *Language and Linguistics Compass* 7(6): 351–369.
- Napoli, Maria. 2017. To what extent does the Greek participle participate in the passive voice system? In Paola Cotticelli-Kurras & Velizar Sadovski (eds.), *“In participle we predicate”: Contributions of the comparative and historical linguistics to grammar and semantics of participle*, 109–127. Wien: Holzhausen.
- Nussbaum, Alan J. 1976. *Caland’s “Law” and the Caland-System*. Harvard University dissertation.
- Nussbaum, Alan J. 2017. Agentive and other derivatives of ‘τόμος-type’ nouns. In Claire Le Feuvre, Daniel Petit & Georges-Jean Pinault (eds.), *Verbal adjectives and participles in Indo-European languages. Proceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*, 233–266. Bremen: Hempen.
- Oettinger, Norbert. 1986. *“Indo-Hittite”-Hypothese und Wortbildung*. Innsbruck: Institut

- für Sprachwissenschaft der Universität Innsbruck.
- Oettinger, Norbert. 2001. Neue Gedanken über das *-nt*-Suffix. In Onofrio Carruba & Wolfgang Meid (eds.), *Anatolisch und Indogermanisch/Anatolico e Indoeuropeo. Akten des Kolloquiums der Indogermanischen Gesellschaft, Pavia, 22.–25. September 1998*, 301–315. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.
- Oettinger, Norbert. 2017. Der Ursprung des indogermanischen Caland-systems und die *nt*-Stämme. In Claire Le Feuvre, Daniel Petit & Georges-Jean Pinault (eds.), *Verbal adjectives and participles in Indo-European languages. Proceedings of the conference of the Society for Indo-European Studies, Paris, 24<sup>th</sup> to 26<sup>th</sup> September 2014*, 267–275. Bremen: Hempen.
- Oltra-Massuet, Isabel. 1999. *On the notion of theme vowel: A new approach to Catalan verbal morphology*. Massachusetts Institute of Technology MA dissertation.
- Oltra-Massuet, Isabel & Karlos Arregi. 2005. Stress-by-structure in Spanish. *Linguistic Inquiry* 16(1): 43–84.
- Panagiotidis, Phoevos, Vassilios Spyropoulos & Anthi Revithiadou. 2017. Little *v* as a categorizing verbal head: Evidence from Greek. In Roberta D’Alessandro, Irene Franco & Ángel J. Gallego (eds.), *The verbal domain*, 29–48. Oxford: Oxford University Press.
- Papangeli, Dimitra & Nikolaos Lavidas. 2009. Deponents and non-finite constructions in Greek. In Claire Halpert, Jeremy Hartman & David Hill (eds.), *Proceedings of the 2007 Workshop in Greek syntax and semantics at MIT* MIT Working Papers in Linguistics 57, 197–211.
- Rau, Jeremy. 2009. *Indo-European nominal morphology: The decads and the Caland system* Innsbrucker Beiträge zur Sprachwissenschaft 132. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.
- Rieken, Elisabeth. 2009. Der Archaismus des Hethitischen — eine Bestandsaufnahme. *Incontri Linguistici* 32: 37–52.
- Ringe, Don. 1988-1990[1991]. Evidence for the position of Tocharian in the Indo-European family? *Die Sprache* 34: 59–123.
- Ringe, Don & Joseph F. Eska. 2013. *Historical linguistics: Toward a twenty-first century reintegration*. Cambridge: Cambridge University Press.
- Ringe, Don, Tandy Warnow & Ann Taylor. 2002. Indo-European and computational cladistics. *Transactions of the Philological Society* 100(1): 59–129.
- Roberts, Ian. 2007. *Diachronic syntax*. Oxford: Oxford University Press.
- Roberts, Ian & Anna Roussou. 2003. *Syntactic change: A minimalist approach to grammaticalization*. Cambridge: Cambridge University Press.
- Rothmayr, Antonia. 2009. *The structure of stative verbs*. Amsterdam: Benjamins.
- Schäfer, Florian. 2008. *The syntax of (anti-)causatives: External arguments in change-of-*

- state contexts*. Amsterdam: Benjamins.
- Schäfer, Florian. 2017. Romance and Greek medio-passives and the typology of Voice. In Roberta D'Alessandro, Irene Franco & Ángel J. Gallego (eds.), *The verbal domain*, 129–152. Oxford: Oxford University Press.
- Schmidt, Klaus T. 1992. Archaismen des Tocharischen und ihre Bedeutung für Fragen der Rekonstruktion und der Ausgliederung. In Robert Beekes, Alexander Lubotsky & Jos Weitenberg (eds.), *Rekonstruktion und relative Chronologie. Akten der VIII. Fachtagung der Indogermanischen Gesellschaft, Leiden, 31. Aug.–4. Sept. 1987*, 101–112. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Schwyzler, Eduard. 1939. *Griechische Grammatik*, vol. I: Allgemeiner Teil, Lautlehre, Wortbildung, Flexion. Munich: Beck.
- Schwyzler, Eduard. 1943. *Zum persönlichen Agens beim Passiv, besonders im Griechischen*. Berlin: Abh. d. preuß. Akad. d. Wissensch., Jahrg. 1942.
- Schwyzler, Eduard & Albert Debrunner. 1950. *Griechische Grammatik*, vol. II: Syntax und syntaktische Stilistik. Munich: Beck.
- Spencer, Andrew. 2016. How are words related? In Daniel Siddiqi & Heidi Harley (eds.), *Morphological metatheory*, 1–26. Amsterdam: Benjamins.
- Taylor, Ann. 1994. The change from SOV to SVO in Ancient Greek. *Language Variation and Change* 6: 1–37.
- Walkden, George. 2014. *Syntactic reconstruction and Proto-Germanic*. Oxford: Oxford University Press.
- Willis, David. 2011. Reconstructing last week's weather: Syntactic reconstruction and Brythonic free relatives. *Journal of Linguistics* 47: 407–466.
- Winter, Werner. 1998. Lexical archaisms in the Tocharian languages. In Victor H. Mair (ed.), *The Bronze Age and Early Iron Age peoples of Western Central Asia. Vol. I, archeology, migration and nomadism, linguistics*, 347–357. Washington: Institute for the Study of Man.
- Wodtko, Dagmar S., Britta Irslinger & Carolin Schneider (eds.). 2008. *Nomina im Indogermanischen Lexikon*. Heidelberg: Winter.
- Zombolou, Katerina. 2004. *Verbal alternations in Greek: A semantic analysis*. University of Reading dissertation.
- Zombolou, Katerina & Artemis Alexiadou. 2014. The canonical function of the deponent verbs in Modern Greek. In Franz Rainer, Francesco Gardani, Hans Christian Luschützky & Wolfgang U. Dressler (eds.), *Morphology and meaning: Selected papers from the 15<sup>th</sup> International Morphology Meeting, Vienna, February 2012*, 331–344. Amsterdam: Benjamins.

## Zusammenfassung

Dieser Aufsatz behandelt zwei Fallstudien zur diachronen Veränderung der Syntax von Partizipialsuffixen durch scheinbare “Umkehrung” deren Diathese: 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. Im Gegensatz zu anderen Wandelstypen, die normalerweise als zyklisch gelten, spielen unidirektionale Ökonomieprinzipien in diesen Fällen allerdings keine Rolle. Sie sind vielmehr Evidenz dafür, dass bestimmte Arten des morphosyntaktischen Wandels, nämlich solche, die mit Ereignis- und Argumentstruktur verbunden sind, ihren Ausgangspunkt in der Reanalyse formaler Merkmale unter lokaler struktureller Ambiguität haben.

## Résumé

Cet article traite de deux cas dans lesquels la syntaxe d’un suffixe participiale paraît inverser sa diathèse. Du point de vue descriptif, il passe d’un mode actif ou «orienté vers le sujet» à un mode passif (grec ancien *-menos* au grec moderne *-menos*) et d’un mode perfectif/statif à 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) se perd, le second type ajoute une tête de voix active. Les deux types de changement résultent de la disponibilité simultanée d’une interprétation stativ et éventive de certains adjectifs déverbaux et pourraient appartenir à un «cycle de participes» plus large. Toutefois, contrairement à 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 morphosyntaxique, en particulier ceux liés à la structure des événements et des arguments, résultent d’une réanalyse du contenu des fonctions des têtes fonctionnelles dans le cas d’une ambiguïté structurelle locale.

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