Deponency in finite and non-finite contexts[*]

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Abstract

This paper investigates the syntactic properties of deponents in finite and non-finite contexts in several Indo-European languages (Vedic Sanskrit, Ancient Greek, Latin, Hittite, Modern Greek) and proposes a novel definition of deponency: deponents are morphologically non-active verbs with non-canonical agent arguments that are merged below VoiceP. Since VoiceP is spelled out with non-active morphology in those languages if it does not introduce an external argument itself, the result is a surface mismatch between morphological form and syntactic function. This proposal predicts that only certain non-finite forms of deponents will surface with the syntax/morphology-mismatch, namely those that include VoiceP. Nominalizations without VoiceP will appear to suspend the voice mismatch. These predictions are shown to be correct with respect to the behavior of deponent participles in the languages under study. The insight that deponency depends on the availability of certain projections along the "verbal spine" can be used as a diagnostic for the internal structure of participial and other deverbal formations in languages with a "Greek-type" voice system and provides an explanation of the morphosyntax of deponents that goes beyond characterizing them as lexical idiosyncrasies.

Keywords: Deponents, morphosyntactic mismatches, voice morphology, participles, Ancient Greek, Modern Greek, Sanskrit, Latin, Hittite

1 Introduction

This paper discusses the morphosyntactic behavior of deponents and its interaction with finiteness. Deponents are verbs with the "wrong" voice morphology: they are morphologically non-active, but syntactically active. Consider, for example, the paradigm of the Latin non-deponent verb *amō* 'love', in row (a) of Table 1, which can be inflected with active or passive morphology (= an *alternating verb*) depending on the syntactic context,

as opposed to the deponent verb *hortor* 'encourage, incite', row (b), which can only appear with passive morphology (there is no **hortō*),[1] but which is syntactically active and transitive, like *amō*, and never means **'was encouraged'.

Table 1. Alternating vs. deponent verbs in Latin

	Pres.act.	Pres.pass.
a. alternating	am-**ō**	am-**or**
	'I love'	'I am loved'
b. deponent		hort-**or**
		'I encourage'

Deponents apparently instantiate a mismatch between morphology and syntax, or form and function. They have long had their place in the descriptive grammatical tradition as "exceptions" to the expected distribution of voice morphology, all the way back to the Latin grammarians. More recently, they have garnered interest in generative theories of syntax and morphology as well, e.g., Embick 2000, Alexiadou 2012, Kallulli 2013, Zombolou and Alexiadou 2014 (and cf. also the papers in Baerman et al. 2007, from different theoretical perspectives). These recent approaches fall into two camps: One that views deponency as a lexical idiosyncrasy determined by a diacritic on a particular lexical entry that marks it as morphologically non-active independent of its syntactic context ([NonAct] or [pass], e.g., Embick 1998, 2000, 2004a, Kiparsky 2005, in an Optimality Theory framework Müller 2013) and one that argues that deponents have been misanalyzed and that there really is no mismatch between form and function once the canonical uses of non-active morphology are correctly described (Kallulli 2013, Zombolou and Alexiadou 2014).

This paper falls into the first camp: I argue that there really is a mismatch between "form and function", and that deponents are lexically idiosyncratic. However, departing from previous literature, I argue for a narrow definition of deponency, restricting the term to cases like *hortor* in table 1., in which an agentive verb is formally non-active. This differs from previous literature which either does not include argument structure in the definition of deponency (e.g., Stump 2007) or denies that deponents have agent arguments (e.g., Kallulli 2013, Alexiadou 2013, Zombolou and Alexiadou 2014).

Following Harley 2013, Alexiadou 2013 and Alexiadou et al. 2015, I assume that canonical external arguments (agents) are introduced by the functional projection VoiceP, while applicative, benefactive and experiencer arguments are introduced by dedicated func-

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[1]But see section 2.3.3 on apparently formally active forms of deponent verbs.

tional projections below VoiceP. I propose that deponents are verbs with non-canonical, "low" agents which are likewise introduced by a functional projection below VoiceP. Diachronically, they arose from reanalyzed benefactive or experiencer arguments. In "Voice syncretism" languages in which non-active morphology realizes Voice without a specifier (Voice[-ext.arg]) along the lines of Embick 1998, Embick 2004a, Alexiadou et al. 2015, a non-canonical "low agent" will therefore trigger non-active morphology, like experiencer and benefactive arguments do.

This approach accepts that deponents are synchronically exceptional, but predicts that their mismatch behavior only surfaces in particular environments, namely "verbal" ones that include the functional projection VoiceP and a non-canonical agent argument. This prediction is borne out by the data from non-finite formations presented in this paper, which have not been treated in detail (or from a comparative perspective) in the previous literature.

These two "ingredients" for deponency—a Voice head that is sensitive to the presence/absence of an external argument, and "low agents"—allow for a sharper definition of the phenomenon, an improvement over previous accounts in which "deponency" is used to refer to a variety of non-active verbs independent of their argument structure.[2] A better understanding of how these exceptions develop moreover contributes to understanding the properties of syncretic voice systems (such as the Latin one) in general.

This paper is organized as follows. In the next section, I provide an overview of the voice systems and deponent verbs in several different Indo-European (IE) languages, namely Vedic Sanskrit (Ved.), Ancient Greek (AG), Latin (Lat.), Hittite (Hitt.) and Modern Greek (MG).[3] I have chosen to focus on older Indo-European languages because they have syncretic voice morphology, rich verbal and participial morphology, and have tra-

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[2]The term "deponency" is used even more broadly in the papers in Baerman et al. 2007, especially Baerman 2007, Corbett 2007, Spencer 2007, the Surrey Deponency Database (http://www.smg.surrey.ac.uk/deponency) and in much of the Paradigm Function Morphology literature on the topic. While a detailed review and critique of this literature is beyond the scope of this paper, the breadth of the phenomena grouped under the same label in these works makes it difficult to find any meaningful generalizations beyond stating and formalizing the mismatch, and it is not clear that they do indeed form a natural class (cf. Bobaljik 2007). The crucial role of argument structure and syntactic context (finiteness, etc.) discussed in this paper are likewise not addressed by these approaches.

[3]The data used in this paper is drawn from selected corpora, to limit the extent of dialectal and diachronic variation. In the case of Sanskrit, the focus is on the language of the Rigveda (Vedic Sanskrit, ca. 15th-12th century BCE). The Ancient Greek data are mainly from the Homeric epic poems (8th century BCE), supplemented by slightly later (post-homeric, but pre-classical) prose texts, e.g., Herodotus. For Latin I have focused on Old Latin, mainly Plautus and Ennius (both late 3rd–early 2nd century BCE). For Hittite I have concentrated on Old Hittite (18th–16th century BCE). For the Modern Greek data I have relied strongly on the studies by Alexiadou 2012, Alexiadou and Doron 2012, Lavidas and Papangeli 2007, Papangeli and Lavidas 2009, Zombolou 2004, and in particular the results of a recent corpus study presented in Zombolou and Alexiadou 2014; supplemented by consultation with native speakers.

ditionally been the focus of discussions of deponency.[4] Supplemented with comparative data from Modern Greek, this makes these languages an ideal starting point for testing predictions about voice mismatch behavior. The comparative perspective is especially important given that conclusions about deponent behavior are usually drawn based on one or two languages alone (usually Latin and/or Modern Greek), and usually only finite forms are discussed. The comparison with other languages with the same type of voice system uncovers systematic correspondences in the behavior of deponents and their non-finite formations. In section 3, I argue that deponency is caused by a non-canonical agent argument in the "wrong" structural position and introduce the "postsyntactic" approach to voice morphology of Embick 1998, 2004a, and Alexiadou et al. 2015, in which the morphological exponents ACTIVE and NON-ACTIVE in languages with syncretic voice systems are contextually conditioned Spell-Out allomorphs of the functional head Voice. In this section, I also briefly describe the diachronic reanalysis that leads to the development of deponent verbs.

In section 4 I extend my analysis to non-finite deponent formations and their syntactic behavior, with a focus on participles. I show that deponent participles differ in whether or not they preserve the form-function mismatch of the corresponding finite forms, contrary to recent claims that deponency is generally suspended in non-finite contexts. I argue that whether a voice mismatch occurs is determined by the presence vs. absence of VoiceP. This explains the observed behavior of IE deponents: Whenever VoiceP is included in a non-finite formation, the form–function mismatch is continued and a given deponent participle behaves just like its corresponding finite forms with respect to its syntax. In those cases in which VoiceP is missing, the mismatch is suspended. This behavior shows that while deponents are exceptional with respect to voice morphology due to their diachronic development, their synchronic behavior with respect to derivational morphology and syntactic alternations in general is entirely predictable from the "two ingredients": "postsyntactic" voice morphology and a non-canonical, "low" agent. Section 5 contains the conclusion.

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[4]Other Indo-European languages which share the relevant kind of voice system, but which I have not been able to investigate so far include Old Irish, Tocharian and Albanian (on deponency in Albanian cf. Kallulli 2013). Moreover, the conclusions presented here should in principle be extendable to non-Indo-European languages with the same kind of voice system in which deponent behavior has been observed, for example Sora (Munda, Stump 2007) and Fula (Niger-Congo, Klaiman 1991). These, too, must be left to future research.

2 Voice and voice mismatches

2.1 Canonical uses of non-active morphology

Many of the older IE languages (Hittite, Tocharian, Vedic Sanskrit, Avestan, Greek, Latin, Old Irish) and some modern IE languages (Greek, Albanian) have a voice system in which an opposition between active and non-active (often called "middle") voice is expressed through verbal inflection together with tense and agreement features. I will refer to this kind of voice system as bivalent voice system or "Greek-type voice system". Sample paradigms of verbal endings from Vedic and Ancient Greek are given in tables 2 and 3. The endings in tables 2 and 3 are used in the non-past tenses; the past tenses use slightly different endings with the same voice distinction. Both languages moreover have separate endings for the perfect, again with a voice distinction.

Table 2. Vedic: Active/non-active endings (non-past/"present")

	Active			Middle		
	Sg.	Dual	Pl.	Sg.	Dual	Pl.
1	-mi	-vas	-masi	-e	-vahe	-mahe
2	-si	-thas	-tha	-se	-ethe, -áthe	-dhve
3	-ti	-tas	-nti	-te, -e	-ete, -áte	-nte, -re

Table 3. Ancient Greek: Active/non-active endings (non-past/"present")

	Active			Middle		
	Sg.	Dual	Pl.	Sg.	Dual	Pl.
1	-mi, -ō	—	-men, -mes	-mai	—	-metha
2	-s(i), -eis	-ton	-te	-sai, -ēi	-sthon	-sthe
3	-si, -ti, -ei	-ton	-asi, -nti, -ousi	-tai	-sthon	-ntai

At first glance, the distribution of these endings should be straightforward: the active endings should be found in "syntactically active" contexts, the non-active endings in "non-active" syntactic contexts. Even though the definition of canonically "active" and canonically "non-active" contexts is not always particularly clear-cut, the typological and the theoretical literature mostly agree that non-active morphology is cross-linguistically found in the same or very similar syntactic environments (e.g., Geniušienė 1987, Rivero 1990, Klaiman 1991, Kemmer 1993, 1994, Embick 1998, Kaufmann 2007, Kallulli 2007, 2013, Alexiadou and Doron 2012, Alexiadou 2013, etc., on Modern Greek in particular see

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Manney 2000 and Zombolou 2004). Researchers generally also agree that non-active is the marked member of the opposition, and that there is a unifying context for non-active while active is "elsewhere" or unmarked morphology. I follow this view and motivate it in more detail in section 3.1.

The following are contexts in which canonical non-active morphology appears in Greek-type languages:

(1)   Canonical functions of non-active morphology

    a.   (Some) Anticausatives

    b.   Reflexives and reciprocals, including indirect reflexives (self-benefactives)

    c.   Dispositional/generic constructions

    d.   (Medio)passives

In discussing the fact that the same voice morphology is used in these different syntactic contexts, Embick (1998) introduces the term "voice syncretism", which I adopt in this paper. Moreover, the non-active verbs in these contexts usually also take active morphology in active syntactic contexts, giving the impression of a regular voice alternation (alternating or "oppositional" non-active verbs).[5] This is illustrated in table 4 for Modern Greek.[6]

Table 4. Voice alternations in Modern Greek

Function	Active	Non-active
Anticausative	*sikon-o* 'raise'	*sikon-ome* 'rise'
Reflexive	*plen-o* 'wash'	*plen-ome* 'wash myself'
Self-benefactive	*promithev-o* 'supply'	*promithev-ome* 'supply myself'
Passive	*skoton-o* 'kill'	*skoton-ome* 'am killed'

In addition to alternating contexts, non-active morphology is also found on a number of verb classes which do not alternate between active and non-active. In other words, non-active morphology seems to be obligatory for these verbs (non-alternating non-active verbs, cf. Kemmer 1993, Zombolou and Alexiadou 2014). These, too, fall into some cross-linguistically stable and more or less well-defined verb classes, including the following:

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[5]The dispositional or generic function basically corresponds to the English "middle" construction in, e.g., *bureaucrats bribe easily* or *this book sells well*. In languages like Greek, we find non-active morphology on the verb in these contexts.

[6]Citation forms are the 3sg.pres. for Sanskrit and Hittite and the 1sg.pres. for Ancient Greek, Modern Greek and Latin.

(2) Canonical non-active verbs that do not alternate (non-oppositional non-active verbs):

    a.   Experiencer/psych verbs

    b.   Stative verbs

    c.   (Some) verbs of motion

    d.   Deadjectival and denominal stative and inchoative verbs

    e.   (Some) verbs of speech and communication[7]

In languages whose non-active endings are traditionally called "middle", these verbs are called *media tantum* (Lat. "middle only") verbs. It is an unfortunate practice that these verbs are also often referred to as "deponents", suggesting that they are instances of the same voice mismatch that is the focus of this paper (see examples (3-6) below). I do not follow this practice and reserve the term "deponents" for verbs which have agent subjects (a more detailed definition will be introduced in section 2.2). The verb classes in (2), on the other hand, should be seen as canonical non-actives, since they do not have these properties (Kallulli 2013, Zombolou and Alexiadou 2014, Oikonomou 2014).

2.2   Non-canonical use of non-active morphology

Assuming for a moment that we know what canonically active and non-active contexts are based on the discussion in section 2.1 (I will return to this problem in section 3.1), we observe that there are verbs in all these languages that have non-active morphology, but are found in syntactically active contexts, and both native speakers and linguists share the intuition that they are exceptions to the expected distribution of voice morphology. These "voice mismatch verbs" are traditionally called deponents.[8]

The following examples illustrate this phenomenon in its syntactic context. In each case, an agentive verb ('incite', 'punish, take revenge', 'protect') is found in a syntactically

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[7]It is especially difficult to make generalizations for this category of verbs with respect to canonical voice morphology, hence I have largely excluded them from the discussion below. Kemmer 1993: 134 mentions that there are plenty of minimal pairs of verbs with almost the same meaning, but different voice morphology in these languages, which is confirmed by Grestenberger 2014. For example, the Vedic speech verbs *gṛṇā́ti* 'praises', *níndati* 'mocks', *pṛccháti* 'asks', *brávīti* 'says (to)', *vádati* 'says', *stáuti* 'praises' are morphologically active, while *ī́ṭṭe* 'praises' and *vándate* 'praises' are non-active. This suggests that active morphology is canonical for speech verbs in Vedic, and that verbs like *ī́ṭṭe* can be treated as non-canonical (as it is in this article). However, in Ancient Greek the situation is less clear: While *aitéō* 'beg, demand', *phēmí* 'say', *eîpon* 'said' (only in the aorist), *kaléō* 'summon', *kleíō*, *kléō* 'tell of, make famous' are morphologically active, *líssomai* 'beg, demand', *eúkhomai* 'praise, declare', *eíromai* 'ask', *kélomai* 'urge', *pséudomai* 'lie', *ómnūmi* 'swear', *mémphomai* 'blame' and *steūmai* 'promise, declare to' are non-active, making it more difficult to decide at a glance which one is the canonical voice morphology (likewise in Latin). The case on the objects of verbs of speech also varies widely. This class therefore needs further study before a conclusion can be reached.

[8]"Deponent" comes from Lat. *dē-pōnere* 'lay aside', sc. the verb's passive or non-active meaning. For a detailed discussion of the complicated history and uses of the term in Latin see Flobert (1975).

active context, with an agent subject bearing nominative case and a direct object with accusative case. However, all these verbs obligatorily take the non-active set of endings rather than the expected active one.[9]

(3) **Latin**: Deponent *hortor* 'incite, encourage': Plautus, *Mercator* 695–697:

sed **coquōs**,	quasi in marī	solet	hortātor
but cooks.ACC.PL	like in sea.ABL	be.wont.to.3SG.PRES	inciter.NOM

rēmigēs	**hortārier**,	ita **hortābātur**
rowers.ACC.PL	incite.INF.PASS	so incite.3SG.IPF.PASS

"But just like at sea a rowing-master (lit. 'inciter') is wont to urge the rowers, so he urged the cooks"

(4) **Greek**: Deponent *tínumai* 'punish': Homer, *Iliad*, 3.278-9:

kaì hoì	hupenérthe	kamóntas	**anthrṓpous**
and who.NOM.PL	beneath	passed.on.PTCP.ACC.PL	men.ACC

tínusthon
punish.2DU.PRES.NACT

"and (you) who in the underworld punish the men who have passed on"

(5) **Vedic**: Deponent *trā́yate* 'protects, rescues': RV 2.23.4a-b:

trā́ya-**se**	jánam	yás	túbhyaṃ dā́śāt
protect-**2SG.PRES.MID**	man.ACC	who.NOM	you.DAT worship.3SG.SUBJ.ACT

"(...) you rescue the man who will do (ritual) service for you"[10]

(6) **Hittite:** Deponent *paḫša(ri)* 'protects': KBo 8.35 ii 14-15:

nu	mān kūš	**lingāuš**	**paḫḫašduma**	**šumāš**=a
PART	if	these.ACC.PL	oaths.ACC.PL protect.2PL.PRES.MID	you.ACC.PL=PART

DINGIR.MEŠ-eš	**paḫšandaru**
gods.PL-PL	protect.3PL.IPV.MID

'If you protect these oaths, let the gods likewise protect you!'

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[9]I use "non-active" as a neutral cover term for the set of endings called "middle" in tables 2 and 3. These endings are usually referred to as "passive" in Latin and "mediopassive" in Hittite. While their distribution varies slightly from language to language (most notably in Latin, where the "non-active" endings are predominantly syntactically passive for alternating verbs), they are both synchronically and diachronically similar enough to be considered exponents of the same functional head in these languages.

[10]All translations of Rigvedic examples are from Jamison and Brereton 2014.

That deponents are exceptional is confirmed by the fact that agentive predicates of transitive clauses like (3–6) usually take active morphology, and that it is easy to find formally active synonyms or near-synonyms to these mismatch verbs. A few such cases are collected in table 5.

Table 5. Active/deponent (near-)synonyms

Language	Deponent	Active verb	Meaning
Latin	*hortor*	*moneō*	'encourage, incite
Sanskrit	*grásate*	*átti*	'devours/eats'
Ancient Greek	*erúomai*	*phúlassō*	'protect, guard'
Modern Greek	*eborevome*	*adallasso*	'trade'

Moreover, the non-active morphology of deponents cannot be motivated in terms of the *synchronic* canonical functions of non-active morphology. That is, synchronically they do not fall into any of the categories listed in section 2.1 (reflexive, self-benefactive, anticausative, etc.). I motivate this analysis in detail in the next section, 2.3.

The phenomenon of deponency raises several questions concerning the function of voice morphology in Greek-type languages, in particular the question of how the distribution of active vs. non-active endings can be predicted, why all these languages display voice mismatches, and how "canonically active" and "canonically non-active" syntactic contexts can be defined. These questions are addressed in section 3.

2.3   Diagnostics for deponency

2.3.1   Deponents = experiencer verbs?

While Zombolou and Alexiadou (2014) show that the overwhelming majority of morphologically non-active verbs in Modern Greek actually instantiate the canonical functions of non-active voice, their attempt to stretch this finding to cover *all* morphologically non-active verbs is less convincing. Their starting point is the observation that many of the Modern Greek transitive *media tantum* are psych verbs/experiencer verbs, in which the external argument is an experiencer or undergoer rather than an agent. Examples include *fevome* 'fear', *esthanome* 'feel', *gevome* 'taste', *skeftome* 'think', etc. Based on this observation, they then argue that *all* transitive non-alternating non-active verbs can be analyzed synchronically as experiencer verbs (benefactive or malefactive verbs; similarly Alexiadou 2013 and Kallulli 2013). As discussed in section 2.1, the benefactive or indirect reflexive use is a well-attested canonical function of non-active morphology. If

Zombolou and Alexiadou (2014) are right, there simply is no mismatch here—all transitive deponents are actually canonical middles, with the same *synchronic* argument structure as self-benefactive or experiencer verbs.

However, there are several arguments against analyzing *all* deponents as experiencer verbs. Embick 1997: 216f., based on Anagnostopoulou 1999, shows that some transitive deponents in Modern Greek pattern systematically with agentive transitive verbs as opposed to experiencer verbs with respect to clitic doubling, word order, and clitic left dislocation, providing concrete diagnostics for deponency.[11] I briefly discuss these diagnostics before introducing my own below.

With some psych-verbs, both an agentive and a psychological reading is possible in Modern Greek. In the agentive reading, the subject is an agent carrying out an action, (7a), in the psychological reading, the subject is the cause of an event, (7b). While the agentive reading with an animate subject does not require clitic doubling of the object, (7a), the psychological reading is ungrammatical without the doubled clitic, (7b) (all examples from Embick 1997):

(7) a. I   Maria   enohli   ton Petro
         The Maria.NOM bothers the Petros.ACC
         "Maria bothers Petros"

     b. Ta epipla   *?(ton) enohlun ton Petro
         The furniture.NOM CL.ACC bothers   the Petros.ACC
         "The furniture bothers Petros"

Transitive agentive deponents like *hriazome* 'need' pattern with the agentive reading and do not require clitic doubling, as in (8). This indicates that their external argument is an agent rather than a cause/theme.

(8) I   Maria hriazete   ton Petro
     The Maria needs.NACT the Petros.ACC
     "Maria needs Petros"

For experiencer verbs, both the word orders EXP-verb-THEME and THEME-verb-EXP are possible and unmarked with respect to their discourse status. However, fronting of the object of a non-psych verb results in a marked clitic left dislocation (CLLD) structure. Transitive deponents pattern as non-psych verbs in triggering this CLLD construction:

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[11]Oikonomou 2014 also mentions that a small class of transitive non-active verbs in Modern Greek cannot easily be reconciled with an analysis as experiencer verbs.

(9) a. O Petros   hriazete to vivlio
         The Petros.NOM needs   the book
         "Petros needs the book"

     b. To vivlio to hriazete o   Petros
         The book CL needs   the Petros
         "The book, Petros needs"

While Embick's agentivity tests show that Modern Greek does indeed have a small
class of morphologically non-active verbs that have agent subjects, these tests cannot be
applied to the older Indo-European languages because they do not have clitic doubling
or CLLD, and word order cannot be used to disambiguate between different types of
predicates. However, there are other diagnostics that show that deponents in the older
languages have agent subjects. These are discussed in the following sections.

2.3.2 Agent nouns

Vedic, Greek, Hittite, and Latin all have designated agent-noun forming suffixes that have
the same properties as agent nominalizers in other languages: They take genitive (rather
than accusative or other structural case) objects and can only be formed to verbs whose
external argument is an agent (or animate causer; for a detailed account of the properties
of agent nominalizations see Baker and Vinokurova 2009 and section 4.3.1 below).

This property distinguishes agentive verbs from verbs whose surface subject is an
experiencer. Experiencer verbs in English, for example, cannot form agent nouns, that
is, they cannot take the same nominalizing morphology as agentive verbs in the same
reading:

(10)   English:

       a. #fearer
       b. #smeller
       c. #feeler

While an instrumental reading in which the *-er* nominal designates the instrument
with which an action is performed (rather than the agent performing it) is available for
cases like *feeler*, an agentive one is not. Moreover, in English only agent nouns can inherit
the argument structure of a verb and appear with an *of*-complement, while instrumental
nouns cannot (*mower of the lawn* can only be a person, not a machine), and only agent
nouns are eventive, whereas instrumentals are not (see, e.g., Levin and Rappaport 1988,
Pesetsky 1995: 76ff. on CAUS object experiencer verbs, Baker and Vinokurova 2009: 530,

fn. 12; differently McIntyre 2014). The same holds for self-benefactives, reflexives, and unaccusatives, which likewise do not make agent nouns. Since the goal of this diagnostic is to distinguish agentive verbs from experiencer verbs, it has to be pointed out that there are some experiencer verbs (all from the SubjExP class) that do make *-er* nominals with the relevant properties in English (*of*-argument, eventive reading), such as the ones in (11) ((a.–b.) from Alexiadou and Schäfer 2010 and McIntyre 2014):

(11)   a.   a dazzled admirer of Washington
            b.   habitual admirers/despisers of non-conformists
            c.   frequent haters of Excel

However, I am not convinced that these constitute confounds, since not all SubjExp verbs behave like the ones in (11) (**frequent feelers of pain*), and *admire*, *despise*, *hate* and *love* also have agentive (or "non-experiencer") properties with respect to standard agentivity tests, e.g., compatibility with the progressive, (12a), agent-oriented adverbs, (12b), imperative formation, (12c), "what I did"-clauses, (12d), complements of *persuade*, (12e):

(12)   a.   I'm loving it.
            b.   People sometimes intentionally hate the truth.
            c.   Love music, hate racism.
            d.   What I did was admire the strategy of the company with their ad.
            e.   you persuaded me to love you.

To the extent that these tests do indeed diagnose agentivity, they seem to group the verbs in (12) with more "canonically" agentive verbs. I therefore contend that these counterexamples still leave the basic generalization intact, namely that agent nominalizers can be used to distinguish between agentive and experiencer verbs.

    This generalization also applies to the older Indo-European languages. Vedic has an agent-noun forming suffix *-tár-* which takes genitive objects and behaves like a true agent noun (Benveniste 1948, AiG II,2: 669ff., Tichy 1995, Kiparsky 2016).[12] Table 6 illustrates agent nouns in *-tár-* from canonically active verbs and agent nouns from deponent verbs. They are both semantically and morphologically indistinguishable.

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[12]Vedic also has an unaccented/"preaccenting" version of this suffix which makes participle-like deverbal forms that take accusative objects; these will not be discussed here.

Table 6. Vedic agent nouns

a. active, non-deponent		b. deponent	
root	agent noun	root	agent noun
dā 'give'	*dā-tár-* 'giver'	*trā* 'protect'	*trā-tár-* 'protector'
nī 'lead'	*ne-tár-* 'leader'	*īḍ* 'praise'	*īḍi-tár-* 'praiser'
rakṣ 'protect'	*rakṣi-tár-* 'protector'	*kṣad* 'serve'	*kṣat-tár-* 'server'

Both the forms in the (a) and the (b) column in table 6 take genitive objects, cf. (13a-b):

(13)   a.   *dātár-* 'giver' (non-deponent verb), RV 8.90.2a:

tváṃ   dātā́   prathamó rā́dhas-ām   as[i]
you.NOM giver.NOM first.NOM bounty-GEN.PL be.2SG.PRES.ACT

"You are the foremost giver of bounties"

b.   *trātár-* 'protector, rescuer' (deponent verb), RV 2.23.8a:

trātár-am   tvā   tanū́-nāṃ   havāmahé
protector-ACC you.ACC body-GEN.PL call.1PL.PRES.MID

"We call upon you as the rescuer of our bodies, ..."

Experiencer verbs, on the other hand, do not make agent nouns.[13] A survey of the collection of agent nouns in Tichy (1995) confirms that experiencer verbs, non-agentive verbs of motion, and unaccusatives do not take the suffix *-tár-* in Vedic. Although negative evidence in the strict sense is not available, Tichy (1995: 32, fn. 6–9) does give a list of non-agentive verbs that fail to make *tár-*nouns in Vedic.

The same holds for the other Indo-European languages under investigation. The suffix that corresponds most closely to Vedic *-tár-* in Greek (in taking genitive objects, etc.) is the agent noun suffix *-tḗr*, as illustrated in table 7. The collections of nouns in *-tḗr* in Fraenkel 1912, Buck and Petersen 1945, and Benveniste 1948 make it clear that only agentive verbs use this suffix to make agent nouns. It is furthermore found in kinship nouns (*patḗr* 'father', etc.) and with an instrumental reading with non-agentive verbs and (occasionally) agentive verbs (*lamptḗr* 'torch' : *lámpō* 'shine', *statḗr* a standard coin : *hístēmi* 'stand', *rhaistḗr* 'hammer' : *rhaíō* 'break, scatter', etc.).

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[13]There are only a few apparent exceptions. Thus *yātár-* 'avenger' seems to belong to *yā* 'go', but this root fell together with a verb meaning 'seek out, demand', as shown by its Greek cognate (*dízēmai* 'seek'); and cases like *marḍitár-* 'forgiver' (*mṛḍ* 'have pity, forgive') and AV *jñātár-* 'witness' (*jñā* 'know') can hardly be considered counterexamples.

Table 7. Ancient Greek agent nouns

a. active, non-deponent		b. deponent	
verb	agent noun	verb	agent noun
elaúnō 'drive'	*ela-tḗr* 'driver'	*rúomai* 'protect'	*rū-tḗr* 'protector'
dídōmi 'give'	*dot-ḗr* 'giver'	*lēízomai* 'rob'	*lēis-tḗr* 'robber'
óllumi 'destroy'	*ole-tḗr* 'destroyer'	*lōbáomai* 'slander'	*lōbē-tḗr* 'slanderer'

Latin agent nouns in *-tor* behave the same way, being formed to both non-deponent and deponent verbs with an agent argument (cf. Leumann 1977: 358f.):

Table 8. Latin agent nouns

a. active, non-deponent		b. deponent	
verb	agent noun	verb	agent noun
amō 'love'	*amā-tor* 'lover'	*hortor* 'urge, incite'	*hortā-tor* 'inciter'
vincō 'conquer'	*vic-tor* 'conqueror'	*vēnor* 'hunt'	*vēnā-tor* 'hunter'
doceō 'teach'	*doc-tor* 'teacher'	*tueor* 'protect'	*tū-tor* 'protector'

This test also works for Modern Greek, where agentive deponents likewise make agent nouns.[14] The agent noun suffix is *-tís*.

(14)   Modern Greek deponent agent nouns:

   a.   *hiris-tís* 'user, manipulator' (*hirizome* 'use, manipulate')

   b.   *ekmetalef-tís* 'exploiter' (*ekmetalevome* 'exploit')

   c.   *mimi-tís* 'imitator' (*mimume* 'imitate')

The evidence from agent noun formation confirms that the external arguments of at least some deponents are agents rather than experiencers.

2.3.3   Passivization

If deponents are syntactically active agentive verbs, they should be able to passivize given the right conditions. This diagnostic is only available in languages that have designated passive morphology that is distinct from the morphology that deponents usually take—that is, we do not expect passivization in strictly bivalent voice systems, since the passive use of non-active morphology is presumably blocked for deponents (as are the other

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[14]I am grateful to Elena Anagnostopoulou and Despina Oikonomou for confirming this and providing these examples.

canonical uses of non-active morphology).

This diagnostic is somewhat less fine-grained than the last one, since certain experiencer verbs also passivize (e.g., Engl. *fear, love, feel ...*), and this is also the case in Vedic and Ancient Greek (the two languages with distinct passive morphology). Moreover, passivization in these languages is not restricted to verbs with internal arguments with accusative case. Ancient Greek also allows genitive and dative arguments of certain verb classes to become nominative subjects under passivization (see Smyth and Messing 1956: 395f., Conti 1998, Anagnostopoulou and Sevdali 2015), and both Vedic and Ancient Greek have restrictions on what types of accusatives are passivizable (e.g., Vedic does not allow passivization of an accusative of goal, with rare exceptions, cf. Delbrück 1888: 104ff.). Therefore passivization picks out a broader class of verbs than just agentive ones. However, showing that deponents do passivize confirms that their direct objects are "real" internal arguments that can undergo promotion to subject, and their external arguments can be demoted to an oblique "*by*-phrase". Crucially, these are properties that can only be established through a comparative perspective. Since neither Latin nor Modern Greek have passive morphology that is distinct from the mismatch-causing non-active morphology, passivization of deponents is impossible in these languages. This is different in Vedic and Ancient Greek.

Vedic has a binary voice system in which active and non-active ("middle") voice take different inflectional endings (cf. table 2). However, there are some tense/aspect stems in which a passive morpheme that is distinct from the non-active morphology on the endings is available to make passives. In those stems, the passive interpretation of the non-active endings is blocked. Such a trivalent distinction is available in the Vedic imperfective ("present") stem. Active verbs take the active endings, middle verbs take the middle endings, passive verbs take the passive suffix *-yá-* together with the middle endings. This is illustrated in table 9 for the root *bhṛ* 'carry' (V = verbal stem-forming suffix, usually called "theme vowel").

Table 9. Vedic presents: active, "middle", passive

pres.act.	pres.mid.	pres.pass.
bhár-a-ti	*bhár-a-te*	*bhri-yá-te*
carry-V-3SG.NONPAST.ACT	carry-V-3SG.NONPAST.MID	carry-PASS-3SG.NONPAST.MID
"carries (sth.)"	"carries for oneself/	"is being carried"
	*is being carried"	

The deponent examples in table 10 show that it is the suffix *-yá-* that produces the pas-

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sive interpretation, not the middle morphology. Deponents behave like active transitive verbs in being able to form a *yá*-passive to their imperfective stem, confirming that their direct objects can become the surface subject of the passive.

Table 10. Vedic deponent passives

Root	Deponent	Passive
īḍ	*íḍ-Ø-te* 'praises' ([íṭṭe]) praise-V-3SG.NONPAST.MID	*īḍ-yá-te* 'is being praised' praise-PASS-3SG.NONPAST.MID
idh	*i\<n\>d-dhé* 'kindles' kindle\<V\>-3SG.NONPAST.MID	*idh-yá-te* 'is being kindled' kindle-PASS-3SG.NONPAST.MID
rabh	*rábh-a-te* 'seizes' seize-V-3SG.NONPAST.MID	*rabh-yá-te* 'is being seized' seize-PASS-3SG.NONPAST.MID

The deponent passives in table 10 show that passivization of deponents is possible if passive morphology that is distinct from the morphology that causes the mismatch (middle, in this case) is available.

More evidence for this generalization comes from Ancient Greek: Post-Homeric Greek developed a passivizing suffix *-thē-* in the aorist. Stahl (1907: 73f.) notes that deponents use this suffix to make passive aorists, as in the following example from Thucydides (5th century BCE).

(15)   Deponent *ktáomai* 'acquire', Thucydides, *The Peloponnesian War* 2.36.4:

(...) hoĩs   hékasta   e-kté-thē
REL.DAT.PL several.NOM.PL.N PAST-acquire-AOR.PASS.3SG.ACT

" (...) by which several (things) were acquired"

The passive aorist *ektéthē* 'was acquired' contrasts with the middle aorist *ektḗsato* 'acquired', as used by the same author with the expected active syntax (e.g., in 1.4.1). Another example is given in (16) (from Herodotus, 5th century BCE). The deponent *dōréomai* 'give, bestow upon, endow with' regularly takes an accusative benefactive argument and a dative theme ('endow somebody_{ACC} with something_{DAT}'). In the passive in (16), the accusative is promoted to subject.

(16)   Deponent *dōréomai* 'give, endow with', Herodotus, *Histories* 8.85.3:

Phúlakos   dè   euergétēs   basiléos an-e-gráph-ē
Phylakos.NOM PART benefactor.NOM king.GEN down-PAST-write-AOR.PASS.3SG

16

kaì khórēi e-dōré-thē pollêi
and land.DAT PAST-endow-AOR.PASS.3SG much.DAT

"Phylakos was recorded as benefactor of the king and endowed with much land."

Note that the deponent passive *edōréthē* 'was endowed' syntactically behaves exactly like the non-deponent passive *anegráphē* 'was recorded' (from *ana-gráphō* 'write down'). The conclusion must be that deponents, like formally active transitive verbs, can passivize if distinct passive morphology is available. This is not usually the case in bivalent voice systems, but Vedic and Greek both developed distinct passive morphology in some tense/aspect stems, and in those cases we find deponent passives.

However, this also means that we do not expect deponents to be able to passivize in languages which do not have separate passive morphology. This is the case for Latin, in which the non-active (usually called "passive") endings are taken both by the passives of alternating verbs and by syntactically active deponents. Since there is no passive morphology available that is distinct from these non-active endings, Latin deponents cannot passivize. This has given rise to the idea that deponents in general do not passivize. However, the Vedic and Greek data above show that this generalization is incorrect.

Finally, it is often claimed that some Latin deponents can have both active and passive readings (e.g., Hofmann 1910: 12ff., 32ff., Flobert 1975, Embick 2000: 194). However, it is equally possible that the deponent in question has been reanalyzed as a regular alternating verb and a new formally active transitive form exists beside the formally and functionally passive form. This may be the case for the often-cited example in (17).

(17)   Varro ap. Prisc. II, 387:

ab amīcīs hortā-rētur
by friends.ABL urge-3SG.IPF.SUBJ.PASS

"He was urged by his friends"

A formally active *hortō* may be attested already in Ennius (*Ann.* 567, Vahlen 1928: 104), and an active perfect form in Seneca, *Suas*. 5.8. While no formally active form (or deponent, for that matter) is attested in Varro, (17) should probably be analyzed as a passive of the formally active *hortō* attested elsewhere.[15]

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[15]More evidence for this analysis of seemingly ambiguous forms comes from Modern Greek: While a passive reading of deponents is usually impossible, passive readings of formally non-active deponent forms become available once the oppositional formally active transitive forms exist. Roussou and Tsimpli 2007: 149f. cite examples in which the deponent *ekmetalevome* 'exploit', which usually disallows a passive interpretation, acts like an alternating verb: its new formally active variant is syntactically active and transitive while its oppositional non-active variant is passive. However, they also point out that adult speakers are

The Vedic and Greek examples of deponent passives, on the other hand, are different from the Latin example in (17), since here we see passive morphology that is distinct from the morphology that triggers the mismatch.

2.3.4 Agent-oriented adverbs

Agent-oriented adverbs expressing intention or volition can modify agentive predicates, but not psych verbs/experiencer verbs. Adverb formation is notoriously varied in the older Indo-European languages, where a variety of different suffixes is used, and this test is more difficult to apply to the closed-corpus languages under study here than the other tests. That being said, Vedic in particular provides a few instances in which deponents are modified by agent-oriented adjuncts. Vedic uses certain nominal case forms adverbially, in particular the instrumental and the accusative. The instrumental of the adjectival abstract *ójas-* 'power, might', *ójasā*, for example, is only used with animate subjects and means "forcefully, with might". This adverbial use of the instrumental also occurs with agentive deponents, as in the following example:

(18)   Deponent *dáyate* 'distributes', RV 1.130.7d-g:

atithigváya   śámbaraṃ   girér   ugró   ávābharat
Atithigva.DAT Śambara.ACC mountain.ABL mighty.NOM push.down.3SG.IPF
mahó   **dhánāni dáyamāna**   **ójasā**
great.ACC prizes.ACC distributing.PTCP.PRES.NAct.NOM.SG might.INSTR
víśvā   dhánāny   ójasā
all.ACC prizes.ACC might.INSTR

"The mighty one pushed Śambara off the mountain for Atithigva, distributing the great prizes with might, (distributing) all the prizes with might."

The accusative of the adjective *sabā́dhaṣ-* 'eager' is used as an agent-oriented adverb in the following passage:

(19)   Deponent *ī́ṭṭe* 'praises, invokes', RV 7.8.1c:

náro   havyébhir   **ī́ḍate**   **sabā́dhaḥ**
men.NOM sacrifices.INSTR invoke.3PL.PRES.MID eager.ACC.ADV

"The men are eagerly invoking (him) with sacrifices."

Compare the use of this adverb with a non-deponent agentive verb:

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very reluctant to accept new formally active forms of deponents.

(20) RV 4.17.18c-d:

vayám hí ā́ te **cakṛmā́** **sabā́dha** ā́bhíḥ
we   for to you.DAT make.1PL.PERF.ACT eagerly.ADV this.INSTR.PL.
śámībhir   maháyant-a   indra
labor.INSTR.PL. exalting-NOM.PL. Indra.VOC

"... for we have fervently acted for you, exalting you with these labors, Indra."

Similar examples can be found in Latin. In the following passage, the adverb *cōgitātē* 'deliberately, thoughtfully', though a manner adverb, implies an animate agent:

(21) Deponent *meditor* 'think, consider', Plautus, *Miles gloriosus* 944:

Ab-eāmus   ergō intrō, haec utī **meditēmur** **cōgitātē**
PRVB-go.1PL.SUBJ then inside these so.that consider.1PL.SUBJ deliberately

"Let us go inside, then, so that we may carefully consider these things."

Compare the use of this adverb by the same author with a formally active agentive verb:

(22) Plautus, *Poenulus* 1221:

ut pudīcē **verba** **fēcit**,   **cōgitātē** et commodē, ...
how modestly words.ACC.PL make.3SG.PERF.ACT deliberately and properly

"How modestly did she pick her words, deliberately and properly..."

There were no unambiguous examples from Ancient Greek deponents in my corpus. Modern Greek allows deponents to be modified by adverbs such as *prosektika* 'carefully', (23a), cf. the semantically similar non-deponent verb in (23b):

(23) a. metahiriz-ome to amaxi prosektika
       use-1SG.NACT the car   carefully
       "I am using/handling the car carefully"
     b. hrisimopoi-o to amaxi prosektika
       use-1SG.ACT the car   carefully
       "I am carefully making use of the car"

Although this test is less conclusive than the others, in combination with the evidence from agent noun formation and passivization it does provide more evidence for the agentive nature of the deponent class.

2.3.5 Summary

In this section, I have provided arguments in favor of analyzing deponents as (transitive) agentive verbs rather than as experiencer verbs. I argue in the next section that canonical non-active verbs are characterized by their lack of an agentive subject. Deponents are therefore indeed cases of a "form-function mismatch", which must be reflected in the "narrow" definition of deponency. I then discuss the derivation of canonical and non-canonical non-active verbs and argue that deponents differ from canonically non-active verbs by having a non-canonical "low agent".

3 Deriving deponents

3.1 Background: Voice morphology

Before turning to my analysis of deponents, I provide some background on deriving the distribution of voice morphology in languages like Greek and introduce the framework in which the analysis is couched in this section.

The question that arises over and over again in the literature on voice morphology is whether a unified generalization can be made concerning the contexts in which active and non-active morphology are found, either syntactically or semantically. I follow an approach in which a verb is spelled out with non-active morphology if its functional projection VoiceP does not merge an external argument (an agent). In this approach, non-active morphology can arise in different syntactic contexts that happen to share the property of not having a VoiceP with an agent as its specifier. This analysis of syncretic voice morphology has most recently been defended by Alexiadou et al. 2015, based on earlier versions by Embick 1998, 2004a (and similarly Kallulli 2013 and Alexiadou 2013). It has the advantage of avoiding the problem of having to find a unified semantic context for the many different canonical uses of non-active morphology (e.g., "subject-oriented", "affected", "subject-control", cf. Kemmer 1993's attempt at a semantic generalization) by reducing its distribution to a fairly simple (and testable) structural condition: the merger of an external argument.

Following Kratzer 1996 (among others), these approaches assume that the external argument of unergative verbs is merged in the specifier of the functional projection Voice. Embick 1997, 1998, 2004a, argues that the voice syncretism pattern discussed above is the result of a *postsyntactic* Spell-Out condition. This approach is followed by Alexiadou et al. 2015, who argue that in Greek-type languages, "a Voice head is spelled out with non-

active morphology [...] if it lacks a specifier." (p. 101).[16]

Since this is a Spell-Out rule, it is agnostic as to the reason for the lack of an external argument. Different constructions may lack an agent argument for different reasons (passive vs. reflexive vs. anticausative, etc.), but the Spell-Out condition is blind to the semantics of Voice, explaining the observed voice syncretism. As Alexiadou et al. 2015: 101–2 put it, "For the morphological realization of Voice, the non-projection of the external argument as a specifier is a necessary and sufficient condition to yield a non-active form, independently of whether Voice has semantic impact or not." Their Spell-Out rule for Voice is given in (24), based on that of Embick 2004a: 150.

(24)   Voice -> Voice[NonAct]/_ No DP specifier

Under this view of voice morphology in Greek-type languages, [ACT] and [NACT] are not syntactic features, but different ways of spelling out Voice. More precisely, [NACT] is the realization of Voice in a particular context, whereas active morphology emerges in the absence of this feature. In other words, there is no feature [ACT] (either in the syntax or at Spell-Out), active is simply "elsewhere" morphology.

The alternative to this view—defining a condition for active and treating non-active as "elsewhere"—is less appealing because there is no easy way of finding a unifying context for the two main verb classes on which active morphology is found: "canonically" active, agentive transitive and causative verbs (*hit, buy, break, cook ...*) on the one hand and (usually non-alternating) unaccusative (often anticausative) verbs on the other. Formally active unaccusative verbs (*go, be, become, be red ...*) are a stable feature of Greek-type voice systems, and a major problem for understanding the canonical distribution of voice morphology in such languages. Examples of such non-alternating unaccusative active verbs (Lat. *activa tantum*, "active only" verbs) are given in (25).

(25)   Unaccusative *activa tantum*:

    a.   Vedic: *ásti* 'is', *éti* 'goes', *pátati* 'flies'.

    b.   Ancient Greek: *eĩmi* 'go', *zṓō* 'live', *mímnō* 'stay'.

    c.   Modern Greek: *asprizo* 'whiten' (tr./itr.), *plateno* 'widen' (tr./itr.), *reo* 'flow'.

Alexiadou and Anagnostopoulou 2004, Schäfer 2008 and Alexiadou et al. 2015 propose

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[16]Embick does not use Voice, but different 'flavors' of v, one of which, v[AG], merges the external argument. Non-active morphology in Greek-type voice systems spells out v in this system. I follow Kratzer 1996, Harley 2013, Alexiadou et al. 2015 (among many others) in using Voice as the projection introducing the external argument (v in these frameworks spells out verbalizing morphology and adds different types of eventive or stative semantics), whereas Embick 1998, 2004a and Kallulli 2007, 2013 use v. See Harley 2013, 2017 for arguments in favor of a VoiceP/vP split and its parametrization.

that formally active anticausatives should be analyzed as lacking the Voice layer entirely, and that this also holds for unaccusative verbs in Greek-type languages in general. That is, the examples in (25) should all be analyzed as lacking VoiceP (except for the causative actives in (25c), of course). Similar proposals concerning the lack of VoiceP in some verb classes have been made by other researchers, with varying terminology (e.g., Kratzer 1996, Embick 1997, 1998, 2004a, Chomsky 2001, Kallulli 2007, 2013, etc.). Since the Spell-Out condition on non-active morphology in (24) cannot apply to predicates that lack Voice entirely, i.e., non-alternating stative/unaccusative predicates, these verbs will surface with active morphology by default in the framework that is adopted here.

This interpretation of voice morphology conflates some of the distinctions made by Alexiadou et al. 2015 with respect to different Voice heads, namely between thematic and expletive active and non-active Voice heads (depending on whether or not Voice introduces an external argument variable *semantically*). According to them, expletive Voice does not introduce an external argument semantically, but can vary in whether it projects a specifier. This distinction derives the difference between passive and anticausative non-active verbs in Greek: while in passives, the external argument is introduced semantically, but not syntactically (VoiceP does not project a specifier), in anticausatives it is neither introduced semantically nor syntactically as Voice is purely expletive (Alexiadou et al. 2015: 108ff.). This results in three different ways of deriving active morphology: thematic active Voice (Alexiadou et al. 2015: 109's (12a)), which introduces an external argument as in canonically active transitive verbs like *hit*, etc.; expletive active voice which does not introduce an external argument variable but has a D-feature that needs to be valued by some sort of expletive element,[17] and lack of a Voice head, as in the verbs in (25). However, since voice morphology itself is semantically empty, I have focused on the Spell Out condition for non-active (which has already been motivated in detail) and leave the details of the different ways of arriving at active "elsewhere" morphology aside.

The basic distribution of voice morphology in a Greek-type voice system is summarized in table 11, based on Kallulli 2013: 349 (who uses *v* instead of Voice).

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[17] Alexiadou et al. 2015 argue that this structure is absent in Greek, but discuss SE-reflexives in languages like French and Italian as examples; similarly, Wood 2014 has argued that the Icelandic *-st* morpheme in "figure reflexive" constructions should be analyzed as an argument expletive.

Table 11. Distribution of active vs. non-active morphology

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

Separating the morphological distribution of voice morphology from the semantic side simplifies the necessary Spell-Out rules, while still leaving room for the difference between the thematic and expletive non-active Voice heads proposed by Schäfer 2008 and Alexiadou et al. 2015. This analysis achieves precisely the distribution we are looking for: non-active morphology in a particular environment (Voice without an external argument), active morphology everywhere else.

3.2 Deponents

We can now return to the problem of deponents. My proposal is that deponents truly are "mismatch verbs" in the framework outlined above because they surface with non-active morphology despite having an external argument (= an agent)—precisely the situation excluded by (24). I will therefore use the following definition of deponency (modified from Grestenberger 2014: 65):

(26)   Definition of deponency
        In an active—non-active voice system, a deponent is a verb with an agent subject that appears in a syntactically active context and is morphologically non-active.

This definition explicitly refers to the findings of section 2.3, namely that deponents have agent arguments. This is a crucial departure from previous approaches to deponency which do not explicitly include argument structure in the definition of deponent verbs.

On the other hand, (26) does not make explicit reference to transitivity or case, even though for the most part the "syntactically active context" in (26) will boil down to a transitive construction with a nominative subject and an accusative object. However, deponents could in principle also be found with a partitive genitive object. Since we have now established that the mismatch is caused by a non-canonical agent, the definition in (26) would also include intransitive unergative deponents, which is a desirable outcome given that there are a few such verbs in Latin and Ancient Greek.[18] I have therefore not

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[18]Notably denominal or deadjectival verbs such as Latin *bacchor* 'celebrate the *Bacchus*-festival', *fābulor* 'make up a fable' (*fābula* 'fable'), etc. (cf. Xu et al. 2007: 137ff), and Ancient Greek *gounázomai* 'implore by

included a requirement on accusative case objects (or indeed any kind of overt object) in the definition in (26). Even though deponents tend to be transitive, the case on the object by itself is not a sufficient diagnostic for deponent status.

Note furthermore that this definition excludes many of the verbs that are traditionally discussed under the term "deponency", namely the canonical non-oppositional non-active verb classes listed in (2) above, which is a desirable outcome. As already discussed in section 2.3.1, this reasoning has led some researchers (Kallulli 2013, Zombolou and Alexiadou 2014) to deny that mismatch verbs exist at all. Kallulli 2013 denies that Albanian has any non-oppositional non-active verbs with agent subjects, while Zombolou and Alexiadou 2014 note that there is a small class of such verbs in MG, which make up about 11% of their extensive corpus of MG *media tantum*, e.g., *metahirizome* 'handle, use', *epititheme* 'attack', *arnume* 'deny', *episkeftome* 'visit', *katahrome* 'abuse', *mimume* 'mimic, imitate', *skarfizome* 'contrive, devise', *iperaspizome* 'defend', *hriazome* 'need', etc. This class is referred to as "deponents with active meaning" by Zombolou 2004: 223 and given an experiencer verb analysis by Alexiadou 2013. My own collection of these verbs in the Hittite, Vedic, Homeric Greek, and Latin corpora confirms that this is a relatively small class, leaving the generalization concerning the synchronic distribution summarized in table 11 intact. That is, we are now left with a fairly small class of synchronic "exceptions" to the generalization that morphologically non-active verbs do not have an external argument in Greek-type languages.

In the next section, I argue that the agent argument of deponents is introduced *non-canonically* below VoiceP, as the result of a diachronic reanalysis of a benefactive or experiencer argument as an agent argument. I briefly sketch out this diachronic development in the next section, since it is relevant for understanding how voice mismatches develop in languages with Greek-type voice systems. A more detailed discussion of the diachrony of deponents is provided in Author (Forthcoming).

3.3 "Low agents"

Since deponents are the exception rather than the norm in Greek-type voice systems, we must look for a diachronic explanation for this situation. The starting point for such

clasping somebody's knees' (*gónu* 'knee'), *ergázomai* 'work' (*érgon* 'work'), *oinízomai* 'procure wine' (*oĩnos* 'wine'), etc., cf. Grestenberger 2014). Zombolou and Alexiadou 2014's study of Modern Greek deponents confirms that non-active inflection is actually productive with denominal and deadjectival verbs, most of which seem to fall under the canonical functions of non-active morphology defined in section 2.1, e.g., *idrevome* 'be watered' (*idor* 'water'), *seliniazome* 'be affected by the moon' (*selini* 'moon'), and Kallulli 2009 reports the same for Albanian. On the other hand, cases like Ancient Greek *ergázomai* 'work' or *lōbáomai* 'cause outrage' (*lōbē* 'outrage') are unergative and not easily analyzable as canonically non-active, and therefore fall under the definition of deponency proposed in (26).

an explanation is the observation that non-active voice itself is not valency-reducing or "argument-absorbing", most clearly articulated by Embick 2004a.[19] Thus non-active voice morphology normally signals the lack of an external argument, but does not specify whether or not this came about through valency reduction or not. In Greek-type languages there are in fact canonically non-active predicates in which valency reduction does not seem to have taken place. These include statives like Ancient Greek *keĩmai* 'lie', experiencer verbs like *házomai* 'am in awe of', verbs of motion like *érkhomai* 'come', and self-benefactives like *phéromai* 'carry sth. away for myself; win'. The last class is especially important to the analysis of deponents. Both Ancient Greek and Sanskrit productively form non-active self-benefactives from certain formally active transitive verbs, and the same is true for Modern Greek, as illustrated in table 12.[20]

Table 12. Non-active self-benefactives

	a. active verb	b. self-benefactive/non-active
Ved.	*yája-**ti*** 'sacrifices sth.'	*yája-**te*** 'sacrifices sth. for one's own benefit'
	*bhára-**ti*** 'carries'	*bhára-**te*** 'takes/carries sth. for oneself'
AG	*phér-**ō*** 'carry, bring'	*phéro-**mai*** 'carry for myself; win'
	*lég-**ō*** 'pick up, gather'	*légo-**mai*** 'pick out/choose for myself'
MG	*promithev-**o*** 'supply'	*promithev-**ome*** 'get sth. for myself'
	*arpaz-**o*** 'grab'	*arpaz-**ome*** 'grab for myself'

Descriptively, self-benefactives are three-place predicates in which the benefactive argument of an action is identified with the subject of the same action. There are basically two ways of analyzing this construction. The first analysis is one in which the surface subject is an agent, which is co-indexed with a (null) benefactive argument, (27b). This solution is appealing because it treats self-benefactives as essentially the same as benefactives in which the agent and the benefactive argument are not co-indexed, cf. (27a).

(27) a. [$_{\text{VoiceP}}$ AGENT$_i$ [$_{\text{ApplBEN}}$ BENEFACTIVE$_j$ [$_{vP}$ THEME]]]   (benefactive)
      b. [$_{\text{VoiceP}}$ AGENT$_i$ [$_{\text{ApplBEN}}$ BENEFACTIVE$_i$ [$_{vP}$ THEME]]]   (self-benefactive)

If this analysis of benefactives and self-benefactives were correct, we would predict that

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[19]This point is also explicitly addressed by Alexiadou et al. 2015: 100, and at least implicit in the discussion in Alexiadou 2013. Harley 2013 points out that in frameworks in which morphological material realizes syntactic structure, e.g., Distributed Morphology, additive morphology in general cannot "delete" or "absorb" structure.

[20]The MG examples are from Zombolou and Alexiadou 2014. Note that the non-active self-benefactives can also be read as passives ('get supplied, get taught', etc.), as expected in a language with morphological voice syncretism.

they both surface with the same voice morphology, since the agent would be introduced canonically in Spec.VoiceP in both cases. This evidently makes the wrong prediction for Greek-type languages, in which voice morphology differs between benefactives and self-benefactives (cf. table 12).

I therefore propose to adopt the second possibility, namely to take the evidence of the voice alternation at face value and conclude that the surface subject in self-benefactives is not merged in the same base position as the surface subject of the corresponding benefactive (or non-benefactive transitive), but is the benefactive argument that has moved to subject position. The benefactive argument itself is introduced by an applicative head $Appl_{Ben}$ located below VoiceP, as argued by Pylkkänen (2008).[21] The difference in voice morphology reflects a difference in the status of the surface subject in the two constructions. While the surface subject in benefactives is an agent, the surface subject in self-benefactives is a benefactive argument that is introduced by the applicative projection $Appl_{BEN}$ and then moves to subject position, as in (28).

(28)   Self-benefactive:
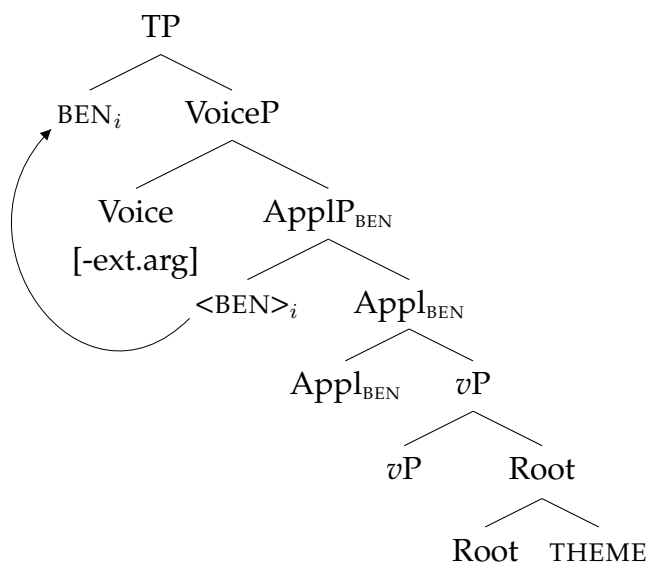
In this analysis, the difference in voice morphology between self-benefactives and benefactives arises as a result of the different status of their surface subjects: while the subject of benefactives is introduced as the external argument of Voice and therefore triggers active morphology, the surface subject of self-benefactives is introduced below Voice.

Before proceeding to deponents, a possible counterargument to this analysis concern-

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[21]For reasons of space, the distinction between high and low attachment of $Appl_{Ben}$ proposed by Pyllkänen cannot be discussed here. A detailed discussion of different types of benefactives and their properties can be found in Bosse et al. 2012.

ing the case on the benefactive argument needs to be addressed. While the benefactive argument bears (presumably lexical) dative case in Greek-type languages, (29a), the subject of the self-benefactive bears nominative case, (29b) (Ved. *dhā* means 'place, establish, set down' in the active and 'place/establish for oneself; take' in the middle, cf. Gonda 1979: 109ff.).

(29) Vedic benefactive & self-benefactive:

    a. Benefactive: RV 4.20.9d

        <á>thā   **dadhā-ti**   dráviṇaṃ   jaritré
        also+to.PRVB place-3SG.PRES.**ACT** wealth.ACC singer.DAT

        "and he establishes material property for the singer."

    b. Self-benefactive: RV 1.3.11c

        yajñáṃ   **dadh-e**   sárasvatī
        sacrifice.ACC place.PERF-3SG.PERF.**MID** Sarasvatī.NOM

        "Sarasvatī has received our sacrifice." (lit. "has taken/placed for herself")

If the subject of self-benefactives is indeed the moved benefactive argument that binds its trace, the fact that it has nominative case rather than the expected dative case is surprising. However, as mentioned in section 2.3.3, at least in Ancient Greek some dative (as well as genitive) arguments regularly take on nominative case under passivization, cf. (30) (modified from Anagnostopoulou and Sevdali 2015; see also Conti 1998).

(30) a. Athēnaĩ-oi   epibouleú-ousin   **hēm-ĩn**
      Athenians-NOM betray-3PL.PRES.ACT us-DAT
      "The Athenians are betraying us"

    b. **Hēm-eĩs** hup' Athēnaí-ōn   epibouleu-ómetha
      We-NOM by   Athenians-GEN betray-1PL.PRES.NAct
      "We are betrayed by the Athenians" (Thucydides, Historia I: 82.1)

This is not possible in Latin, which famously allows dative subjects, and a thorough study of this phenomenon in Vedic and Hittite is as of yet unavailable. However, I interpret the Greek evidence to mean that at least some of the older Indo-European languages allow "lexical" cases, i.e., genitive and dative, to be lost under movement to subject just like accusative, and that the loss of dative case on benefactive arguments in self-benefactives is therefore not an insurmountable problem for the analysis presented here.

    Concerning Ancient Greek, Anagnostopoulou and Sevdali 2015 argue that (at least some) dative and genitive arguments are "active" for Agree and have an uninterpretable case feature that can enter into an Agree relation with T (or Voice) under the right circum-

stances. They follow the m-case approaches of, e.g., Marantz 1991, Harley 1995, in which morphological case assignment is dissociated from the mechanisms of syntactic case assignment/DP licensing (i.e., Agree) and follows a disjunctive case hierarchy. The crucial Spell-Out rules for structural case in Greek according are as follows (I leave out the ones that are not directly relevant to the present discussion, e.g., the rules for genitive case):

(31)　　Structural case in Ancient Greek (Anagnostopoulou and Sevdali 2015: 467):

　　a.　[uCASE] → NOM iff the DP is not c-commanded by another structurally Case-marked DP (within the domain of finite T).

　　b.　[uCASE] → DAT iff the DP is c-commanded by another structurally Case-marked DP within the domain of finite T and is m-commanded by applicative v1 (benefactive/goal).

　　c.　[uCASE] → ACC iff the DP is c-commanded by another structurally Case-marked DP within the domain of finite T.

These rules straightforwardly result in the NOM-DAT-ACC-marking observed in benefactives and also derive the DAT-NOM alternation in active vs. passive structures such as (30). In self-benefactives, we now predict nominative case on the applicative argument: if there is no external argument introduced by Voice, the applicative argument is no longer c-commanded by another structurally Case-marked DP (see (31b)), and surfaces with nominative case. The case of the theme argument is not affected.

　　With this background, we can now return to deponents. My proposal is that their derivation proceeds similarly to that of self-benefactives, with the introduction of the surface subject below Voice. As in self-benefactives, this means that Voice will be spelled out as non-active because it does not introduce an external argument.[22] The difference is the thematic role of the surface subject: in self-benefactives, it is the benefactive argument that moves to subject position, while it is an agent argument in deponents.[23]

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[22]An anonymous reviewer points out that this raises the question of whether "low subjects" (benefactive arguments and "low agents") move through the empty specifier of VoiceP, or skip VoiceP entirely since it does not project. I have chosen the latter option for the self-benefactive structure in (28); the same would then hold for low agents. In this analysis, self-benefactives would be similar to Alexiadou et al. 2015's analysis of "marked anticausatives" in Greek in selecting expletive Voice without a specifier. The alternative, thematic non-active Voice with an implicit external argument, would not work without extra assumptions since neither self-benefactives nor deponents have implicit external arguments. See section 3.1 for a discussion of these different types of Voice heads.

[23]A version of the "movement analysis" of self-benefactives is briefly discussed in Alexiadou 2013 for Modern Greek in the context of her analysis of (transitive) deponents as experiencer verbs. However, as I have argued in section 2.3, deponents can not be synchronically analyzed as experiencer verbs, and the movement analysis of self-benefactives needs to be independently motivated. Note that I am not claiming that the "movement analysis" of self-benefactives holds for all languages, but it must hold for those with a Greek-type voice system in which self-benefactives take non-active morphology.

The development of such "low agents" is now straightforwardly interpretable as a diachronic reanalysis by which a benefactive argument is reanalyzed as an agent. This reanalysis is illustrated in (32). (32a) shows the structure of a self-benefactive before raising of the benefactive argument to subject position, (32b) shows the reanalyzed deponent structure, likewise before raising (the boxed DP is the one undergoing the reanalysis).

The derivation of a deponent verb is illustrated in (33).

(32)   a.

```
              VoiceP
            /        \
      Voice          ApplP_BEN
    [-ext.arg]      /         \
                 [BEN]      Appl_BEN
                          /         \
                     Appl_BEN        vP
                                   /    \
                                  v     Root
                                      /      \
                                   Root     THEME
```

b.

```
              VoiceP
            /        \
      Voice           XP
    [-ext.arg]      /    \
               [AGENT]    X
                        /   \
                       X     vP
                           /    \
                          v     Root
                              /      \
                           Root     THEME
```

(33)   Deponent:

```
              TP
            /     \
      AGENT_i      VoiceP
                 /        \
            Voice          XP
          [-ext.arg]     /    \
                    <AGENT>_i   X
                              /   \
                             X     vP
                                 /    \
                                vP    Root
                                    /      \
                                 Root     THEME
```
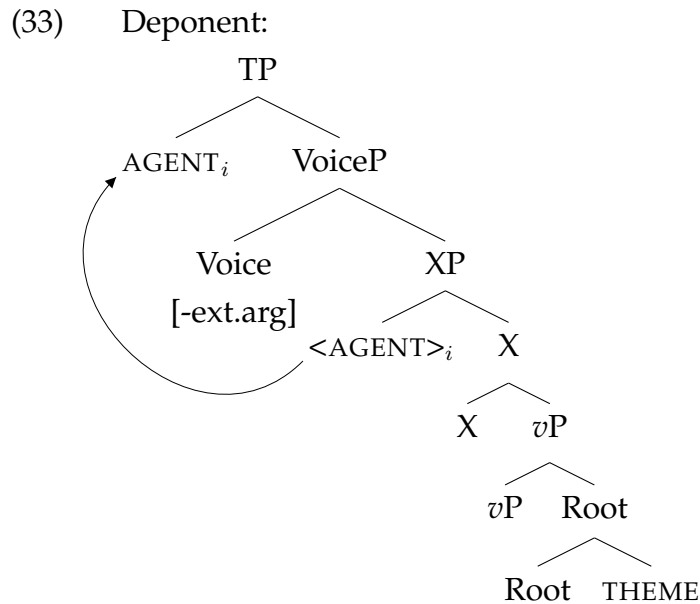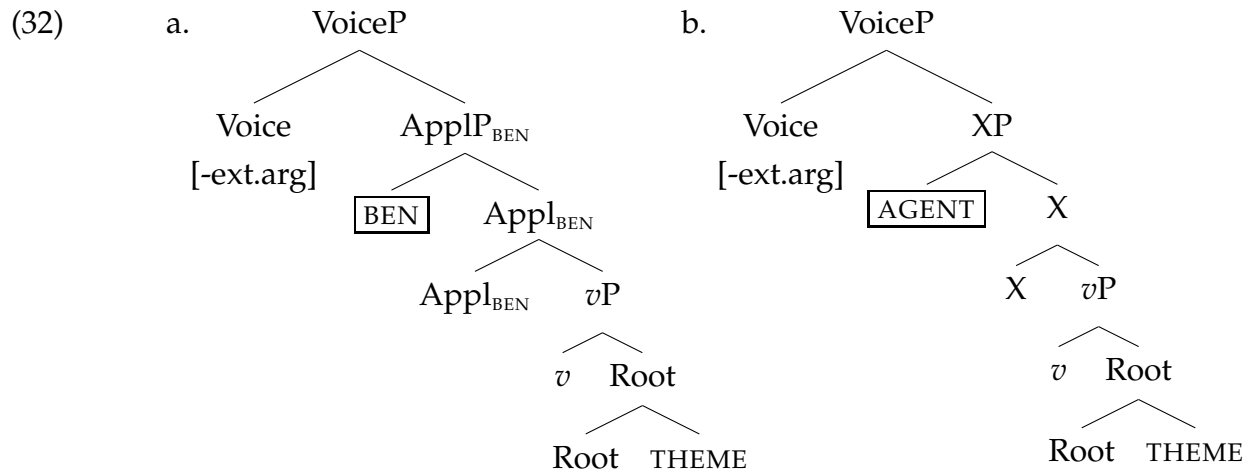
Case-marking along the lines of Anagnostopoulou and Sevdali 2015 would not be affected by this reanalysis, since the reanalyzed "low agent" would still have an uninterpretable case feature, like its benefactive predecessor, and therefore surfaces with nominative case according to (31a). Case on the theme would likewise be unaffected: the theme would be realized as ACC according to (31c), since it is still "c-commanded by another

29

structurally Case-marked DP within the domain of finite T" (that is, the "low agent" that has moved to SpecTP), and there is no reason to assume that the *syntactic* licensing of structural case has changed.[24]

To recap, while deponents cannot be analyzed as self-benefactives synchronically, as their surface subject is an agent rather than a benefactive argument (cf. section 2.3), a diachronic development from self-benefactives is very likely for many of them. The trigger for this development may have been the gradual loss of benefactive semantics of structures like (32a), resulting in (32b) in which "XP" is to be interpreted as a remnant of a "bleached" Appl$_{BEN}$ rather than as a new functional "low agent" projection. If there is no (self-)benefactive meaning that could serve as a cue for positing the presence of the projection Appl$_{BEN}$, a language learner would be confronted with a paradoxical situation in which an apparently agentive, transitive verb is marked with non-active morphology. Assuming that the learner has successfully acquired the canonical distribution of active and non-active morphology in her language, she can now either "correct" the apparent mistake and switch to active morphology (a common fate of agentive deponents diachronically) or posit a non-canonical non-active verb with a "low agent", since this would also be compatible with the mechanism that triggers non-active morphology. In the latter case, the learner has successfully acquired a deponent. The loss and creation of oppositional active forms in voice alternation verbs and the development of deponents is extensively discussed for Modern Greek in Lavidas and Papangeli 2007, Lavidas 2009, Zombolou 2004, Zombolou 2015.[25] These authors have provided evidence that if an alternating verb lost its morphologically active part of the paradigm on the way to Modern Greek, the non-active counterpart became vulnerable to reanalysis as formally active or formally non-active agentive verb. The same can be shown through comparative reconstruction for deponents in older Indo-European languages, many of which have arisen

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[24]In purely syntactic approaches to case assignment, in which nominative results directly from agreement with T and accusative from agreement with Voice, it might be expected that the low agent would intervene between Voice and the theme, thus blocking accusative case assignment to the theme. A way out would be to assume that themes agree with *v*P rather than VoiceP for accusative case, effectively dissociating accusative case assignment from the projection that introduces external arguments (potentially problematic given Burzio's generalization). However, these approaches would presumably also have problems deriving patterns such as (30), in which an apparently lexically-case marked DP agrees with T, and with the movement analysis of self-benefactives discussed above.

[25]Whether a given verb is "normalized" as active or survives as deponent is of course highly idiosyncratic and a variety of factors seems to play a role, including verbal semantics of a given active/non-active pair, time of acquisition, language contact and prescriptive pressure. Katis 1984: 135 provides some evidence from L1 acquisition of Modern Greek verbs that deponents are acquired with the same speed (and error rate) as other non-active verbs. However, Katerina Zombolou (p.c.) has pointed out to me that bilingual children and heritage speakers tend to "normalize" deponents more than non-bilingual L1 acquirers by turning them into morphologically active verbs (although some of these bilingual acquirers that "activize" deponents then go back to using non-active morphology after age 7).

from older canonical non-active verbs (self-benefactives or experiencer verbs). Thus the Vedic verb *ī́ṭṭe* 'implore, praise' (which makes an agent noun *īḍitár-* 'praiser') goes back to the same verb as Homeric Greek *aídomai* 'be reverent of, fear, be ashamed' (later replaced by *aidéomai*), suggesting that this was originally a psych verb with an experiencer subject.[26]

This "deponent reanalysis" is treated in more detail in Grestenberger 2016 and Forthcoming, but this brief sketch should suffice to show how Greek-type languages might acquire non-canonical "low agents" in a small number of cases.

3.4 Summary

The analysis of the diachrony of deponents outlined in this section explains their synchronic behavior and provides a relatively simple account of their diachronic development from canonical non-active verbs. I have argued that deponents in the narrow definition are indeed mismatch verbs: they surface with non-active morphology despite having an agent subject. This agent can be analyzed as non-canonical "low agent" due to a diachronic reanalysis of an erstwhile experiencer or benefactive argument. Given that VoiceP in Greek-type languages does not always introduce an external argument in the canonical position (recall Alexiadou et al. 2015's "expletive Voice"), this lack of a DP in Spec.Voice P of deponents does not cause the derivation to crash. Neither does the fact that the surface subject of deponents is base-generated below VoiceP and then moves to subject position, since this analysis is independently needed for non-active experiencer verbs and non-active unaccusative verbs.

We still need to assume that deponency is lexically specified in some way, but we can now do away with the need for a lexical [pass] or [NonAct] feature. Instead, deponents are verbs that select a Voice head that does not project a specifier ("expletive Voice", reflecting their origin as canonical non-active verbs), but that have an agent argument. The combination of these two properties causes the synchronic form-function mismatch.

This analysis of deponency also straightforwardly explains why some languages do not seem to have deponents in the narrow sense: in order to create the form-function mismatch, a language needs to have Voice morphology that is sensitive to the presence or absence of an external argument, like the Greek-type Voice morphology. Languages like English or French which lack this type of Voice morphology are therefore not expected to

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[26]According to Pesetsky 1995, SubjExp verbs like 'fear' are essentially unaccusatives; the experiencer is embedded in a locatival PP below VP. These verbs are therefore expected to surface with non-active morphology in Greek-type languages, and this is indeed the case, cf. Grestenberger 2014 and Forthcoming for more examples.

have deponents, which seems to be correct.[27]

In the next section, I provide additional evidence for this analysis through a discussion of the behavior of deponent participles and other deverbal nominals and adjectives. Given the analysis presented in this section, deverbal formations that include VoiceP are expected to preserve the form-function mismatch, even in non-finite contexts. I argue in the next section that the presence vs. absence of VoiceP is indeed an indicator of whether the voice mismatch surfaces in deponent participles.

4 Deponency in non-finite contexts

4.1 Introduction

The puzzle that we are now facing can be summarized as follows: At what point in the derivation of a given deverbal noun or adjective do we know that we are dealing with a "mismatch" form derived from a deponent verb? For example, the alternating Vedic root $\sqrt{n\bar{\imath}}$ 'lead' and the deponent root $\sqrt{tr\bar{a}}$ 'protect' are identical with respect to the morphosyntax of their agent nouns and verbal adjectives (columns c-d in table 13), but they differ in their voice morphology between their finite paradigm and their participles (columns a-b in table 13):

Table 13. Vedic alternating *nī* 'lead' vs. deponent *trā* 'protect'

$\sqrt{}$	a. 3sg.pres.	b. pres.ptcp.	c. verbal adj.	d. agent noun
nī	náy-a-**ti**	náy-a-**nt**- 'leading'	nī-**tá**- 'led'	ne-**tár**- 'leader'
trā	trá-ya-**te**	trá-ya-**māṇa**- 'protecting'	trā-**tá**- 'protected'	trā-**tár**- 'protector'

Based on this pattern, it is reasonable to assume that the voice mismatch that is observed in deponents is somehow linked to the presence of *verbalizing* morphology: for the "deponent root" *trā*, it is observed in all forms that contain the present stem-forming suffix *-ya-*, but is absent in those formations that are formed directly to the root. Assuming that verbal stem forming suffixes like *-a-* and *-ya-* in the Vedic examples in table 13 spell out the heads of functional projections that turn a category-neutral root into a verbal category (cf. Harley 2009's analysis of English *-ize*, *-ify*, etc., see also Harley 2005, 2011), it looks like the voice mismatch occurs whenever the verbal-eventive projection v is present.

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[27]See Schäfer 2008 and Alexiadou et al. 2015 for an analysis of SE-reflexives in Romance. While these are often equated with non-active voice in Greek-type languages and share many of their characteristics, these authors argue that SE-constructions differ structurally and are active during the syntactic derivation (they trigger ϕ-feature agreement), whereas non-active morphology is strictly postsyntactic. The lack of deponents in these languages confirms that their voice system must differ from that of Greek-type languages.

In the following sections I argue that *v*P is not enough, but that the mismatch forms also include VoiceP, and that their properties mirror those of the corresponding finite forms with respect to agency, transitivity, and adverbial modification. This is predicted by the analysis of deponents discussed in section 3, where I have argued that deponency is triggered by a non-canonical agent introduced below Voice which causes Voice to be spelled out as morphologically non-active. This analysis predicts how deverbal nouns and adjectives of deponent verbs will behave syntactically: if a nominal or adjectival suffix in a given language regularly attaches above VoiceP, deponent behavior should be preserved in the resulting formation, since it now includes the projection that triggers the mismatch. On the other hand, if a nominal or adjectival suffix does not include VoiceP below the attachment site, deponent behavior should be suspended in the resulting formation, since the "triggering" projection is absent.

4.2 Participles

Broadly speaking, participles are deverbal nominals (substantives or adjectives[28]) that are perceived to be integrated in a verbal paradigm as "non-finite verbal forms". They usually combine properties that would be characterized as nominal (e.g., nominal rather than verbal morphology) with "verbal" properties, like the ability to value structural case on direct objects and to take adverbial modifiers.

Research on nominalizations in the generative tradition (e.g., Alexiadou 2001, Anagnostopoulou 2003, Alexiadou et al. 2007, Alexiadou and Anagnostopoulou 2008, Baker and Vinokurova 2009, Baker 2011, Embick 1997, 2000, 2004b, Harley 2009, and the papers in Alexiadou and Rathert 2010, among others) emphasizes that the cross-linguistic differences in participial syntax (and the syntax of nominalizations more generally) result from the presence or absence of particular verbal functional projections below the attachment site of the participial morphology, that is, from selectional properties of particular affixes. However, the interaction of nominalizing and voice morphology has not explicitly been studied for most of the languages discussed here, nor has the behavior of verbs exhibiting a voice mismatch (deponents) in non-finite contexts.

The starting point for the following investigation is work by Anagnostopoulou and others on different types of participles in Modern Greek, especially Anagnostopoulou 2003, Alexiadou and Anagnostopoulou 2008 and Alexiadou et al. 2015. These authors argue that the differences in the syntax of the Modern Greek adjectival "passive" partici-

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[28] Since nouns and adjectives in the older Indo-European languages largely share the same inflection, I follow the Greek and Latin grammatical traditions in which "noun" was used as a cover term for both, with a subdivision into *nōmen substantīvum* 'substantival noun' and *nōmen adjectīvum* 'adjectival noun' in Latin. Hence the term "nominalization" includes participles and verbal adjectives here.

ples in *-menos* vs. *-tos* are due to the different attachment sites of the participial suffixes and the different functional projections included in these participles (on MG participles in general see also Holton et al. 1997: 234ff., Embick 1997: 134ff., Papangeli and Lavidas 2009). Anagnostopoulou 2003 shows that participles in *-menos* have event implications, whereas participles in *-tos* do not. For example, the participle *vras-menos* 'boiled' from *vrazo* 'boil' implies that there was a boiling event that resulted in the state of something having been boiled, whereas no such boiling event is implied by the participle *vras-tos* 'boiled', made from the same verb. This semantic difference correlates with different syntactic properties of *menos-* vs. *-tos*-participles: formations in *-menos* license manner adverbs, while those in *-tos* do not. Moreover, eventive/verbal passives in *-menos* license agent *by*-phrases, whereas stative (adjectival) passives in *-tos* do not. These different syntactic properties of the MG passive participles reflect different heights of attachment sites for the participial suffixes *-menos* vs. *-tos*. While *-tos* attaches directly to the root, *-menos* either selects *v*+Asp ("target state participles"), (34a), or *v*+Voice+Asp ("resultant state participles"), (34b) (trees below based on Alexiadou et al. 2015: 161, who essentially follow this analysis). This analysis explains the different properties of *-menos*$_{RES}$, *-menos*$_{TARG}$ and *-tos* participles in terms of their structural make-up.[29]

(34)   *menos*-participles (*anigmenos* 'opened')
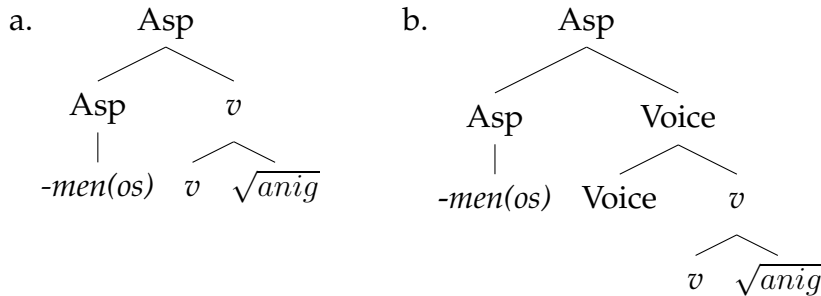
The difference between target state and resultant state participles is introduced to explain the variation in syntactic properties within *menos*-participles. Target state participles can be modified by the adverb *akoma* 'still', while result state participles which express an irreversible state are incompatible with *akoma*. Anagnostopoulou argues that this is because the resultant state operator RES that is found in irreversible states attaches above VoiceP in Greek, while the target state operator TARG attaches below VoiceP. This explains why *menos*-participles that are modified by *akoma* (target state participles) are incompatible with agent *by*-phrases, while result state participles are fine with them:

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[29]These authors follow Embick 2000 and 2004b in assuming that participial morphology spells out different verbal functional heads if movement to a higher functional category is blocked, rather than spelling out a designated *nominal* functional category (e.g., "PtcpP", "nP", "AdjP", etc.).

(35)   Anagnostopoulou 2003: 22 (ex. (70)):

Ta lastixa itan   (*akoma) fuskomena apo tin Maria
the tires   were (still)   inflated   by   the Maria

'The tires were still inflated by Maria'

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

This analysis provides a cartography for "regular"' Modern Greek passive participles. It remains to be seen whether it has any consequences for the question of "voice mismatches" (a question not addressed by these authors). This question is of some relevance because of a reported observation in the literature concerning non-finite forms of deponent verbs. The observation is that some of these non-finite forms continue the "voice mismatch" introduced in section 2.2, displaying non-active morphology but active syntax, while others do not continue the mismatch. In this latter class, we find that deponents use the same nominal or adjectival morphology as agentive transitive non-deponents. In Modern Greek, this is the case for the passive participles -*tos* and -*menos*, leading Papangeli and Lavidas 2009: 207 to speculate "whether syntactic features on Tense play, after all, some role in the notion of deponency" because "adjectival participles, constructions without Tense, do not display a deponent behavior" (ibid.). Pesetsky (2009) elaborates on their suggestion and claims that "Untensed forms of deponent verbs show non-passive morphology" (p. 213). Building on Pesetsky and Torrego (2007)'s idea that verbs are usually lexically valued for T, he then argues that Latin deponents are "defective verbs that are *lexically* unable to bear T under any circumstances" (p. 217). They therefore cannot agree with the head Tns to value its interpretable, but unvalued T-feature and the copula has to be used instead to "rescue" Tns. This account predicts that deponents always surface as *analytic* constructions with active syntax in environments that are +Tns, but have non-deponent behavior in environments that are -Tns. This is wrong on both accounts. As I show in the following sections, deponent behavior is *not* suspended across the board in non-tensed environments. Moreover, deponents do not generally surface as analytic constructions. Pesetsky is forced to argue that the Latin synthetic *r*-forms (the non-active endings found on passives and deponents alike) are underlyingly analytic constructions that have incorporated the copula, possibly expressed as the final *r*-morpheme of the Latin passive. However, the comparison with other languages with similar voice systems shows that Latin is actually exceptional in having an analytic per-

fect passive,[30] and that deponents in Vedic, Ancient Greek, Hittite, and Modern Greek consistently have synthetic non-active forms (and synthetic perfect passives, if they have perfect passives at all). In other words, treating precisely the synthetic non-active forms in Latin as unexpected is unsupported by the comparative evidence.

To clarify the syntactic behavior of deponent participles, I divide the relevant formations into whether the mismatch is suspended or not, starting with "mismatch suspension" in section 4.3. The comparative evidence shows that Tense is not the decisive factor that determines deponent behavior.

For reasons of space, I concentrate on a handful of suffixes in each language, namely verbal adjectives and participles similar to the ones discussed by Anagnostopoulou 2003 and agent nouns. The following survey is therefore representative rather than exhaustive.

4.3 Mismatch suspended: VoiceP excluded

4.3.1 Agent nouns

Deponents behave like formally active agentive verbs and form agent nouns, using the same suffix as the regular active verbs in Vedic, AG, MG, Hittite, and Latin. In other words, from a given agent noun alone it is not possible to tell if the corresponding finite verb is formally active or formally non-active (deponent). Since I have already discussed deponent agent nouns in section 2.3.2 as evidence that deponents are agentive, I will keep the following discussion short. Recall that we have seen examples of agent noun formation from Vedic, Ancient Greek, Latin, and Modern Greek, repeated in (36).

(36)   Deponent agent nouns

    a.   Vedic: *trā-tár-* 'protector' (*trā́yate* 'protects'), *kṣat-tár-* 'server' (*kṣádate* 'serves, prepares').

    b.   Ancient Greek: *rū-tḗr* 'protector' (*érūmai, rúomai* 'protect, guard'), *lōbē-tḗr* 'slanderer' (*lōbáomai* 'slander').

    c.   Latin: *hortā-tor* 'inciter' (*hortor* 'urge, incite'), *vēnā-tor* 'hunter' (*vēnor* 'hunt').

    d.   Modern Greek: *ekmetalef-tis* 'exploiter' (*ekmetalevome* 'exploit'), *hiris-tis* 'user, manipulator' (*hirizome* 'use, manipulate').

There is no "mismatch" between morphology and syntactic function in (36): the same agent noun morphology is used for formally active and formally non-active agentive

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[30]Sanskrit also develops a periphrastic perfect construction in the late Vedic period in which active and non-active morphology are expressed on the copula, cp. Kiparsky 2005. Periphrastic perfects of deponents preserve the voice mismatch.

verbs. This is expected under the analysis of Baker and Vinokurova 2009, who argue that agent noun suffixes are semantically similar to Voice and select the same types of verb phrases (*v*P) that Voice selects. That is, Voice and agent noun morphology never co-occur because they occupy the same structural position. While other accounts of agent nominalizations assume that VoiceP is part of the structure of an agent noun (e.g., Alexiadou and Schäfer 2010, Roy and Soare 2014), Baker and Vinokurova provide arguments against such an analysis based on evidence from the Turkic language Sakha, but more widely applicable. They show that agent noun morphology can only combine with verbs that can be passivized (that is, it is in complementary distribution with the overtly expressed passive Voice head and cannot co-occur with passive morphology), and can only select the same verbal projections that Voice can select. Since Negation and Aspect are higher than Voice, agent noun morphology is likewise incompatible with it. The lack of Voice also explains the incompatibility of agent nouns with adverbial modification and the lack of structural (accusative) case assignment.[31] If Voice is the projection responsible for deponent behavior, agent nominalizations are not expected to be sensitive to deponency under this account—and indeed they are not.

4.3.2 Verbal adjectives

Deponent and non-deponent active verbs also pattern together with respect to root-derived ("stative") adjectives in which the suffix attaches directly to the root (cf. the Modern Greek adjectival or "stative" participle in *-tos* discussed above). These are called "verbal adjectives" in the Indo-Europeanist literature and have an apparent passive reading if made to transitive verbs, but an intransitive reading with intransitive verbs. The verbal adjectives of deponents pattern with active transitive verbs in having a passive reading. This is again consistent across these languages.

In Vedic, verbal adjectives are formed with the suffix *-tá-* (cf. AiG II,2: 551ff., Jamison 1990). Table 14 compares verbal adjectives made from formally active, transitive verbs to verbal adjectives made to (transitive) deponents. As in the case of the agent nouns above, the formations made to deponents and non-deponents are indistinguishable, both morphologically and syntactically (both are "passive"/object-oriented). The Ancient Greek suffix *-tós* patterns the same way, as illustrated in table 15 (cf. Risch 1974: 19ff.).

Table 14. Vedic verbal adjectives in *-tá-*

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[31]Assuming that structural case on the object is linked to the projection that introduces the external argument (Burzio's generalization) and adverbial modification takes place above *v*P/VP, as these authors do. See also fn. 24 above.

active		deponent	
root	verbal adj.	root	verbal adj.
han 'slay'	*ha-tá-* 'slain'	*gras* 'devour'	*gras-itá-* 'devoured'
vac 'speak'	*uk-tá-* 'spoken'	*bādh* 'beset'	*bādh-itá-* 'beset, hemmed in'
pā 'drink'	*pī-tá-* 'drunk'	*labh* 'take'	*-lab-dha-* 'taken' (< *labh-ta-*)

Table 15. Ancient Greek verbal adjectives in *-tós*

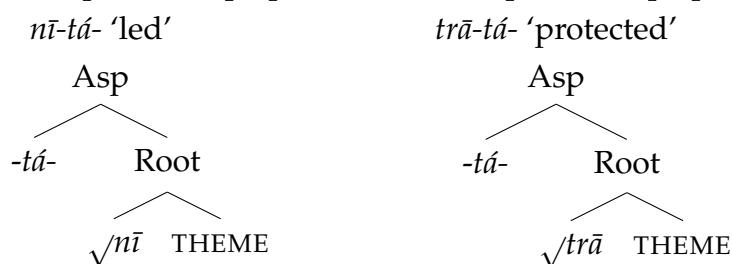| active		deponent	
verb	verbal adj.	verb	verbal adj.
títhēmi 'place'	*the-tós* 'placed'	*ex-aínumai* 'choose'	*éx-ai-tos* 'chosen; choice'
poiéō 'make'	*poiē-tós* 'made'	*mnáomai* 'woo'	*mnēs-tḗ* 'wooed one' (f.)
tetraínō 'pierce'	*trē-tós* 'pierced'	*eúkhomai* 'pray'	*euk-tós* 'prayed for, desired'

Hittite moreover exhibits the same pattern with an etymologically unrelated suffix, *-ant-*, which has the same syntax as the verbal adjectives in *-tá-* and *-tós-* in Vedic and Greek (see Hoffner and Melchert 2008: 339ff. on Hitt. *-ant-*):

Table 16. Hittite *-ant-*formations

active		deponent	
verb	verbal adj.	verb	verbal adj.
epp-/app- 'seize'	*app-ant-* 'seized'	*parš(i)-* 'break'	*paršiy-ant-* 'broken'
pai-/pi- 'give'	*piy-ant-* 'given'	*ḫuett(i)-* 'pull'	*ḫuetti-ant-* 'pulled'
tarupp- 'assemble'	*tarupp-ant-* 'assembled'	*tuḫš-* 'cut off'	*tuḫš-ant-* 'cut off'

As already mentioned, Anagnostopoulou 2003, Alexiadou and Anagnostopoulou 2008 and Alexiadou et al. 2015 argue that MG *tos*-participles ("stative participles") take a bare Root complement. This derives a number of properties of stative participles: only the internal argument is included in the nominalization, deriving the "theme-orientedness" of these formations which generally treat (unaccusative) intransitive subjects and transitive objects alike and causes the apparent "passive" reading of these participles. Since neither verbalizing morphology (associated with *v*P) nor VoiceP are present in these stative participles, deponents are predicted to pattern with regular transitive verbs with respect to their syntactic properties. I illustrate this for the Vedic verbal adjectives ("stative participles") in *-tá-*, based on the analysis of Alexiadou et al. 2015 for MG *-tos*. Besides MG *-tos* and Vedic *-tá-*, this is also the structure of the Ancient Greek *to*-participle.

(37)   a. Vedic non-deponent *tá*-pctp.:   b. Vedic deponent *tá*-ptcp.:

         nī-tá- 'led'   *trā-tá-* 'protected'

                 Asp   Asp
              ╱   ╲   ╱   ╲
          -tá-   Root   *-tá-*   Root
                  ╱   ╲   ╱   ╲
               √*nī* THEME   √*trā* THEME

Both the deponent and the non-deponent *tá*-participle have the same "passive" reading because the only argument included below the suffix is the internal argument. Deverbal formations that do not include Voice are therefore "neutral" with respect to deponency. This explains the intuition outlined above: we cannot tell a deponent from a non-deponent root in the absence of verbalizing morphology.

The Hittite *ant*-participle furthermore offers crucial evidence that it is the presence of VoiceP, rather than just *v*P, that determines whether mismatch behavior surfaces. Contrary to its Greek and Vedic counterparts, it does contain verbalizing morphology (albeit not always overtly).

Table 17. Hittite *-ant*-formations from verbal stems

	verb		verbal adj.	
a.	*ḫark-Ø-zi* perish-V-3SG.PRES	'perishes'	*ḫark-Ø-ant-* perish-V-PTCP-	'perished'
b.	*ḫark-nu-zi* perish-V-3SG.PRES	'causes to perish, destroys'	*ḫark-nu(w)-ant-* perish-V-PTCP-	'destroyed'
c.	*nēwa-ḫḫ-i* new-V-3SG.PRES	'renews'	*nēwa-ḫḫ-ant-* new-V-PTCP-	'renewed'

Deponent *ant*-participles in Hittite are always passive, suspending the mismatch. The Hittite *ant*-participle therefore shows that it is Voice, and not *v* alone, that is responsible for deponent behavior.

4.4 Mismatch continued: VoiceP included

In the previous section, we have seen cases in which non-finite formations to "deponent roots" are morphologically and syntactically indistinguishable from those of non-deponent roots. In this section, I discuss cases in which deponent participles are distinct from non-deponent participles and continue the mismatch between voice morphology and syntax.

4.4.1 Vedic and Ancient Greek

Both Vedic and Ancient Greek have distinct active and non-active participial morphology in their present, aorist, and perfect paradigms. The Vedic participle suffixes are the active suffix *-ant-/-at-* and the non-active (middle) suffix *-āna-/-māna-*. The Greek active participle is formed using the suffix *-(o/e/a)-nt-*, the middle participle with the suffix *-(o/a)-menos*. In both languages, the general principle is that finite active verbs select the active participle suffix to make their participles, and finite middle verbs select the formally middle participle suffix. However, if finiteness ("finite T") were a necessary precondition for the suspension of mismatch behavior, we would expect deponent participles to either pick the active participial suffixes in these languages (in accordance with their active syntax) or retain non-active morphology and change their syntactic behavior to correspond to it.

In fact, we find that the mismatch is continued. Deponent participles always select the *middle* suffix, but behave just like the corresponding finite forms with respect to their "active" syntactic properties, illustrated for Vedic in (38).

(38)   Deponent *dáyate* 'distributes', RV 1.130.7d-g:

atithigvā́ya   śámbaraṃ   girér   ugró   ávābharat
Atithigva.DAT Śambara.ACC mountain.ABL mighty.NOM push.down.3SG.IPF
mahó   **dhánāni dáyamāna**   **ójasā**
great.ACC prizes.ACC distributing.PTCP.PRES.NACT.NOM.SG strength.INSTR
víśvā   dhánāny ójasā
all.ACC prizes.ACC strength.INSTR

"The strong one brought down Śambara from the mountain for Atithigva, the great one distributing riches with his strength – all riches with his strength."

The participle *dáyamāna-* 'distributing' behaves exactly like its corresponding finite verbal forms with respect to transitivity and agentivity (note also the instrumental NP *ójasā* 'with strength' used as an agent-oriented adverb). The same is true of Ancient Greek deponent participles:

(39)   *dízēmai* 'seek sth.' : ptcp. *dizḗmenos* 'seeking', Od.1.261-2:

ṓikheto   gàr kaì keîse thoês   epì vēòs   Odusseùs   **phármakon**
go.3SG.IPF PART and there swift.GEN on ship.GEN Ulysses.NOM poison.ACC
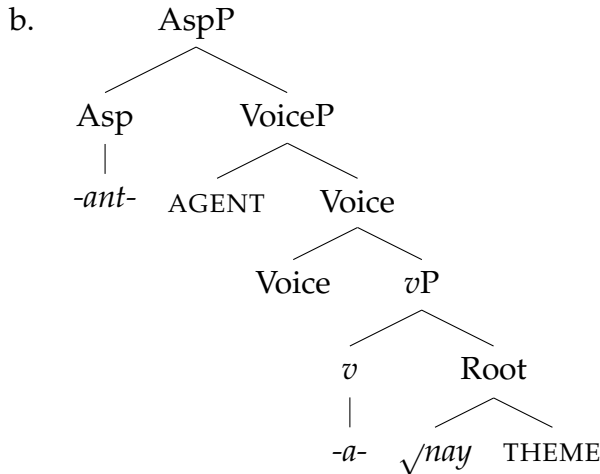**androphónon   dizḗmenos**
men.slaying.ACC seeking.NOM

'And so Ulysses went there on his swift ship, seeking men-slaying poison."

The participle *dizémenos* behaves like a syntactically active participle in all but morphology, corresponding to the syntactic behavior of the finite forms of the same verb.
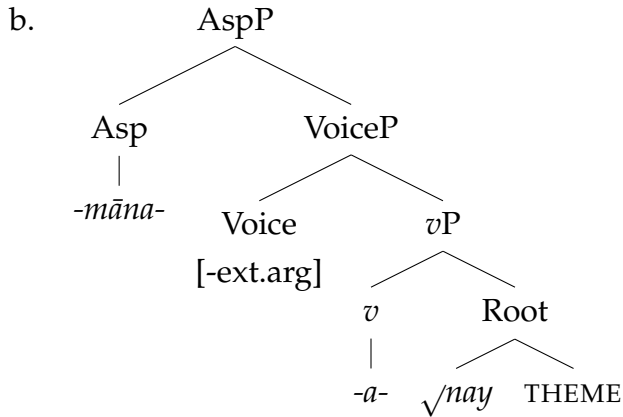
To summarize, the distribution of the active/non-active allomorphs of the participial suffixes of Greek and Vedic is essentially parallel to the distribution of voice morphology in finite contexts: The resulting participles take accusative case objects[32] and show "active" behavior if the corresponding finite forms are syntactically active as well. This suggests that the Vedic and Greek participial suffixes act. *-ant-*, non-act. *-(m)āna-* (Vedic) and act. *-nt-*, non-act. *-menos* (Greek) incorporate (at least) the projection VoiceP. Their structure is exemplified in (40) and (41) for the alternating Vedic root *nī/nay* 'lead' (cp. column b in table 13):

(40) a. *náy-a-nt-*
          lead-V-ACT.PTCP-
          'leading'

   b.

```
              AspP
             /    \
          Asp      VoiceP
           |      /      \
         -ant-  AGENT    Voice
                        /     \
                     Voice     vP
                             /    \
                            v     Root
                            |     /    \
                           -a-  √nay   THEME
```

(41) a. *náy-a-māna-*
          lead-V-PTCP.NACT-
          'driving (leading oneself)

---

[32]I interpret this to mean that the functional projection that licenses structural case on the object is the same as in the corresponding finite forms (VoiceP or *v*P, cf. fn. 24). Under the m-case approach of Anagnostopoulou and Sevdali 2015 discussed in section 3.3, the realization of this structural case as ACC would depend on the presence of another structurally case marked DP within the domain of finite T. However, the present analysis depends on the impossibility of verb movement to finite T, resulting in the Spell-Out of the verb in Asp in its participial form. I would therefore assume that these participial adjuncts are similar to Modern Greek gerunds in lacking CP and TP (as shown by Tsimpli 2000), but that they adjoin to the TP of the matrix clause and are therefore in the required c-command domain of the subject of the matrix clause, as in ex. (38) and (39) in the main text. The literature on Vedic and Greek participles in adjunct position is scant (they do not occur in periphrastic tense/aspect constructions), with the notable exception of Lowe 2015, and for reasons of space I must leave the details of this analysis to future research.

b.

```
                    AspP
              ┌──────┴───────┐
            Asp            VoiceP
             │          ┌────┴─────┐
          -māna-      Voice        vP
                    [-ext.arg]  ┌───┴────┐
                                v       Root
                                │      ┌──┴───┐
                               -a-   √nay  THEME
```

The participial suffixes *-ant-* and *-(m)āna-* are therefore allomorphs of the same functional head Asp in (40) and (41). The Spell-Out rules for Vedic and Greek participles can be summarized as follows (cf. Embick 2000: 218), parallel to the Spell-Out rules for finite active and non-active verbal forms (cf. table 11):
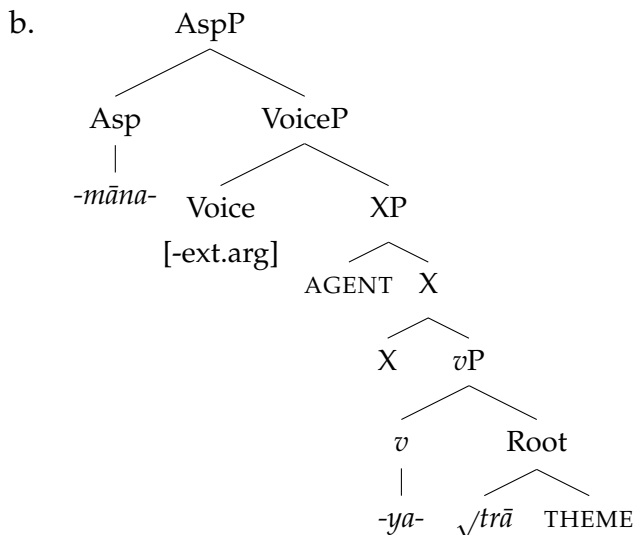
(42)   Spell-Out rules for Vedic & Greek participles:

    a.   Asp: Ved. *-(m)āna-*, CG *-menos* ↔ Voice[-ext.arg]

    b.   Asp: Ved. *-ant-*, CG *-(e/o/a)-nt-* ↔ elsewhere

In a deponent participle, the agent argument is introduced non-canonically below Voice, as in the finite forms. If verb movement to T does not take place, Asp is therefore spelled out as *-(m)āna-* by (42a), illustrated in (43) for Vedic.

(43)   Vedic deponent participle

    a.   *trā́-ya-māṇa-*
            protect-V-NAcT.PTCP-
            'protecting'

    b.

```
                 AspP
           ┌──────┴───────┐
         Asp           VoiceP
          │         ┌─────┴──────┐
       -māna-     Voice          XP
                [-ext.arg]    ┌───┴───┐
                            AGENT     X
                                   ┌──┴───┐
                                   X      vP
                                       ┌──┴────┐
                                       v      Root
                                       │     ┌──┴───┐
                                      -ya-  √trā  THEME
```

42

Deriving Vedic and Greek deponent participles is thus relatively straightforward: The mismatch is preserved because these participles include VoiceP, just as the corresponding finite forms. It should be noted that this parallelism is possible because these languages have distinct active and non-active non-finite morphology in their participial formations. What about languages in which there is no overt voice marking in its non-finite verbal morphology? Such languages would have different morphological values for Voice[+/-ext.arg.] in its finite paradigm, but the same participial morphology for both these values. The result would be that voice mismatches appear to be suspended in the non-finite forms of such as language, since both non-deponents and deponents use the same participial morphology. I argue in the next section that Latin is such a language.

4.4.2 Latin

Latin warrants special discussion because of the unexpected behavior of its participial formations. In the present tense, Latin uses the same participial suffix *-ns* (the active participle) both with deponent and with formally active verbs. Descriptively, the mismatch is suspended and the result is very similar to the cases discussed above: looking only at the present participles, one cannot tell whether a given participle is formed to a formally active or a deponent verb. The forms in bold in table 18 illustrate this pattern.

Table 18. Latin present & perfect participles

	Present			Perfect	
	act.	pass.	ptcp.	act.	pass.
Altern.	*am-ō*	*am-or*	**amā-ns**	*am-āv-ī*	*amātus sum*
	'I love'	'I am loved'	'loving'	'I have loved'	'I was loved'
Dep.		*sequ-or*	**sequē-ns**		*secūtus sum*
		'I follow'	'following'		'I have followed'

As already mentioned, this pattern has given rise to the idea that deponency is linked to finiteness. However, Latin *perfect* participles of deponents continue the mismatch behavior. They have descriptively non-active morphology (the suffix *-tus* is usually classified as a passive participle suffix), but are syntactically active. They can occur in transitive clauses with an accusative object and a nominative agent subject, e.g.:

(44)　　*sequor* 'follow', perf.ptcp. *secūtus* '(have) followed', Livy, *Ab urbe condita* 4.20.5:

　　　　omnēs ante　mē **auctōrēs**　　**secūtus**,　　　　　　…
　　　　all.ACC before me authors.ACC followed.PTCP.NOM.SG.M

exposuī
expound.1SG.PERF.ACT

"Having followed all authors before me, I have stated (that) ..." (not: "having been followed")

(45) *loquor* 'speak, say', perf. *locūtus sum* '(have) said': Plautus, *Trinummus* 563:

quid   hīc   **est locūtus**   tēcum?
what.ACC he.NOM is   spoken.PTCP.NOM.SG.M with.you

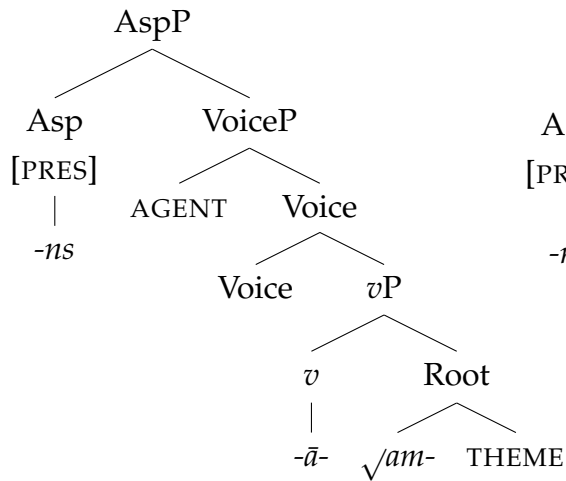"What did he discuss with you?" (not: "what has been discussed")

There is thus a discrepancy in Latin between the behavior of the present and the perfect participle: while the former apparently suspends the voice mismatch for deponent verbs (with the result that their present participles behave morphologically and syntactically like those of non-deponent active transitive verbs), the latter preserves it. This means that the Latin present "active" participle cannot be used as evidence that voice mismatches are generally suspended in non-finite contexts, since the perfect participle contradicts this, and we have already seen evidence from Vedic and Ancient Greek making the same point. In fact, the Latin present and perfect participles are similar to their Greek and Vedic counterparts discussed in section 4.4.1. The only additional assumption necessary for understanding Latin deponent present participles is that the participial suffix *-ns* is not sensitive to whether or not Voice has a specifier. In other words, Asp is spelled out as *-ns* in the context of a feature [pres] if movement to T is not possible, but the value of Voice is irrelevant. This is essentially the analysis of Embick 2000.

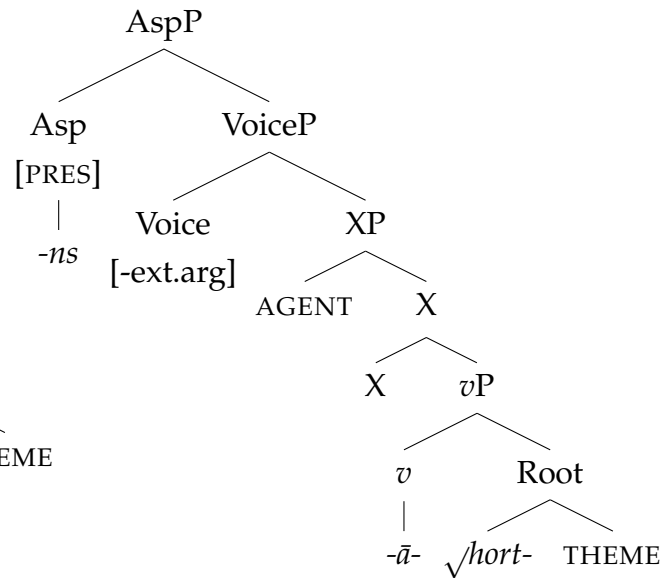(46)   Asp: -ns ↔ [pres] (Embick 2000: 218)

This means that non-deponent and deponent participles will surface with the same morphology, because *-ns* is simply not specified for active/non-active.

(47) Latin *ns*-participles:

a. Non-deponent: *amāns*

```
              AspP
         ┌─────┴─────┐
        Asp        VoiceP
      [PRES]      ┌───┴───┐
        |       AGENT   Voice
       -ns            ┌───┴───┐
                    Voice     vP
                          ┌────┴────┐
                          v        Root
                          |      ┌───┴───┐
                         -ā-   √am-   THEME
```

b. Deponent: *hortāns*

```
              AspP
         ┌─────┴─────┐
        Asp        VoiceP
      [PRES]      ┌───┴───┐
        |       Voice     XP
       -ns    [-ext.arg] ┌──┴──┐
                      AGENT    X
                           ┌───┴───┐
                           X       vP
                               ┌────┴────┐
                               v        Root
                               |      ┌───┴───┐
                              -ā-   √hort-  THEME
```

This analysis may seem counter-intuitive, given that Lat. *-ns* is usually analyzed as an *active* present participle, suggesting that it is associated explicitly with formally active finite verbs. However, it has long been noted that there are exceptions to the expected distribution of this "active" suffix, i.e., that *-ns* is used in contexts that are decidedly non-active. Concretely, the present participle of alternating verbs occasionally has the syntactic behavior of the corresponding non-active finite forms, in addition to that of the corresponding active finite forms (cf. Leumann 1977: 583):

(48)   a.   *vertēns* 'turning' (tr./itr.): *vert-ō* 'turn' (tr.) : *vert-or* 'turn' (itr.)
       b.   *volvēns* 'rolling' (tr./itr.): *volv-ō* 'roll' (tr.) : *volv-or* 'roll' (itr.)
       c.   *līquēns* 'fluid' : *līqu-or* 'become fluid, melt'

These exceptions provide additional evidence that the Latin "active" participle is in fact underspecified for Voice. Embick (2000) moreover argues that the same is true for the "passive" participle *-tus*. According to him, *-ns* and *-tus* are allomorphs of the head Asp in the presence or absence of the feature [pres] on Asp. Crucially, neither suffix is sensitive to whether or not Voice is non-active. The Spell Out rules for Asp (in the absence of movement to T) are thus as follows (again, based on Embick):
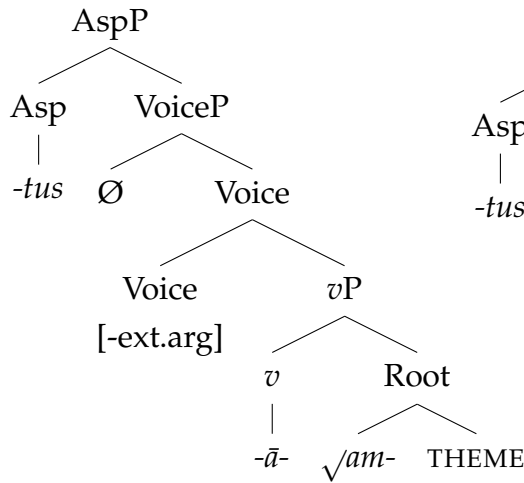
(49)   a.   *-ns* ↔ Asp[PRES]
       b.   *-t[us]-* ↔ elsewhere

Under this analysis, the "perfect passive" participle suffix *-t[us]* is therefore underspecified for both Voice and Aspect (as noted already by Brugmann 1895, see also Weiss 2009).
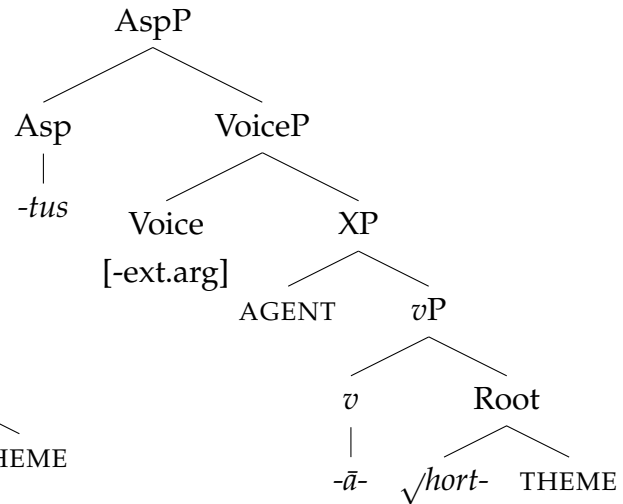
The derivation of a non-deponent/alternating and a deponent participle is illustrated in (50) for *amātus* 'loved' (non-deponent, syntactically passive) and *hortātus* 'having exhorted' (deponent, syntactically active).

(50)   *tus*-participles

a. Non-deponent: *am-ā-tus*

```
            AspP
           /    \
        Asp      VoiceP
         |       /    \
       -tus     Ø      Voice
                      /     \
                  Voice      vP
                [-ext.arg]   /  \
                            v    Root
                            |    /   \
                          -ā-  √am-  THEME
```

b. Deponent *hort-ā-tus*

```
            AspP
           /    \
        Asp      VoiceP
         |       /    \
       -tus   Voice    XP
            [-ext.arg] /   \
                   AGENT    vP
                           /  \
                          v    Root
                          |    /   \
                        -ā-  √hort- THEME
```

That *-tus* can have accusative case objects may be surprising, given that it is usually analyzed as "passive participle". However, examples like (44–45) show that this is undoubtedly a property of this suffix. This confirms that Voice must be part of this nominalization, unlike in other, superficially similar looking "passive" participles (cf. the discussion of Ved. *-tá-*, Gk. *-tós* below) which never value accusative case on direct objects. Moreover, these participles can be modified by manner adverbs, like "active" *ns*-participles (cf. Anagnostopoulou's diagnostics for Voice in participles in Greek and German in section 4.2 above; example from Embick 2000: 220):

(51)   *filius ūnicē   amā-tus*
        son   uniquely love-PERF.PTCTP.NOM.SG
        "uniquely loved son"

This analysis predicts that the Latin "passive" participle *-tus* made to alternating verbs should have both active and passive readings, parallel to *-ns* (cf. (48) above). There are indeed occasional forms that do behave like syntactically active participles, but these are relatively rare (Leumann 1977: 61f., Weiss 2009: 437), cf. (52) and (53a-b)):

(52) a. *cēnō* 'dine' : *cēnātus* 'having dined'

      b. *iūrō* 'swear' : *iūrātus* 'having sworn'

      c. (*pōto*) 'drink' : *pōtus* 'having drunk'

On the other hand, the view that the "perfect passive" participle is not necessarily "per-fective" or [+past] is well-supported. Brugmann (1895: 100ff.) cites a number of examples in which a Latin *tus*-participle behaves like a present participle, either active, as in (53a-b), or passive, as in (53c) (see also Embick 2000: 219ff. and Weiss 2009: 437 and fn. 45):

(53) a. *confīdō* 'trust' : *confisus* 'trusting'

      b. *taceō* 'am silent' : *tacitus* 'silent'

      c. *laudō* 'praise' : *laudātus* 'being praised'

Note that in (53a-b), the *-tus* participle occurs in the same syntactic context as a finite *active* verb (*confisus* means 'trusting', not 'trusted'), another indicator that *-ns/-tus* are not sensitive to whether or not Voice introduces an external argument.

To conclude this section, I have argued that Vedic and Greek show that deponent behavior is preserved in participles that include the projection VoiceP. This pattern is obscured in Latin because Latin participles display morphological syncretism for the values of Voice[+/-ext.arg.]. However, the syntactic behavior of Latin deponent participles shows that they must include VoiceP as well, and are thus structurally quite similar to their Greek and Vedic counterparts.

In the next section, I briefly return to Modern Greek deponent participles, since these have not yet been discussed from this perspective.

4.5 Modern Greek

We saw in section 4.2 that MG has two different types of "passive" participial suffixes, *-tos* and *-menos*. Deponent participles, both in *-tos* and in *-menos*, behave like the participles of non-deponent transitive verbs. For *-tos*, this is entirely expected: Alexiadou et al. 2015 analyze the stative participle suffix *-tos* as attaching directly to the root; it does not have event implications because it does not contain *v*P (see section 4.3.2). *-tos* occurs in negated participles of both deponent and non-deponent verbs and has the same syntactic behavior in both cases (ex. from Papangeli and Lavidas 2009: 201):

(54) a. Non-deponent *pleno* 'wash':

            pli-menos — a-pli-tos
            wash-ed   un-wash-ed

b. Deponent *metahirizome* 'use':

metahiris-menos — a-metahirist-tos
use-d   un-use-d

While this pattern is expected, what is unexpected is that *menos*-participles of deponents are passive, (55a), like *menos*-participles of transitive non-deponents, (55b):

(55)   a.   Deponent *metahirizome* 'use':

To   lexiko   ine metahirismeno
The dictionary.NOM is   used

"The dictionary is used"

       b.   Non-deponent *grafo* 'write':

To   gramma   ine grammeno
The letter.NOM is   written

"The letter is written"

According to Alexiadou et al. 2015, -*menos* can contain VoiceP in resultant state participles (cf. section 4.2). Therefore *resultant* state participles of deponent verbs should preserve the voice mismatch and have an *active* reading, since VoiceP and *v*P would be incorporated below the suffix. However, Anagnostopoulou 2003: 21ff. and Alexiadou et al. 2015: 157ff. argue that *target* state participles in -*menos* do not contain Voice and are incompatible with agentive *by*-phrases and agent-oriented adverbs. Building on this, Papangeli and Lavidas (2009: 201) argue that VoiceP is absent in deponent adjectival participles. The structure of a MG deponent participle in -*menos* is therefore as follows (cf. (34a)):

(56)

Asp
    / \
Asp   *v*
 | / \
-men(os)   *v* $\sqrt{(meta)hiris}$
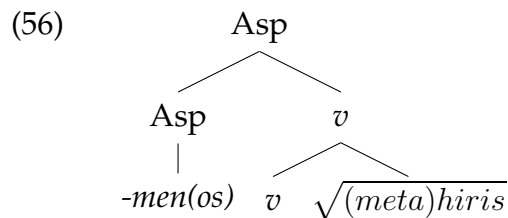
Anagnostopoulou 2003's diagnostics for target state participles with the structure (56) are (among others): 1) compatibility with *akoma* 'still', 2) compatibility with *parameno* 'remain', 3) no Voice-oriented adverbs like *prosektika* 'carefully'.

     Testing this with *menos*-participles of deponent verbs turns out to be difficult because not all MG deponents have well-formed passive *menos*-participles. Of the MG deponents that were tested (*metahirizome* 'use', *ekmetalevome* 'exploit', *episkeptome* 'visit', *ironevome* 'mock, make fun of', *eborevome* 'trade', *epititheme* 'attack'), only *metahirizome* has a *menos*-participle. However, this appears to be lexicalized in the meaning 'used, second-hand'. It

is incompatible with agent *by*-phrases and can be used with *parameno* 'remain' and *fenome* 'appear', (57a). Of the other deponents, the passive participle *ekmetalevmenos* is accepted as well-formed by some speakers, (57b):

(57)   a.   To lexiko   fenete   metahirismeno
            the dictionary appears used
            'The dictionary seems used'

       b.   ? O   ergatis paramene ekmetalevmenos
              the worker remains   exploited
            'the worker remains exploited'

To the extent that Anagnostopoulou's diagnostics are applicable, they indicate that deponent *menos*-participles do indeed lack VoiceP. They are therefore expected to pattern syntactically with the *menos*-participles of non-deponent transitive verbs, which is what they do.[33] This means that MG deponent participles actually pattern exactly as predicted given the hypothesis that voice mismatches are preserved when Voice is part of a given deverbal formation.

Table 19 summarizes the findings discussed in this section. I have argued that the suffixes in column (a) preserve the voice mismatch because they include VoiceP, while the suffixes in column (b) do not preserve the voice mismatch because they select *v*P or the bare root (resulting in an apparent "passive" reading for transitive verbs).

Table 19. Morphosyntax of deponent participles in "Greek-type voice systems"

	a. includes VoiceP	b. no VoiceP
act.	Gk. *-menos*, Ved. *-(m)āna-*, Lat. *-ns/-tus*	
pass.		Gk. *-tos*, Ved. *-tá-*, MG *-tos*, MG *-ménos*, Hitt. *-ant-*

This discussion of participles is of course not exhaustive, for reasons of space. There are many more deverbal nominal and adjectival formations in each of these languages whose behavior with respect to voice mismatches has not been discussed here, like the Modern Greek, Vedic and Latin gerunds or the Latin future participle. However, the

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[33]Modern Greek also has a "passive present participle" in *(-ó)menos* (Holton et al. 1997: 237; the accent is on the syllable preceding the suffix), which seems to belong to *Katharevousa* Greek and whose status with respect to productivity is unclear. Participles in *-ómenos* preserve the voice mismatch when formed to deponent verbs, e.g., *metahiriz-ómenos* 'using' (*metahirizome* 'use'), *epitithémenos* 'attacking; attacker' (*epititheme* 'attack'). For reasons of space, I must leave their analysis aside for now, but it is clear that they represent an archaism compared to the productive passive use of (accented) *-ménos*.

approach presented in this paper is easily extendable to all these formations and makes concrete predictions concerning their expected syntactic behavior.

5 Conclusion

Morphosyntactic "mismatches" can provide unique insights into how syntactic features interface with morphonological exponents. In this paper, I have argued for a "narrow" definition of deponency, a particular type of verbal form-function mismatch in which syntactically active, agentive verbs surface with (non-canonical) non-active morphology. Unlike the "broad" definition used previously (often implicitly) in the literature, this definition includes argument structure—deponents have agent arguments—and is based on previous work on the canonical functions of non-active morphology. I have argued that this mismatch arises when a non-canonical agent argument develops diachronically in certain predicates in a structural position other than the specifier of VoiceP (the canonical base position of agents). In "voice syncretism" languages in which Voice is spelled out as active or non-active depending on the presence/absence of an external argument in its specifier (along the lines of Embick 1998, 2004a, Alexiadou et al. 2015, etc.), this "low agent" will result in a descriptive mismatch between morphological form and (canonical) syntactic function.

This special status of "mismatch verbs" in languages with a Greek-type voice system means that their non-finite forms can serve as a diagnostic for the presence of functional structure below a given derivational suffix. I have provided evidence that the idiosyncratic behavior of deponents (active syntax, but non-active morphology) only surfaces when VoiceP is part of the derived noun or adjective. This explains why Vedic and Greek present and past participles, which are marked for active/non-active voice, continue the voice mismatch in their participles. I have argued (based on work by Embick) that the Latin present and perfect participles are structurally similar, but underspecified for Voice. Moreover, Modern Greek participles also conform to this generalization (to the extent that judgments are possible, given the limited productivity of deponent participles).

In non-finite formations in which Voice is absent, the mismatch is suspended. This is the case in stative participles in Vedic, Ancient Greek, Hittite, and Modern Greek, and generally in agent nominalizations. When it comes to non-VoiceP nominals, deponent verbs are morphologically and syntactically indistinguishable from agentive transitive non-deponent verbs. Deponent participles can therefore be used to detect morphosyntactic microvariation in the participial morphology of languages that display voice mismatches.

Future work should test the following predictions in non-Indo-European languages: a) only voice-syncretism/"Greek-type" voice languages have deponents in the narrow sense, b) in these languages, deponency surfaces in non-finite formations if these include the functional projection Voice.

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