Ancient Greek verbal morphology from a Modern (Greek) perspective

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1 Introduction

1.1 Voice syncretism and voice suppletion in AG

- Verbalizing and Voice morphology interact in complex ways in Ancient Greek (AG)—nonactive/"middle" endings occurs in a variety of contexts → **voice syncretism** (Embick 1998, 2004): same exponent in different (syntactic) environments.
  - Conveniently, the distribution has essentially remained the same in Modern Greek (MG).

(1) Canonical contexts of nonactive morphology in AG & MG

	a. Ancient Greek		b. Modern Greek	
	nonactive	active	nonactive	active
anticausative	*trépho-mai* 'am nourished, grow'	*tréph-ō*	*keome* 'burn' (itr.)	*keo*
refl./recip.	*loúo-mai* 'wash myself, bathe'	*loú-ō*	*plenome* 'wash myself'	*pleno*
selfbenefact.	*phéro-mai* 'carry for myself; win'	*pher-ō*	*promithevome* 'supply myself (with)'	*promithevo*
passive	*bállo-mai* 'am/get struck, hit'	*báll-ō*	*skotonome* 'am/get killed'	*skotono*

Passive = a canonical context/syntactic environment for nonactive morphology. But AG famously has an apparent "third voice" in the aorist, the *thĕ*-aorist ("passive aorist") → **voice suppletion**?

(2) AG aorist active, middle, passive of *lū́ō* 'release' (A = augment)

a. aorist act.	b. aorist mid./non-act.	c. **aorist pass.**
é-lū-s-a	*e-lū-sá-mēn*	*e-lú-thē-n*
A-release-PFV-1SG.PAST.ACT	A-release-PFV-1SG.PAST.NACT	A-release-PASS.PFV-1SG.PAST.ACT
"I released (sth./sbdy.)"	"I released for myself"	"I was released"

(3) Two types of passive: "inflectional" vs. "derivational" passive (cf.- Grestenberger Forthcoming):

a. Inflectional (present)	b. Derivational (aorist)
*lū́-o**mai***	*e-lú-**thē-n***
release-1SG.PRES.**NACT**	A-release-PFV.**PASS**-1SG.PAST.**ACT**
"I am/get released"	"I was released"

Relationship between inflectional and derivational passive apparently suppletive in the perfective stem forms (cf. Schwyzer 1939, Jankuhn 1969, Allan 2003, Rijksbaron 2006, van Emde Boas et al. 2019, etc.). → but why, and what does that tell us about the relationship between v and Voice in AG?

1.2 Today's goals

- Approach voice and verbalizing morphology in AG from a theoretical perspective—concretely, recent contributions to v/Voice in MG in Distributed Morphology.
- Discuss the different passivization types in AG and what they tell us about v, Voice, and Asp.
- Propose a uniform exponence of Voice in AG finite and nonfinite verbal forms.
- Address problematic categories such as the future passive and (semi)deponents.

2 Background

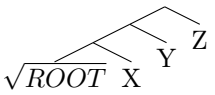
2.1 *v* and Voice

- **Voice**: the functional projection that introduces the external argument and its theta-role (agent; Kratzer 1996, Harley 2013, 2017, Alexiadou et al. 2015, Schäfer 2017, etc.).
- ***v***: the projection that categorizes roots as verbs ("verbalizer") and determines their aspectual semantics (inchoative, causative, stative, activity ...; Folli and Harley 2004, Harley 2011, 2013, 2017, Panagiotidis et al. 2017, Alexiadou and Lohndal 2017 etc.)

2.2 Locality and allomorphy in DM

- An ongoing debate concerning **locality conditions on allomorphy**: is allomorphy conditioned by strict node adjacency (with/out pruning; Embick 2010, 2012, ...) or by **spans** of ordered terminal nodes (e.g., Svenonius 2012, 2016)?
- ... in **Distributed Morphology (DM)**, non-lexicalist, realizational; word formation = syntactic head movement + postsyntactic linearization & Vocabulary Insertion (VI), cf. Halle and Marantz 1993, 1994, Marantz 1997, Harley and Noyer 1999, Embick and Noyer 2007, Embick 2010, 2015, etc.

(4)



(5) Insertion & node adjacency (Embick 2015: 178–9, cf. Bobaljik 2012, Merchant 2015)
   a. **Cyclic Locality**: Two morphemes can see each other for allomorphic purposes only if they are active in the same phase-cyclic domain.
   b. **Concatenation (linear adjacency)**: A morpheme X can see a morpheme Y for allomorphy only when X is concatenated with Y: $X^\frown Y$ or $Y^\frown X$
   c. **Insertion proceeds from the inside-out**: Vocabulary Insertion works from the inside out.

- **Inwards sensitive allomorphy**: realization of Y depends on (features of) X.
- **Outwards sensitive allomorphy**: realization of Y depends on (features of) Z.

→ Stem/root allomorphy in the MG verb has been used to argue *against* (Merchant 2015, cf. also Merchant and Pavlou 2017) and *for* (Christopoulos and Petrosino 2018) **strict node adjacency**, i.e., the version of locality that follows from (5b) (cf. Bobaljik 2000, 2012, Embick 2010, 2012).

2.3 Voice and stem allomorphy in MG

2.3.1 Merchant 2015

MG stem allomorphy as in (6) appears to be triggered by a combination of features on the adjacent heads Voice and Asp; this violates **node adjacency**.

(6) Stem suppletion in the MG suppletive verb *troo* 'I eat' (modified from Merchant 2015: 277; segmentation based on Rivero 1990, Holton et al. 1997, Spyropoulos and Revithiadou 2009.)

a. ACTIVE.IMPERFECTIVE.NONPAST		e. ACTIVE.PERFECTIVE.NONPAST	
1sg **tró**-o	1lp **tró**-me	1sg *fá*-o	1pl *fá*-me
b. NONACTIVE.IMPERFECTIVE.NONPAST		f. NONACTIVE.PERFECTIVE.NONPAST	
1sg **tróγ**-ome	1lp **troγ**-ómaste	1sg faγo-θ-ó	1pl faγo-θ-úme
c. ACTIVE.IMPERFECTIVE.PAST		g. ACTIVE.PERFECTIVE.PAST	
1sg é-**tróγ**-a	1lp **tróγ**-ame	1sg é-*faγ*-a	1pl *fáγ*-ame
d. NONACTIVE.IMPERFECTIVE.PAST		h. NONACTIVE.PERFECTIVE.PAST	
1sg **troγ**-ómun	1lp **troγ**-ómastan	1sg faγó-θ-ik-a	1pl faγo-θ-ík-ame

(7) Apparent VI rules for (6)
   a. $\sqrt{EAT}$ → fa(γ) / _ Voice[+act] Asp[+perf]
   b. $\sqrt{EAT}$ → faγo / _ Voice[-act] Asp[+perf]
   c. $\sqrt{EAT}$ → tro(γ)

→ violates node adjacency, assuming the standard order of functional projections in (8).

(8) $\sqrt{}$–*v*–Voice–Asp—T/Agr

Merchant's solution: **spans** of adjacent terminal nodes (see, e.g., Svenonius 2012, 2016)

(9) Definition of "span", Merchant 2015:
Let T be an ordered n-tuple of terminal nodes $\langle t_1, ..., t_n \rangle$ such that for all $t \in T, t = t_1$ or t is an element of the extended projection of t_1.
a. For all $k = 1...n, t_k$ is a span. (Every node is a trivial span.)
b. For any $n > 0$, if t_k is a span, then $\langle t_k, ..., t_{k+n} \rangle$ is a span.

(10) **Spanning Insertion Hypothesis**: A span and only a span can be targeted for VI

(11) **Span Adjacency Hypothesis**: Allomorphy is conditioned only by an adjacent span.

→ (7) can now be formalized: the allomorphs of the stem $\sqrt{}$+*v* are conditioned by (features of) the higher span Voice+Asp. The cost: Merchant is forced assume that Voice is realized in at least four different ways:

- as -*th*- in the context Asp[+pfv]: in the nonactive perfective past, e.g., *faγó-θ-ik-a* in (6).
- span $\sqrt{}$+*v*+Voice OR Voice[+act]+Asp[+pfv]: act. ppfv. nonpast, e.g., *dé-s-o* 'I will tie'.
- span $\sqrt{}$+*v*+Voice[-act]: nonact. pfv. past of "athetic verbs", e.g., *ká-ik-a* 'was burned'.
- span Voice+Asp+T/Agr: nonact. ipfv. past, e.g., *troγ-omun* 'I was being eaten' in (6).

> "Allomorphy is indeed conditioned locally, but not, as the Node Adjacency Hypothesis had it, only by feature of adjacent nodes; rather, it is conditioned by features in adjacent spans, whether or not those spans are themselves lexicalized by Vocabulary items." (Merchant 2015: 294)

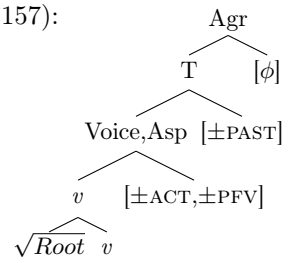
2.3.2 Christopoulos and Petrosino 2018

Christopoulos and Petrosino 2018 argue that Merchant's account misses a crucial generalization, formulated in (12) (based on Calabrese 2015b, Calabrese Forthcoming):

(12) Verbalizer/Root-Allomorphy generalization
If a verbal form shows root-allomorphy, the form lacks a verbalizer.

→ They suggest a language-wide, postsyntactic **rebracketing** of the nodes Voice and Asp (independent of their features).

(13) Rebracketing (Christopoulos & Petrosino 2018: 157):



- They argue that -*th*- realizes the fused node [+PFV,-ACT], while -*ik*- realizes [PAST] in the context [-ACT,+PFV] → necessary assumption because -*th*- and -*ik*- can occur independently (in the nonactive perfective past of "athetic" passive verbs, e.g., *ka-ik-a* 'was burned', *straf-ik-a* 'was turned', *traf-ik-a* 'was nourished', etc.).

(14) *serno* 'I drag' (Christopoulos and Petrosino 2018: 158)

	+ACT		-ACT	
3SG	-PFV	+PFV	-PFV	+PFV
-PAST	**ser**-n-i	**sir**-i	**ser**-n-ete	**sir**-th-i
+PAST	e-**ser**-n-e	e-**sir**-e	**ser**-n-otan	**sir**-th-ik-e

(15) a. $\sqrt{DRAG} \leftrightarrow$ *sir-* / _ [+PFV] b. $\sqrt{DRAG} \leftrightarrow$ *ser-*

Problems:

- No account of the expression of Voice on the *endings*, e.g., in the nonperfective active/nonactive forms in (6)—both Merchant and Christopoulos & Petrosino seem to predict *nonactive* endings in the *-th*-forms because of the [-ACT] feature on Voice
- ... but the distribution of endings really suggests that the "active" endings (1sg. present *-o*, past *-a* in (6)) are the "elsewhere" set.
  - Merchant assumes that nonactive is part of a portmanteaux suffix expressing Voice,Asp,T, cf. *troγ-ómun* in (6d)—but these endings maybe segmentable (Christopoulous & Petrosino).
- Deriving the root allomorphy in (15) works equally well assuming *ser-* is conditioned by whatever *-n-* is (v or Asp[-pfv]) and taking *sir-* as elsewhere → verbalizer/root-allomorphy generalization?

2.4 Summary

- Conditions on root/stem allomorphy, status of the active/nonactive endings (exponence of Voice?), status of pass.pfv. *-thika* etc. ... an ongoing debate in MG.
- ... these are also issues in Ancient Greek—comparison could be mutually informative.

3 Passive and Voice in Ancient Greek

3.1 Verbal stems & voice morphology

- Voice in AG is expressed on the finite verbal endings together with Person, Number, and Tense [±past].
- These endings combine with different **verbal stems**: present [-pfv, ±past], aorist [+pfv, +past], perfect [?pfv, ±past], future [±pfv, -past] and **moods** (subjunctive, optative, indicative, imperative).
  - I'll ignore the augment in the following—analyzed as T[+past] prefix by Reed (2014); on the augment in MG see Spyropoulos and Revithiadou 2009.
  - Perfect is analyzed as Asp[-aor, +perf] by Reed (2014), but a compositional solution (type of v + type of Asp) seems preferable.
- **Voice allomorphy**: endings are either **active** (ACT) or **nonactive** (NACT; a.k.a. **middle**).

(16) AG **active** ind. & nonfinite forms of *lū́ō* 'release' (dual, pluperf., imperatives excluded); preliminary segmentation.

	(a) pres.	(b) ipf.	(c) pres.subj.	(d) pres.opt.	(e) aor.	(f) aor.subj.	(g) aor.opt.	(h) perf.
1sg	lū́-ō	é-lū-on	lū́-ō	lū́-oi-mi	é-lū-s-a	lū́-s-ō	lū́-s-ai-mi	lé-lu-k-a
2sg	lū́-eis	é-lū-es	lū́-ēis	lū́-oi-s	é-lū-s-as	lū́-s-ēis	lū́-s-ai-s	lé-lu-k-as
3sg	lū́-ei	é-lū-e	lū́-ēi	lū́-oi	é-lū-s-e	lū́-s-ēi	lū́-s-ai	lé-lu-k-e
1pl	lū́-omen	e-lū́-omen	lū́-ōmen	lū́-oi-men	e-lū́-s-amen	lū́-s-ōmen	lū́-s-ai-men	le-lú-k-amen
2pl	lū́-ete	e-lū́-ete	lū́-ēte	lū́-oi-te	e-lū́-s-ate	lū́-s-ēte	lū́-s-ai-te	le-lú-k-ate
3pl	lū́-ousi	é-lū-on	lū́-ōsi	lū́-oi-en	é-lū-s-an	lū́-s-ōsi	lū́-s-ai-en	le-lú-k-āsi
Ptcp.	lū́-ōn m., lū́-ousa f., lū̃-on n.				lū́-s-ās m., lū́-s-āsa f., lū̃s-an n.			le-lu-k-ṓs, etc.
Inf.	lū́-ein				lū̃-s-ai			le-lu-k-énai

(17) AG **nonactive** ind. & nonfinite forms of *lū́omai* 'release for myself; deliver, redeem'

	(a) pres.	(b) ipf.	(c) pres.subj.	(d) pres.opt.	(e) aor.	(f) aor.subj.	(g) aor.opt.	(h) perf.
1sg	lū́-omai	e-lū-ómēn	lū́-ōmai	lū-oí-mēn	e-lū-s-ámēn	lū́-s-ōmai	lū-s-aí-mēn	lé-lu-mai
2sg	lū́-ēi	e-lū́-ou	lū́-ēi	lū́-oi-o	e-lū́-s-ō	lū́-s-ēi	lū́-s-ai-o	lé-lu-sai
3sg	lū́-etai	e-lū́-eto	lū́-ētai	lū́-oi-to	e-lū́-s-ato	lū́-s-ētai	lū́-s-ai-to	lé-lu-tai
1pl	lu-ómetha	e-lū-ómetha	lū-ṓmetha	lū-oí-metha	e-lū-s-ámetha	lū-s-ómetha	lū-s-aí-metha	le-lú-metha
2pl	lū́-esthe	e-lū́-esthe	lū́-ēsthe	lū́-oi-sthe	e-lū́-s-asthe	lū́-s-ēsthe	lū́-s-ai-sthe	lé-lu-sthe
3pl	lū́-ontai	e-lū́-onto	lū́-ōntai	lū́-oi-nto	e-lū́-s-anto	lū́-s-ōntai	lū́-s-ai-nto	lé-lu-ntai
Ptcp.	lū-ómen-os m., lū-omén-ē f., lū-ómen-on n.				lū-s-ámen-os m., -ē f., -on n.			le-lu-mén-os, etc.
Inf.	lū́-esthai				lū́-s-asthai			le-lú-sthai

- Goal: a consistent and uniform analysis of v and Voice in these forms.

3.2 Voice

- AG nonactive expresses typologically well-attested range of functions of nonactive/"reflexive"/"middle" morphology, cf. Geniušienė 1987, Klaiman 1991, Kemmer 1993, 1994, Kaufmann 2007, Alexiadou & Doron 2012.
- On AG, cf. Bakker 1994, Allan 2003, Grestenberger 2016, 2018, Forthcoming; on MG Embick 1997, 1998, 2004, Manney 2000, Zombolou 2004, Alexiadou and Anagnostopoulou 2004, Alexiadou 2010, 2013, 2018, Alexiadou et al. 2015, Zombolou and Alexiadou 2014; similarly in Modern Albanian: Rivero 1990, Kallulli 1999, 2006, 2007, etc.

(18) Spell-Out condition on nonactive morphology (Alexiadou et al. 2015 based on Embick 2004)
Voice → Voice[Nonact]/_ No DP specifier

Formalized as a feature [±D] on (different types of) Voice[1]

(19) Alexiadou et al. 2015, Schäfer 2017: Typology of Voice (modified):
  a. Active Voice: {$\lambda x \lambda e$[agent(e, x)], +D} (active)
    - Canonical active (transitive verb), active morph. in Greek-type languages
  b. **Medio-passive Voice: {$\lambda e \exists x$[agent(e, x)], -D}**
    - Morphologically non-active "short passive" in Greek-type languages
    - "unsaturated Voice": introduces an agent θ-role, but no external argument DP to saturate that role → agent = existentially bound
  c. **Medio-marked expletive Voice: {Ø, -D}**
    - Morphologically non-active anticausatives in Greek-type languages
  d. **Passive input Voice: {$\lambda x \lambda e$[agent(e, x)], -D}**
    - "unsaturated Voice": introduces an agent θ-role, but no external argument DP
    - → input for "high passive" Voice head (Bruening 2013) with an adjoined agent *by*-phrase which saturates the agent θ-role (Schäfer 2017, Bruening 2013)

(20) Spell-Out condition on nonactive morphology, revising (18):
T[ϕ,±past,Q] ↔ T[ϕ,±past,NONACT]/Voice[-D](...)⌢_

→ Q = placeholder variable for phonological exponence (Embick 2015); NONACT = nonactive allomorphs of T/Agr.

- (20) is now a context-sensitive insertion rule—but which version of locality applies?
- Crucially, **active morphology = elsewhere**, inserted when (20) does not apply.
  - In transitive causative and agentive verbs (because they have an external argument/are [+D])
  - In unaccusatives without a Voice layer, cf. (21) (see also Alexiadou and Anagnostopoulou 2004, Schäfer 2008, 2009, Alexiadou 2010, etc.)

(21) Active unaccusatives in Ancient and Modern Greek (*activa tantum*):
  a. AG: *eĩmi* 'go', *zóō* 'live', *mímnō* 'stay', *rhéō* 'flow', etc.
  b. MG: *asprizo* 'whiten' (tr./itr.), *plateno* 'widen' (tr./itr.), *reo* 'flow', *meno* 'stay', etc.

3.3 Nonalternating nonactive verbs (*media tantum*)

AG (like MG) also has a large class of verbs that do not alternate and take only nonactive morphology (*media tantum*). These mostly belong to the canonical classes illustrated in (1) and the nonalternating classes in (22).

[1] Alexiadou et al. 2015 and Schäfer 2017 use a privative feature D, but in order to formalize (18) correctly as a context-sensitive Spell-Out rule, the feature has to be binary, thus Voice[-D].

(22) Nonalternating nonactive 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[2]
f. **Deponents**: agentive, mostly transitive verbs with nonactive morphology → **form-function mismatch**, cf. Alexiadou 2013, Kallulli 2013, Grestenberger 2014, 2018, 2019.

- Are captured by (22) assuming (some version of) Schäfer's **expletive Voice** (Voice[Ø, -D]).
- For deponents, agent is introduced *noncanonically* below Voice[-D]; selection of nonactive allomorphs of T/Agr proceeds just like in regular alternating verbs.

3.4 Passive

Given our previous assumptions, nonactive morphology should canonically appear in (short and long) passives in AG, and this is indeed the case:

(23) a. Hom., *Il.* 6.56–7:

ẽ̃ soì **árista** **pepoíē̃-tai** katà oĩkon **pròs Trṓōn**
PTCL you.DAT best.NOM.PL.N do.PF-3SG.PRS.NACT towards house.ACC by Trojans.GEN

"(So) were the best things done to you in your house by the Trojans?"

b. Hom., *Il.* 11.309:

hṑs ára puknà karḗath' **hup' Héktori** **dámn-ato** laõ̃n
so then many.N heads.NOM.N by Hector.DAT subdue.IPFV-3SG.PAST.NACT men.GEN

"Thus many heads of the men were then subdued by Hector."

- **Problem #1**: Variation w.r.t. to the expression of the demoted agent in AG: different prepositions w. GEN or DAT on the NP, e.g., *hupó* + gen. 'from, under', *apó* + gen. 'from', *ek* + gen. 'out of', *pará* + gen. 'from', *prós* + gen., dat. 'from, by', etc., cf. Schwyzer 1943, Jankuhn 1969, Luraghi 2003, George 2005, Lavidas 2012, Grestenberger Forthcoming.
- **Problem #2**: Certain formally active unaccusative verbs like *(apo)thnḗ(i)skō* 'die' can occur with demoted agents, cf. (24) (s. e.g., George 2005, Anagnostopoulou and Sevdali 2015) → This has led to a certain skepticism as to whether agent adjuncts can be used to diagnose passive structures.

(24) Xen. Cyr. 7.1.48:

oud' autoí ge **apéthnēiskon** **hupó hippéōn**
NEG they PTCL die.IPF.3PL.ACT from cavalry.GEN.PL
"They were not killed by any of the [enemy's] cavalry."

3.5 Two types of passive?

In addition to passivization via nonactive morphology, AG also uses another strategy for passivization, which is restricted to the aorist/perfective stem (passivization via nonactive is unrestricted), cf. (25).

(25) Passive aorist forms of *lū́ō* 'release'

	(a) aor.	(b) aor.subj.	(c) aor.opt.	(d) aor.fut.	(e) aor.fut.opt.
1sg	e-lú-thē̄-n	lu-th-ṍ	lu-the-íē̄-n	lu-thḗ-s-omai	lu-thē̄-s-oí-mēn
2sg	e-lú-thē̄-s	lu-th-ē̃is	lu-the-íē̄-s	lu-thḗ-s-ēi	lu-thḗ-s-oi-o
3sg	e-lú-thē̄	lu-th-ē̃i	lu-the-íē̄	lu-thḗ-s-etai	lu-thḗ-s-oi-to
1pl	e-lú-thē̄-men	lu-th-ṍmen	lu-the-ĩ-men/lu-the-íē̄-men	lu-thē̄-s-ómetha	lu-thē̄-s-oí-metha
2pl	e-lú-thē̄-te	lu-th-ē̃te	lu-the-ĩ-te/lu-the-íē̄-te	lu-thḗ-s-esthe	lu-thḗ-s-oi-sthe
3pl	e-lú-thē̄-san (H. -th-en)	lu-th-ṍsi	lu-the-ĩ-en/lu-the-íē̄-san	lu-thḗ-s-ontai	lu-thḗ-s-oi-nto
Ptcp	lu-th-eís, lu-th-eĩsa, lu-thén			lu-thē̄-s-ómen-os, -ē̄, -on	
Inf	lu-thē̃nai			lu-thḗ-s-esthai	

[2]Generalizations w.r.t. canonical voice morphology are difficult for this class, cf. Kemmer 1993: 134, Grestenberger 2014 (for AG, e.g., active *aitéō* 'beg, demand', *phēmí* 'say', *kaléō* 'summon', etc.; nonactive *líssomai* 'beg, demand', *eúkhomai* 'praise, declare', *eíromai* 'ask', *kélomai* 'urge', *pséudomai* 'lie', etc.).

- The "passive aorist"/"**derivational passive** is formed with the suffix -*thĕ̄*-
  - Its allomorph -*ĕ̄*- becomes obsolete in Classical Gk./Koiné; in Homer it's primarily found with inchoative/anticausative verbs rather than with passives, cf. Tronci 2005, García Ramón 2014. Some verbs are attested with -*ē*- & -*thē*-, e.g., *e-tráph-ē-n* (Hom.) 'grew' (itr.) vs. *e-thréph-thē-n* (Hes.), *e-káē* (Hom.) 'burned' (itr.) vs. *e-kaú-thē* (Hdt.), etc. ... → MG "athetic" passives.
- -*thē*- is always adjacent to the root.
- **-*thē*- obligatorily cooccurs with the *active* set of endings**, (25a–c)
  - ... *except* in the (post-Homeric) future passive, (25d–e), on which more below.
- No functionalist "strengthening" explanation for the development of the passive aorist is going to work — active morphology by itself is not a canonical passivizer in AG (or MG).
- Inflectional & derivational passive cannot have the same type of Voice head, since the voice allomorphy (active/nonactive endings) is a result of different features on Voice (or the absence of Voice) in the approach outlined above (section 2.2).
- ... and if this is true, we would expect the "two types of passive" to behave slightly differently w.r.t. passivization diagnostics such as compatibility with demoted agents, control clauses, agent-oriented adverbs, maybe case on the subject, etc.

... but this does not seem to be the case: like the inflectional passive, the derivational passive occurs with demoted agents, (26); both behave the same w.r.t. promotion to subject (ACC, GEN, DAT objects → NOM subjects, cf. the examples in Anagnostopoulou and Sevdali 2015).

(26) Passive aorists with overt agent adjuncts (cf. (25) for the inflectional passive)

a. Hom., *Il.* 2.668–9:

trikhthà dè ŏikē-the-n kataphuladón, ēde
three.parts.ADV PTCL settle-PASS.PFV-3PL.PAST.ACT by.tribe.ADV and
phílē-the-n ek Diós (...)
love-V.PASS-3PL.PAST.ACT of Zeus.GEN (...)

"and they settled in three divisions according to tribe, and were loved by Zeus ..."

b. Hdt., *Hist.* 1.87.1:

eí **tí** hoi **kekharisménon eks autoũ e-dōrĕ́-thē** ...
if anything.NOM.N him.DAT pleasing.NOM of self.GEN A-give-V.PASS.3SG.PAST.ACT

"If anything pleasing had (ever) been given to him_i by him_j ..." (i = Apollo, j = Croesus of Lydia)

(27) Properties of inflectional & derivational passives in AG (Grestenberger Forthcoming)

Properties	infl.	deriv.
(Acc.)theme → nom.subj.	✔	✔
Demoted agent → dat.; prep. + gen./dat. case	?	?
Eventive	✔	✔
Subject-initial	✔	(✔)
Subject controls into infinitives	✔	✔
Subject controls reflexives	(✔?)	(✔?)

4 Analysis

4.1 Finite/nonfinite active/nonactive forms

4.1.1 Voice

- Goal: a uniform exponence of Voice across categories
- Assumptions:
  - Some version of (28) applies in AG (just like in MG), s. above:

    (28) Spell-Out condition on nonactive morphology:
    $T[\phi,\pm past,Q] \leftrightarrow T[\phi,\pm past,\text{NONACT}]/Voice[\text{-D}](...)\frown\_$

  - Order of functional projections: $\sqrt{}$–v–Voice–Asp–(Mod_{FUT}?)–(Mod_{OPT})–T/Agr
  - v+Voice = a **span**
  - The aorist, present, perfect "stem-forming" suffixes of AG (*-e/o-*, *-s(a)-*, *-n-*, *-nŭ̆-*, etc.) are, despite their designations as "aorist" and "present" suffixes, realizations of the span (verbalizing/event-related) v+Voice
  - they are licensed in the context of either Asp[+pfv] ("aorist stem") or Asp[-pfv] ("present" or "imperfective" stem). This accounts for their behavior as "low" verbalizers on the one hand (including their ability to trigger root allomorphy), and their relation to syntactic aspect on the other hand.
    - Alternatively, one could treat v+Voice+Asp as a span (cf. Caha and Ziková 2016 on the span v+Asp in Czech), at least for the purposes of conditioning allomorphy on T—crucially *not* for purposes of insertion (Spanning Insertion Hypothesis vs. Spanning Adjacency Hypothesis), cf. the discussion of participles below.

4.1.2 *v*

- Is AG a **Voice-bundling** language? (= are v/Voice one and the same head? Harley 2013, 2017) → No. (See Appendix)
- How should the theme vowel be analyzed? Several possibilities:
  - (i) Realization of v (e.g., Svenonius 2004, Slavic)
  - (ii) Adjoined to v (e.g., Oltra-Massuet 1999, Catalan, Calabrese 2015a, Italian)
  - (iii) Adjoined to T/Agr (E.g., Calabrese 2015a, Italian; ≈ Merchant 2015, Spyropoulos et al. 2015, MG)

→ probably (i) or (ii), for the following reasons:

- In complementary distribution with other verbalizers, (29a).
- Triggers root allomorphy, (29b).
- Acts as a "default verbalizer" for denominal verbs and contract verbs, (30).
  - Provided the contract verbs can/should be synchronically analyzed as denominal.
- allows for a (fairly) uniform segmentation of "thematic" and "athematic" (±past) endings → Appendix.

(29) a. Theme vowel & verbalizers

	-nŭ̆-	pres.RED	perf.	*-s(a)*-aor.	theme vowel
1pl	*deík-**nu**-men*	*tí*$_{RED}$*the-Ø-men*	*le*$_{RED}$*lú-**ka**-men*	*(e)lū́-**sa**-men*	*lū́-**o**-men*
	'show'	'set, place'	'release'	'release'	'release'
1pl	*zeúg-**nu**-men*	*mí*$_{RED}$*mn-**o**-men*	*dé*$_{RED}$*di-Ø-men*	*(e)gráp-**sa**-men*	*gráph-**o**-men*
	'yoke'	'stay'	'fear'	'write'	'write'

b. Theme vowel and root allomorphy

	pres	aor	perf	
1pl	*stéll-**o**-men*	*(e)steíl-a-men*	*e-stál-**ka**-men*	'send'
1pl	*phaín-**o**-men*	*(e)phḗn-**a**-men*	*(pe$_{\text{RED}}$phēn-**a**-men)*	'cause to appear, shine'
1pl	*derk-**ó**-metha*	*(e)drák-**o**-men*	*de$_{\text{RED}}$dórk-**a**-men*	'see'
1pl	*treph-**ó**-metha*	*(e)tráph-**o**-men*	*(te$_{\text{RED}}$tróph-**a**-men, te$_{\text{RED}}$tráph-**a**-men)*	'grow, become nourished')

(30) Denominal verbs

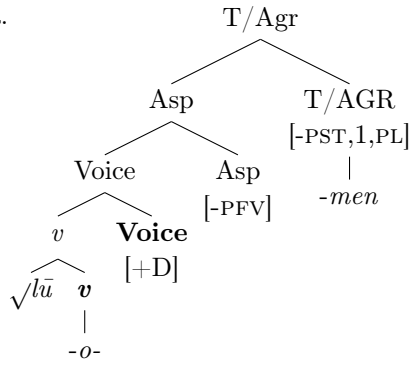
	base				base		
1pl	*basileú$_n$-**o**-men*	*basil-eú-s*	'king'	1pl	*poimaín$_n$-**o**-men*	*poimḗn*	'shepherd'
1pl	*timō̃-men < tīma$_n$-**o**-men*	*tīmá-, -é*	'esteem'	1pl	*salpíz$_n$-**o**-men*	*sálpi(n)g-*	'trumpet'

- Spyropoulos et al. 2015 and Panagiotidis et al. 2017 analyze MG *-ev-*, *-en-*, *-iz-*, etc. as verbalizers, as well as the "theme vowels" of verbs like *αγαpó* 'love', which are historically contract verbs. This is not incompatible with the account of (30) as synchronically denominal—rather, it suggests that the nominal suffixes in forms like (30) were reanalyzed as verbalizers on the way to MG (cf. Grestenberger and Kallulli Forthcoming for a parallel "upwards reanalysis" of *n* as *v* in denominal/diminutive verbs).
- Problem: "complex thematic" suffixes like *-n-e/o-* (*temnō* 'cut', *kamnō* 'work, toil', *pínō* 'drink', etc.), *-an-e/o-* (*harmartánō* 'miss, err', *lambánō* 'grasp, take', etc.), *-(i)sk-e/o-* (*gērásk̄o* 'grow old', *heurísk̄o* 'find', etc.)—evidence for adjunction to *v* à la Catalan, Spanish...?

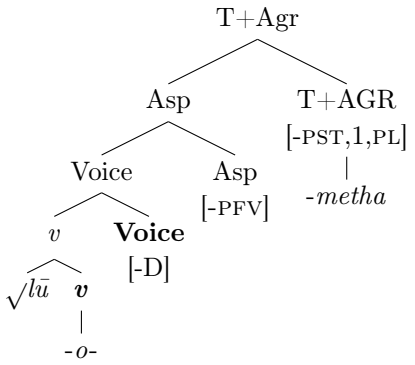
→ Given these assumptions, the present, aorist, and perfect act./nonact. will have the structures in (31).

(31) a. 1pl.pres.act. *lū́omen* 'we release', b. 1pl.pres.nonact. *lūometha* 'we release for ourselves/are released'

a.



b.



(32) Partial paradigm of AG *lū́ō* 'release' (augment excluded), nonactive = NAct

stem	structure & exponence
a. pr.act.	**lū**$_{\surd}$-**o**$_{v\frown\text{Voice[+D]}}$-Ø$_{\text{Asp[-pfv]}}$-**ō**$_{\text{T/Agr[1sg,-past]}}$ 'I release' [lúō]
b. pr.NAct.	**lū**$_{\surd}$-**o**$_{v\frown\text{Voice[-D]}}$-Ø$_{\text{Asp[-pfv]}}$-**mai**$_{\text{T/Agr[1sg,+NAct,-past]}}$ 'I release for myself'
c. aor.act.	**lū**$_{\surd}$-**s(a)**$_{v\frown\text{Voice[+D]}}$-Ø$_{\text{Asp[+pfv]}}$-**a**$_{\text{T/Agr[1sg,+past]}}$ 'I released' [(e)lūsa]
d. aor.NAct.	**lū**$_{\surd}$-**s(a)**$_{v\frown\text{Voice[-D]}}$-Ø$_{\text{Asp[+pfv]}}$-**mēn**$_{\text{T/Agr[1sg,+NAct,+past]}}$ '... for myself'
e. pr.subj.NAct.	**lū**$_{\surd}$-**o**$_{v\frown\text{Voice[-D]}}$-Ø$_{\text{Asp[-pfv]}}$-**o**$_{\text{Mod[subj]}}$-**mai**$_{\text{T/Agr[1sg,+NAct,-past]}}$ 'shall ...'

- T/Agr-exponence is conditioned by lower *span* (size can vary, see below).

4.2 The passive aorist

- AG *-thē-* does not realize Voice, but *v* in the context of Asp[+pfv], cf. Grestenberger 2016, Forthcoming. Evidence:
  - *-thē-* co-occurs with active endings—even assuming these are default/elsewhere endings, this is incompatible with having Voice[nonact] or Voice[-act] in the structure.
  - It is in complementary distribution with other *v*-elements/verbalizers, (34). Even if these were to be analyzed as exponents of Asp, this distribution would not be predicted.

– It is only licensed in a particular aspectual environment (+PFV), like other verbalizers, but *unlike* Voice morphology on the endings, which is compatible with all "tense-aspect" stems.

– If structures with *-(th)ē-* lacked Voice, we straightforwardly derive the obligatory active endings as elsewhere endings (cf. the active unaccusatives, section 3.2.)

– Confirmed by origin/diachrony of *-(th)ē-*: Homeric *-thē-* and especially its (older) allomorph *-ē-* form mostly non-passive, usually stative or inchoative, aorists, (33).

∗ Inchoative/anticausative *-(th)ē-* was originally a (de)nominal suffix (cf., e.g., Jasanoff 2004, García Ramón 2014); more specifically, *-ē-* reflects the instr.sg. ending of adjectival abstract nouns. If the Greek *ē*-verbs were originally denominal/deadjectival statives or inchoatives, this would explain why they didn't have a Voice head; Alexiadou and Anagnostopoulou 2004 show that MG unaccusative deadjectival verbs are always morphologically active, i.e., *activa tantum*, and argue that they consist of only a v_{BECOME} head that selects an AP.

(33) Non-passive *(th)ē*-aorists:

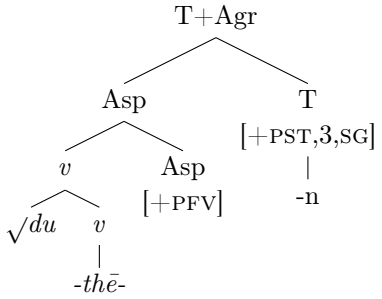
a. *e-rrú-**ē**-n* 'flowed, streamed' — A-flow-**V**/**PFV**-1SG.PST.ACT
b. *e-pág-**ē**-n* 'became fixed' — A-fix-**V**/**PFV**-1SG.PST.ACT
c. *e-krúph-**thē**-n* 'hid, became hidden' — A-hide-**V**/**PFV**-1SG.PST.ACT

(34) *-thē-* in complementary distribution with other *v*'s:

a. *dű-**n**-ō* 'sink' (sth.) — sink-**V**/**IPFV**-1SG.PRS.ACT
b. *é-dū-**s**-a* 'sank' (sth.) — A-sink-**V**/**PFV**-1SG.PST.ACT
c. *e-dú-**thē**-n* 'was sunk' — A-sink-**V**/**PFV**-1SG.PST.ACT

→ The fact that we get *edúthēn* instead of **edűsthēn* suggests a structure as in (35), with *-(th)ē-* spelling out *v*/_Asp[+pfv].

(35) AG 1sg. passive aor. *edúthēn* 'I was sunk'



→ What makes AG *-thē-* special is that it realizes *only* *v*, while other verbalizers realize a span *v*⌢Voice (irrespective of whether Voice has an external argument or not, i.e., [+D] or [-D]).

- Although occasional forms which seem to contain other overt stem-forming morphology are found already in Homer, e.g. *e-klí-n-thē-n* 'I sloped, fell' vs. *e-klí-thē-n* (both in Hom.); cf. Schwyzer 1939: 761f.—though many examples, including *e-klí-n-thē-n*, probably show original or reanalyzed roots rather than stems.

This analysis derives the aorist passive indicative, subjunctive, and optative in *-thē-*, (36), which are now correctly predicted to surface with active endings.

(36) Partial paradigm of AG *-thē-*forms

stem	structure & exponence
a. aor.pass.	$\mathbf{lu}_{\sqrt{}}$-$\mathbf{th\breve{e}}_{v}$-$\emptyset_{\text{Asp[+pfv]}}$-$\mathbf{n}_{\text{T/Agr[1sg,+past]}}$ 'was released'
b. aor.pass.subj.	$\mathbf{lu}_{\sqrt{}}$-$\mathbf{th\breve{e}}_{v}$-$\emptyset_{\text{Asp[+pfv]}}$-$\mathbf{o}_{\text{Mod[subj]}}$-$\bar{\mathbf{o}}_{\text{T/Agr[1sg, -past]}}$ 'may have been released' [luthō]
c. aor.pass.opt.	$\mathbf{lu}_{\sqrt{}}$-$\mathbf{th\breve{e}}_{v}$-$\emptyset_{\text{Asp[+pfv]}}$-$\mathbf{i\bar{e}}_{\text{Mod[opt]}}$-$\mathbf{n}_{\text{T/Agr[1sg,+past]}}$ 'might have been released'

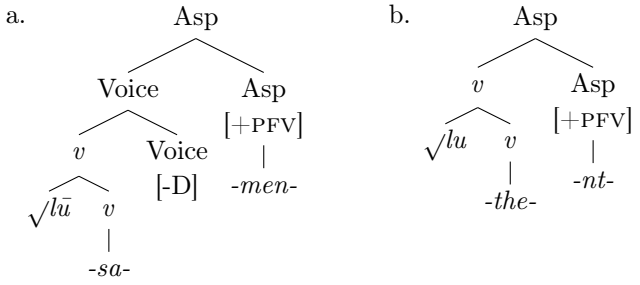
4.3 The participles

This analysis also derives various nonfinite forms of the AG verb. Assumptions:

- Participial suffixes like act./nonact. *-nt-* and *-men(os)* realize Asp when movement to/agreement with higher verbal functional projections is blocked (cf. Embick 2000, Bjorkman 2011, Alexiadou and Anagnostopoulou 2008, Alexiadou et al. 2015).

- The selection of the act./nonact. allomorphs of the participial suffixes is conditioned by the presence of Voice([±D]), like in the finite forms, accounting for their parallelism in aspectual semantics and valence (cf. Grestenberger 2017, 2018, based on Embick 2000).

(37) Participles of *lū́ō*: a. aor.nonact. *lū́sámen(os)* 'releasing for oneself/having released for oneself', b. pass.aor.ptcp. *lu-thé-nt-* (*lutheís*, *lutheîsa*, etc.) 'released'



(38) Vocabulary Items for AG participles (see Appendix for details)
   a. Asp ↔ *-men-*/Voice[-D] _
   b. Asp ↔ *-(e/o/a)-nt-*: elsewhere

- Crucially, we can maintain a consistent realization of v/Voice across finite and nonfinite environments with these assumptions (i.e., that Asp = Ø in the finite forms).

5 Open issues: a problematic future (passive)

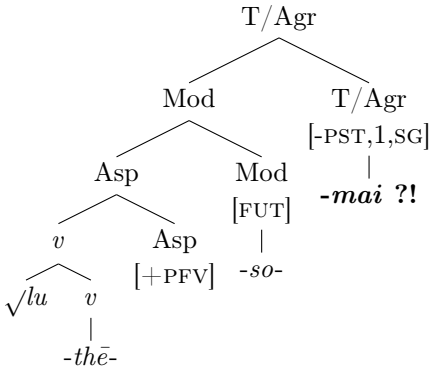
- We can now account for the "regular" distribution of active vs. non-active morphology, the default active morphology of the "passive" suffix *-thē-*, and the participles.
- However, in the future passive and future optative passive, we unexpectedly find obligatory nonactive morphology, (39e–f).
- This cannot be a property of the future suffix itself, which alternates between active and nonactive like other "tense-aspect" stem-forming suffixes, cf. (39a–d).

(39) AG future paradigm of *lū́ō* 'release' (pluperf. & ipv. excluded)

	(a) act.	(b) nonact.	(c) opt.act.	(d) opt.nonact.	(e) pass.	(f) opt.pass.
1sg	lū́-s-ō	lū́-s-omai	lū́-s-oi-mi	lū́-s-oí-mēn	lu-thḗ-s-omai	lu-thḗ-s-oí-mēn
2sg	lū́-s-eis	lū́-s-ēi	lū́-s-oi-s	lū́-s-oi-o	lu-thḗ-s-ēi	lu-thḗ-s-oi-o
3sg	lū́-s-ei	lū́-s-etai	lū́-s-oi	lū́-s-oi-to	lu-thḗ-s-etai	lu-thḗ-s-oi-to
1pl	lū́-s-omen	lū́-s-ómetha	lū́-s-oi-men	lū́-s-oí-metha	lu-thḗ-s-ómetha	lu-thḗ-s-oí-metha
2pl	lū́-s-ete	lū́-s-esthe	lū́-s-oi-te	lū́-s-oi-sthe	lu-thḗ-s-esthe	lu-thḗ-s-oi-sthe
3pl	lū́-s-ousi	lū́-s-ontai	lū́-s-oi-en	lū́-s-oi-nto	lu-thḗ-s-ontai	lu-thḗ-s-oi-nto
Ptcp	lū́-s-ōn, -ousa, -on		lū́-s-ómen-os, -ē, -on		lu-thḗ-só-men-os, -ē, -on	
Inf	lū́-s-ein		lū́-s-ethai		lu-thḗ-s-esthai	

- The future passive is perfective (future middle = imperfective, Smyth and Messing 1956, Allan 2003), suggesting that *-thē-* also realizes v/_Asp[+pfv] in the future pass. (like in the aorist pass.).
- The future marker *-se/o-* probably realizes (epistemic?) Mod (it is in complementary distribution with subj. markers, cf., e.g., Giannakidou 2014, Giannakidou and Mari 2018 for an analysis of future as modality), but its position in the structure is unexpected—too low for Mod.

(40) Future pass. *luthḗsomai* 'I will have been released'



- The morphosyntactic feature content of the lower heads alone cannot be the trigger for obligatory nonactive morphology in (40), since *-thē-* should trigger active morphology and *-se/o-* by itself is compatible with either active or non-active.
- Is the *phonological* content of Mod responsible? The fact that **-thĕ̆**$_{v}$-Ø$_{\text{Asp[+pfv]}}$-**so**$_{\text{Mod[fut]}}$ are adjacent?
  - Cf. Embick 2012: *inwards sensitive* allomorphy; morpheme/morpheme readjustment.
- Possible evidence: **semi-deponents**: morphologically active in the present but nonactive in the future; somewhat productive pattern in Attic (unlike purely lexically idiosyncratic deponents).

(41) AG semi-deponents

pres.: act.	fut.: nonact	meaning
aeíd-ō	*aeí-so-mai*	'(will) sing'
akoú-ō	*akoú-so-mai*	'(will) hear'
baín-ō	*bḗ-so-mai*	'(will) walk, go'
plé-ō	*pleú-so-mai*	'(will) sail'

- Kemmer 1993: 79ff.: inherently desiderative or volitional verbs ('want', 'will', etc.) tend to take nonactive morphology cross-linguistically, so maybe Mod$_{\text{FUT}}$ selects Voice without an external argument and introduces a volitional (or "affected" argument) ...(?) → we expect nonactive endings.
- → So maybe those speakers/varieties who had grammars in which (41) was obligatory in the future generalized this to *all* instances of the future suffix, synchronically describable as inward sensitive allomorphy on T/Agr.

Possibly corroborating evidence: the **Doric future**: in Doric (West Greek), the future passive = ACT → as predicted by the analysis of *-thē-* in 4.2 above.

(42) Doric future: adds an additional theme vowel between the future marker and the endings.

	Doric	Attic-Ionic
fut.	lou-**s-é-ō** wash-FUT-TH-1SG.**ACT** 'I will wash (sth.)'	loú-**s-ō** wash-FUT-1SG.**ACT** 'I will wash (sth.)'
fut.pass.	lou-**thē-s-e-ō** wash-PFV.PASS-FUT-TH-1SG.**ACT** 'I will be washed'	lou-**thē-so-mai** wash-PFV.PASS-FUT-1SG.**NACT** 'I will be washed'

- Suggests that the prediction w.r.t. to *-thē-* is correct: → triggers obligatory *active* morphology. Attic-Ionic future passive is actually the exception.
- Hypothesis: there are no or only a few semi-deponents in Doric → speakers never got the idea that Mod[FUT]⌢Agr should *always* undergo vocabulary insertion as Mod[*so*]-Agr[NACT]
  - Schwyzer 1939: 782 suggests that nonactive future verbs (semi-deponents) are indeed predominantly found in Attic, and less in other dialects → further corroboration needed.

6 Conclusion & Implications

- The account presented here operates with a uniform exponence of Voice in AG and a single, locally restricted environment for the "passive" suffix -*thē*- (and other "verbalizers").
- It explains the properties and distribution of -*thē*- through the behavior of verbal stem-forming suffixes more generally: they all appear low in the structure, but are only licensed in particular aspectual environments.
- Asp = Ø in the finite forms, but realized overtly by participial suffixes → uniform exponence of *v* & Voice across finite and nonfinite environments.
- Both root allomorphy (e.g., *lū*/*lu*, etc.) and Voice allomorphy on the endings are conditioned locally—assuming the spanning version of locality.
- ... spans are also necessary to account for the behavior of the (Att.-Ion.) future passive, and (maybe) certain other modal forms.

Open issues:

- The AG future passive (and its participle!) & optative are problematic and require special assumptions—but this probably has something to do with the nature of the future suffix and its position in the structure, which requires further study.
- The syntactic behavior of the inflectional and derivational passive ...? If they are structurally different, should they also differ syntactically? How did they end up in a quasi-suppletive relationship?

Appendix

Vocabulary items for T/Agr & Asp

(43) (Preliminary) list of Vocabulary Items for T/Agr from most to least specified (TV = theme vowel)

NONACTIVE, NONPAST			
T[1,SG,-PAST]	↔	-mai	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[2,SG,-PAST]	↔	-ĕi	/v_{TV}⌢Voice[-D](⌢Asp...)⌢_
	↔	-sai	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[3,SG,-PAST]	↔	-tai	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[3,PL,-PAST]	↔	-ntai/-atai*	/*v*⌢Voice[-D](⌢Asp...)⌢_
NONACTIVE, PAST			
T[1,SG]	↔	-mēn	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[2,SG]	↔	-ou	/v_{TV}⌢Voice[-D](⌢Asp...)⌢_
	↔	-so	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[3,SG]	↔	-to	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[1,PL]	↔	-metha	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[2,PL]	↔	-sthe	/*v*⌢Voice[-D](⌢Asp...)⌢_
T[3,PL]	↔	-nto/-ato*	/*v*⌢Voice[-D](⌢Asp...)⌢_
ACTIVE, NONPAST			
T[1,SG,-PAST]	↔	-ō	/v_{TV}(⌢Voice⌢Asp...)⌢_
	↔	-mi	
T[2,SG,-PAST]	↔	-is	/v_{TV}(⌢Voice⌢Asp...)⌢_
	↔	-s(i)	
T[3,SG,-PAST]	↔	-i	/v_{TV}(⌢Voice⌢Asp...)⌢_
	↔	-si/-ti	
T[3,PL,-PAST]	↔	-nti/-nsi	/v_{TV}(⌢Voice⌢Asp...)⌢_
	↔	-asi	
ACTIVE, PAST			
T[1,SG]	↔	-n/-a*	
T[2,SG]	↔	-stha	/List
	↔	-s	
T[3,SG]	↔	-Ø	
T[1,PL]	↔	-men	
T[2,PL]	↔	-te	
T[3,PL]	↔	-n/-en(*)/- san	(/List)

- * = phonologically conditioned allomorphy.
- "Theme vowel-sensitive" Vocabulary Items can probably be reduced to the 1sg & 3sg active nonpast (everything else = "morpheme/morpheme readjustments", Embick 2012)
- Further segmentation may be possible, e.g., *m-* ↔ 1, *-i* ↔ [-past], etc., but this gets tricky.
- Makes the correct predictions except for the active sg. perfect, where we expect [-past] endings.

(44) Vocabulary Items for Asp

Asp	↔	Ø	/v(⌢Voice)⌢_⌢T[+fin]
Asp[-pfv]	↔	-ōs, -ous-	/ v_{RES}[3](⌢Voice[+D])⌢_
Asp	↔	-men-	/Voice[-D]⌢_
Asp	↔	-nt-	

- "active" pctp. suffix = elsewhere, like in the finite forms
- Asp in finite forms = concatenated with (finite) T.

Is AG a "Voice-bundling" language?

(45) Diagnostics for Voice-bundling vs. Voice-splitting languages, Harley 2017:

a. Voice-bundling language:
   (i) has relationship between verbalizing morphology and Agent introduction → No (except for deponents in the narrow sense).
   (ii) can have relationship between internal case checking and Agent introduction → No.
   (iii) has a single position of exponence for verbalizing, causativizing, inchoative, and "passivizing" morphology. → No, if "passivizing" is taken as one of the canonical functions of the nonactive endings, as argued in section 3.

b. Voice-splitting language:
   (i) has agglutinating ("stacking") passive morphology. → Yes, if "passivizing" is taken as one of the canonical functions of the nonactive endings, as argued in section 3.
   (ii) can have high applicatives → Yes? If that is how the dativus (in)commodi is to be interpreted. Work in progress.
   (iii) can show causative morphology in the absence of a syntactic Causer argument. → Yes, if that is how nonactive anticausatives with overt transitivizing/causativizing morphology should be interpreted (cf. Schäfer 2008, 2017, Alexiadou et al. 2015), e.g. *kratűnomai* 'become strong' (*kratűnō* 'strengthen'), *melaínomai* 'become black' (*melaínō* 'blacken'), etc.

→ AG is no Voice-bundling language.

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[3]Vel sim. Alternatively, one could adopt the analysis of Reed (2014) and assume that the act.perf.ptcp. realizes Asp[perf].

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