Are (Ancient Greek) theme vowels verb(alizer)s?

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(... title credit: Fábregas 2017, "Theme vowels are verbs")

1 Introduction

- Are (verbal) theme vowels adjuncts to functional projections? (Oltra-Massuet 1999, Oltra-Massuet and Arregi 2005)

- ... verbalizers? (e.g., Spyropoulos et al. 2015, Panagiotidis et al. 2017)

- light verbs/roots? (Lowenstamm 2014, Fábregas 2017)


Today's goals:

- Theme vowels = verbalizers = v = light verbs (i.e., following Fábregas 2017)

- Provide arguments from the history of Greek for a connection between verbalizing or "theme" morphology and Aktionsart/lexical aspect

- Specifically, for a path of reanalysis of **denominal** → **unergative** and **deadjectival** → **unaccusative** verbs—identify diagnostics for *synchronically* vs. *diachronically* denominal & deadjectival verbs.

- "Complex thematic suffixes" in Greek show that we may need to distinguish between different kinds of themes (cf. Panagiotidis et al. 2017)

Crucially, we will see that a diachronic perspective is essential for understanding the paths of reanalysis that lead to the development and synchronic distribution of verbal "themes". This is all the more important as *the diachrony of verbalizers and other categorizers is understudied*, especially w.r.t. a possible connection with aspect and argument structure properties such as unergativity and unaccusativity → FWF-Richter project V 850-G "Verbal categories and categorizers in diachrony" (starting soon!)

1.1 Background

- In **Distributed Morphology (DM)**: verbal stem-forming morphology = verbalizer v (with different "flavors", e.g., BECOME, DO, CAUSE ...); Folli and Harley 2005; Harley 2005, 2009, 2013; Alexiadou and Lohndal 2017; Panagiotidis et al. 2017, etc.

- Like other categorizers, v mediates between the root and higher functional projections

- Argument/even structure alternations (causative alternation, passivization, etc.) are due to the interaction of v and Voice (Alexiadou and Anagnostopoulou 2004; Alexiadou 2012; Alexiadou 2013; Harley 2013, 2017; Alexiadou et al. 2015; Schäfer 2017 ...)—e.g., depending on whether or not Voice introduces an external argument DP.

(1)   The verbal spine

```
            TP
          /    \
        T      AspP
              /    \
            Asp    VoiceP
                  /    \
               Voice    vP
                       /  \
                      v    √
```
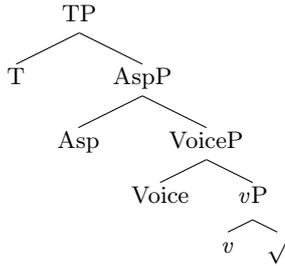
(2)   Morphological well-formedness condition on Spanish nouns & verbs (Oltra-Massuet and Arregi 2005: 46; on Catalan Oltra-Massuet 1999: 12)

    a.   At MS, all syntactic functional heads require a theme position.

    b.   F $\rightarrow$ F

```
              F
             /  \
            F    Th
```
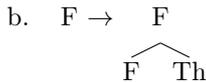
- In this approach, theme vowels $\neq$ verbalizers but *adjoined* to them. The v-head itself can be phonologically null or overt, resulting in (descriptively) simple vs. complex thematic suffixes (e.g., Span. -*a*- vs. -*ific-a*-).

- Moreover, this theme position is not just characteristic of v, but of *all* functional heads along the verbal (and nominal) spine $\rightarrow$ theme vowels are expected to show up in different "slots" and co-occur $\rightarrow$ "ornamental" elements.

- In this talk, we will argue that at least some of the "vocalic themes" of Ancient Greek are genuine verbalizers and associated with particular event/argument structure properties—in fact, the only element to which semantic criteria do not apply and which may be considered purely "ornamental" is the theme vowel -*e/o*-.

1.2   Unergatives and unaccusatives

- Hale and Keyser 1998, 2002 (and many others):
  - Unergative verbs are denominal verbs: a noun incorporates into ("conflates with") a selecting verbal projection, v_{DO}
  - Unaccusatives/change-of-state verbs (of the causative alternation) are deadjectival verbs: an adjective incorporates into ("conflates with") v_{BECOME}.

$\rightarrow$ Evidence from light verb constructions with DO/BECOME in, e.g., Basque, Tanoan, Hiaki, Farsi, Italian ...

$\rightarrow$ In languages with rich *synthetic* derivational morphology and overt verbalizers, synthetic unergatives should be formed either

    1. with verbalizers that are historically related to light verbs like DO or
    2. *with verbalizers that are historically related to nominal (derivational) morphology*

... while synthetic (unaccusative) change-of-state-verbs should be formed either

    1. with verbalizers that are historically related to light verbs like BECOME or
    2. *with verbalizers that are historically related to adjectival (derivational) morphology.*

In the following, we're going to discuss evidence for option 2), the development of new verbalizers from nominal and adjectival morphology, specifically:

- Ancient Greek verbal stem-forming morphology spells out v, not Asp

- Some Ancient Greek verbalizers are inherited from Proto-Indo-European (PIE), some developed through **upwards reanalysis** of a and n as v.

- **Complex thematic suffixes** consist of an inherited v + theme vowel. Distributionally they pattern with other inherited verbalizers (including the simple thematic suffix), but there's no structural diagnostic (yet) that permits to distinguish between the Fábregas- and the Oltra-Massuet-style approach to these elements.

1.3 Reanalysis and grammaticalization

"Upwards reanalysis" (UR, Roberts and Roussou 2003): (lexical) material in lower functional projections, e.g., α in (3a) is reanalyzed as base-generated in higher functional projections (arrows in (3)). E.g., the "modal cycle" in English, (3b): reanalysis of lexical verbs/VP → modal auxiliaries/TP.

(3)   Upwards reanalysis

a. XP
    X   YP
    | |
    α   Y
         |
         ...

b. TP
    T   VP
    | |
  must V
          |
          ...
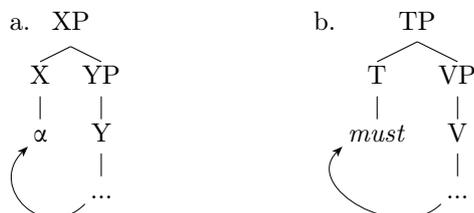
- = "Late Merge Principle" (LMP), van Gelderen 2008, 2011 (acquisition + "third factor"): given ambiguous input, acquirers will choose the derivation that requires as few steps (e.g., instances of movement) or formal features as possible → diachronically, this will look like "upwards reanalysis" (cf. "Maximise Minimal Means" principle, Biberauer 2017, 2019, Biberauer and Roberts 2017)

In DM, this mechanism (UR, LMP, MMM...) should equally apply to the reanalysis of morphemes *and* of (inflected) "words" (like in (3b)) — difference is epiphenomenal in DM.

- $n > v$? (denominal verbs)

- $a > v$? (deadjectival verbs)

- $v > $ Voice/Asp? (reanalysis of verbalizers as Voice and/or aspectual markers)

1.4 Case study I: Greek *-eu-ō*

Ancient Greek (AG) verbs in *-éu-ō* were originally derived from agent nouns in *-éu-*, (4a). This (originally nominal) suffix was reanalyzed as part of the verbal domain and subsequently became a productive verbalizer in Modern Greek (MG), where it can select nouns, adjectives, adverbs and loanwords, (4b), (MG ex. from Panagiotidis et al. 2017).

(4)   AG *-éu-ō* > MG *-ev-o*

(a) Ancient Greek *-éuō*	(b) Modern Gk. *-ev-*
*basil-**eú**-ō* 'am king; rule' (*basil-**eú**-s* 'king')	*stox-**év**-o* 'aim at' (*stóx-os* 'target')
*khalk-**eú**-ō* 'am a coppersmith' (*khalk-**eú**-s*)	*fronim-**év**-o* 'become prudent' (*frónim-os* 'prudent')
*hipp-**eú**-ō* 'am a horserider' (*hipp-**eú**-s*)	*kont-**év**-o* 'approach' (*kontá* 'near')
	*xak-**év**-o* 'I hack'

(5)   "Upwards reanalysis": nominal *-eu-* + verbalizer (*)-*je/o-* → reanalyzed as part of *v*.

v
    n   v
              |
√basil n   *-**je/o**-*
        |
      -eu-
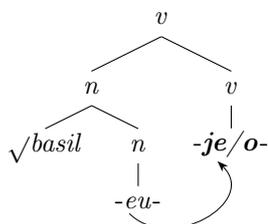
- In fact, the same type of reanalyis gave rise to a number of MG verbalizers that Panagiotidis et al. 2017 discuss: *-ev, -iz, -(i)az, -on, -ar, -en*

- But there's a certain reluctance to treat "vocalic elements"/theme vowels parallel to these (even though Spyropoulos et al. 2015, Panagiotidis et al. 2017 *do* argue that the vocalic themes of the MG second conjugation are reflexes of the same *v*-position)

- If theme vowels *are* verb(alizer)s, we expect them to 1) have the same diachronic development as other verbalizers ($< n, a$) and 2) behave synchronically like other verbalizers.

→ To evaluate this, we need to compare theme vowels to primary stem-forming verbal morphology.

1.5 Case study II: AG (η) $\bar{e}$-"passive"

Ex. of **adj.** → **inchoative/unaccusative (v_{Become})**: The verbal-stem forming suffix *-$\bar{e}$- < Proto-Indo-European (PIE) *-eh_1-, which forms deadjectival and/or "primary" (de)verbal formations and is restricted to a particular tense-aspect stem (pres./aor.) in many older IE languages.

- Mostly prototypical (stative/inchoative) unaccusatives

- Origin: reanalyzed instrumental singular ending of adjectival abstracts (Jasanoff 2004, Balles 2006) → deadjectival stative-inchoative verbal stem-forming suffix.

(6) *-$\bar{e}$-: present stem (ex. from Jasanoff 2004)
   a. Anatolian (Hittite): denominal/deadjectival presents in -$\bar{e}(\check{s})$-^{zi}, e.g., *marš$\bar{e}$-^{zi}* 'become false' (*marša(nt)-* 'false, deceitful'), *šall$\bar{e}$š-^{zi}* 'become great' (*šalli-* 'great'), etc.
   b. Italic (Latin): *man$\bar{e}$re* 'stay', *tac$\bar{e}$re* 'be silent' ((de)verbal); *ār$\bar{e}$re* 'be dry', *rub$\bar{e}$re* 'be red' (denominal/deadjectival).
   c. Germanic: deverbal/denominal presents, e.g., Goth. *hab**ai**þ*, OHG *hab$\bar{e}$t* 'has'; Goth. *mun**ai**þ* 'has in mind'; Goth. *fast**ai**þ*, OHD *fast$\bar{e}$t* 'fasts' (**fasta*- 'firm, fast'), etc.

(7) *-$\bar{e}$-: aorist stem (ex. from Jasanoff 2004)
   a. Greek: primary (deverbal) "passive" aorists, e.g., *emán$\bar{e}$n* 'went mad', *eág$\bar{e}$n* 'broke' (itr.), *edám$\bar{e}$n* 'was tamed, subjugated'.
   b. Slavic: OCS (Old Church Slavonic) primary (deverbal) infinitives/aorists in -$\check{e}$- (< *-$\bar{e}$-), e.g., *bъd$\check{e}$ti* 'be awake', *mьn$\check{e}$ti* 'think'; also deadjectival: *star$\check{e}$ti* 'become old' (*starъ* 'old').
   c. Baltic: like Slavic; Lith. *bud$\check{e}$ti* 'be awake' vs. *sen$\check{e}$ti* 'grow old' (*s$\tilde{e}$nas* 'old'), etc.

This suffix is also found in (some of) the Latin 2nd conjugation stative verbs in -$\bar{e}$re, (8b), which have long been known to be associated with deadjectival verb formation (e.g., Watkins 1971)), with a synchronic alternation with 1st conjugation factitive verbs, (8a)).

(8) Lat. -$\bar{e}sc\bar{o}$ (Watkins 1971: 47)

Factitive	Stative	Inchoative	Base
clār-**ā**-re	clār-**ē**-re	clār-**ē-sce**-re	clār-us, -a, -um 'clear'
-alb-**ā**-re	alb-**ē**-re	alb-**ē-sce**-re	alb-us, -a, -um 'bright, white'
-nigr-**ā**-re	nigr-**ē**-re	nigr-**ē-sce**-re	niger, -ra, -rum 'dark, black'
liqu-**ā**-re	liqu-**ē**-re	liqu-**ē-sce**-re	liqu-idus, -a, -um; lĭqu-ēns 'fluid, wet'

As for AG, -(th)$\bar{e}$- does not realize Voice, but v in the context of Asp[+pfv] (Grestenberger 2016, 2021).

- -(th)$\bar{e}$- co-occurs with active endings—even assuming these are default/ elsewhere endings, this is incompatible with having Voice[nonact]/Voice[-ext.arg.] in the structure.
- It is in complementary distribution with other v-elements/verbalizers, (10). 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)$\bar{e}$- lacked Voice, we can derive the obligatory active endings as elsewhere endings, like in other active unaccusatives, cf. Alexiadou & Anagnostopoulou (2004)
- Confirmed by origin/diachrony of -(th)$\bar{e}$-: Homeric -th$\bar{e}$- and especially its (older) allomorph -$\bar{e}$- form mostly non-passive, usually stative or inchoative, aorists, (9).

(9) Non-passive (th)$\bar{e}$-aorists:
   a. *e-rrú-$\bar{e}$-n* 'flowed, streamed' b. *e-pág-$\bar{e}$-n* 'became fixed' c. *e-krúph-**th$\bar{e}$**-n* 'hid, became hidden'
   A-flow-**V**-1SG.PST.ACT   A-fix-**V**-1SG.PST.ACT   A-hide-**V**-1SG.PST.ACT

(10) -th$\bar{e}$- in complementary distribution with other v's:
   a. *dū́-**n**-ō* 'sink' (sth.) b. *é-dū̄-**s**-a* 'sank' (sth.) c. *e-dú-**th$\bar{e}$**-n* 'was sunk'
   sink-**V**-1SG.PRES.ACT   A-sink-**V**-1SG.PST.ACT   A-sink-**PASS**-1SG.PST.ACT

$\rightarrow$ *edúthēn* instead of **edŭ́sthēn* suggests a structure as in (11), with *-(th)ē-* spelling out $v/\_\_$ Asp[+pfv].

(11)   AG 1sg. passive aor. *edúthēn* 'I was sunk'
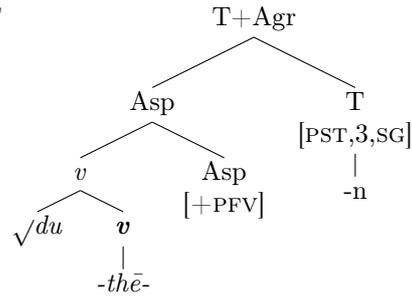
Assuming "active" allomorphs of the endings are really Elsewhere allomorphs, we correctly predict the obligatory active morphology given (12).

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

[Or more formally as Spell-Out condition on T:

(13)   Spell-Out condition on nonactive morphology:
         T[ϕ,$\pm$past,Q] $\leftrightarrow$ T[ϕ,$\pm$past,NONACT]/Voice[-D](...)$\frown\_\_$]

(14)   "Upwards reanalysis": Nominal instr. *$*$-$\bar{e}$-* $\rightarrow$ stative/inchoative v (cf. AG *epágē* 'became fixed')
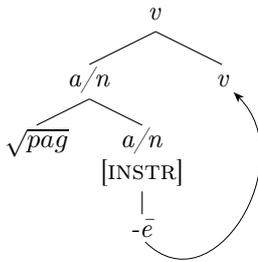
- Nominal, inflectional suffix $\rightarrow$ stative/inchoative v $\rightarrow$ eventive v/Voice

2   "Primary" theme vowels and verbalizers in Ancient Greek

2.1   Thematic vs. athematic verbs

- AG roots combine with stem-forming affixes to form different types of **verbal stems**: present [-pfv, $\pm$past], aorist [+pfv, +past], perfect [?pfv, $\pm$past], future [$\pm$pfv, -past].

- These stems can combine with different **moods** (subjunctive, optative, indicative, imperative).

- Voice in AG is expressed on the finite verbal endings together with Person, Number, and Tense.

  - I'll ignore the augment in the following—analyzed as T[+past] prefix by Reed (2014).
  - 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**).

(15)   AG **active** ipfv. ind., subj., opt.; act. aor.ind. & pf.ind. of *lŭ́ō* 'release' (dual, plupf., ipv. excl.)

	(a) pres.	(b) ipf.	(c) pres.subj.	(d) pres.opt.	(e) aor.	(f) perf.
1sg	lŭ́-ō̄ /-**o**-ō̄/	é-lū-**o**-n	lú-ō̄ /-**o**-o-ō̄/	lŭ́-**o**-i-mi	é-lū-s-a	lé-lu-k-a
2sg	lŭ́-**e**-is	é-lū-**e**-s	lú-ēis /-**e**-e-is/	lŭ́-**o**-i-s	é-lū-s-**a**-s	lé-lu-k-**a**-s
3sg	lŭ́-**e**-i	é-lū-**e**	lú-ēi /-**e**-e-i/	lŭ́-**o**-i	é-lū-s-e	lé-lu-k-e
1pl	lŭ́-**o**-men	e-lŭ́-**o**-men	lú-ō̄-men /-**o**-o-/	lŭ́-**o**-i-men	e-lŭ́-s-**a**-men	le-lú-k-**a**-men
2pl	lŭ́-**e**-te	e-lŭ́-**e**-te	lú-ē̄-te /-**e**-e-/	lŭ́-**o**-i-te	e-lŭ́-s-**a**-te	le-lú-k-**a**-te
3pl	lŭ́-ousi (< *-**o**-nti)	é-lū-**o**-n	lú-ōsi (< *-**o**-o-nti)	lŭ́-**o**-i-en	é-lū-s-**a**-n	le-lú-k-ā̄si < *-**a**-nti

- (15a-b) show the imperfective stem of a **simple thematic** verb — the alternating -*o/e*- is the **theme vowel**.

- But note that there are other vocalic (alternating) elements in other stems, i.e., the "**alpha-thematic inflection**" in the sigmatic aorist, (15e), and the perfect, (15f) (also in some reduplicated aorists, the "kappa-aorist", and the pluperfect).

- Suffixes without a theme vowel = *athematic*, e.g., (16).

(16)   Pres.act.ind. of *deíknūmi* 'show'

	(a) pres.	(b) ipf.	(c) aor.	(d) perf.
1sg	deík-**nū**-mi	e-deík-**nū**-n	é-deik-**s**-a	dé-deikh-a
2sg	deík-**nū**-s	e-deík-**nū**-s	é-deik-**s**-a-s	dé-deikh-a-s
3sg	deík-**nū**-si	e-deík-**nū**	é-deik-**s**-e	dé-deikh-e
1pl	deík-**nu**-men	e-deík-**nu**-men	e-deík-**s**-a-men	dé-deikh-a-men
2pl	deík-**nu**-te	e-deík-**nu**-te	e-deík-**s**-a-te	dé-deikh-a-te
3pl	deik-**nú**-āsi	e-deík-**nu**-san	é-deik-**s**-a-n	de-deíkh-āsi

- Stem-forming suffixes -*nŭ*-, -*s(a)*- in (16) seemingly in complementary distribution with theme vowel in (15a-d); both cause **root allomorphy** ((17b))

  → 1. Do they occupy the same structural position? Cf. (15)-(16) and (17).

  → 2. What is their function? Specifically, *v* or Asp?

(17)   a.   Theme vowel & verbalizers (1pl. forms)

	-*nŭ*-	pres.RED	perf.	-*s(a)*-aor.	theme vowel
1pl	deík-**nu**-men	tí~RED~the-Ø-men	le~RED~lú-**ka**-men	(e)lú-**sa**-men	lú-**o**-men
	'show'	'set, place'	'release'	'release'	'release'

   b.   Theme vowel and root allomorphy

	pres	aor	perf	
1pl	<u>stéll</u>-**o**-men	(e)<u>steíl</u>-**a**-men	e-<u>stál</u>-**ka**-men	'send'
1pl	<u>derk</u>-**ó**-metha	(e)<u>drák</u>-**o**-men	de~RED~<u>dórk</u>-**a**-men	'see'

The second question relates to a general problem of older Indo-European (IE) languages, especially Ancient Greek and Sanskrit: Do their verbal stem-forming morphemes function as inner aspect/*Aktionsart* markers or as aspectual markers (±pfv)?

Diagnostics for *v*-status: Panagiotidis et al. (2017) apply the following criteria to MG verbalizers that are historically reanalyzed from nominal suffixes + verbalizer, as well as for the "theme vowels" of second conjugation verbs like *aɣapó* 'love' (-*a*-, -*i*- <η>, pres.ind. *aɣapáo*, pfv. past *aɣápisa*, etc.), which are also diachronically denominal:

- *v*-related morphology is independent of morphology relating to Voice, Tense, Aspect, and Agreement; and this morphology cannot occur without *v*-related morphology.

  → -*nŭ*-, -*s(a)*-, -*e/o*- are verbalizers (assuming so-called root presents and root aorists have a zero verbalizer).

- "the verbalizing suffixes do not encode Aktionsart in the sense that they are neutral with respect to inner aspect." (Panagiotidis et al. 2017: 37) → *v*-morphology is independent from valency (and Voice) alternations.

  → -*nŭ*-, -*s(a)*-, -*e/o*- are verbalizers: both (16) and (17) alternate between active and nonactive ("middle") endings (not illustrated above). While some verbalizers seem to be associated with, e.g., transitivity (e.g., -*nŭ*-), or inchoativity (-*ē*-), but by no means exclusively.

- "the same verbalizing suffix can create verbs with a variety of argument structures" (e.g., unergatives, unaccusatives, psych-verbs, etc.)

- The choice of the verbalizer depends on the root → ≈ "conjugational classes":

- One and the same root can combine with different verbalizers, resulting in different lexical-aspectual semantics.

  → *-nŭ-*, *-s(a)-*, *-e/o-* are verbalizers: One and the same root can occur with different present and aorist stem-forming suffixes (not all roots have more than one of each, and it doesn't hold for the perfect stem, though).

- "We therefore conclude that verbalizing morphology in Greek exhibits certain degrees of idiosyncraticity and lexicalization in the sense that it may not only affect but also define the meaning of the verb formation." (Panagiotidis et al. 2017)

  ... not conclusive: are verbalizers associated with Aktionsart properties or not?

(18)   Summary: structure of AG verbs (Grestenberger 2018, 2019, 2021)
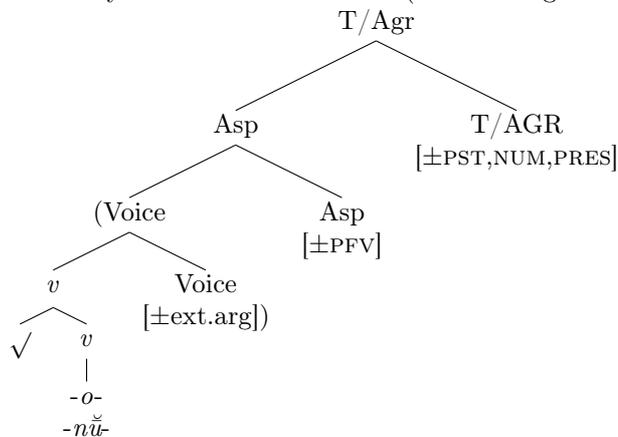
2.2   Additional arguments I: the Ionic iterative preterit

An additional (hitherto unnoticed) argument comes from the "Ionic iterative preterit" (cf. Ittzés 2008, Kimball 2014), particularly productive in (epic) Ionic Greek. It is formed with the complex thematic suffix *-sk-e/o-* and selects *verbal stems*. That is, unlike all the other verbalizers discussed so far, it can select either a "present" or an "aorist" stem, rather than a root. Together with its semantics (progressive?), this makes it a likely candidate for actually spelling out Asp rather than *v* (unlike the other verbal stem-forming suffixes).

(19)   Ion. iterative preterits (Kimball 2014: 163), 1Pl, primary stem = **bold**, iterative suffix = underlined.

	Iterative		Base	
a.	**hi-stá**-<u>sk-o</u>-men	'continually placed sth.'	**hi-sta**-men (pres.)	'place'
b.	**rhēg-ńu**-<u>sk-o</u>-men	'continually broke, smashed'	**rhḗg-nu**-men (pres.)	'break, smash'
c.	**pheug-é**-<u>sk-o</u>-men	'kept fleeing'	**pheúg-o**-men (pres.)	'flee, escape'
d.	**phug-é**-<u>sk-o</u>-men	'kept escaping'	é-**phug-o**-men (aor.)	'escaped'
e.	**pher-é**-<u>sk-o</u>-men	'kept carrying'	**phér-o**-men (pres.)	'carry'

- *-sk-e/o-* (or rather *-ske/o-*? See below) selects verbal *stems*, not roots, independent of whether the stem is athematic, (19a-b), or thematic, (19c-e).

[This could be an inherited feature; related suffixes in Latin (*-ē-sc-ō*, Watkins 1971) and Hittite (*-ške/o-* imperfective, Melchert 2017) behave similarly.]

2.3 Additional arguments II: nonfinite forms

So far we have concentrated on theme vowels and verbalizers in finite verb forms. But in nonfinite "deverbal" forms we see quite clearly that some suffixes select *stems* (minimally $\sqrt{}$-v), while others select *roots*. The "verbal adjective" in -*t-ó*- (m./n.), *t-ḗ* (f.) selects roots, (20).

(20)　(1Sg & 1Pl) Finite verbs vs. verbal adjectives, underlined = verbal stem, **bold** = root.

	present	aorist	verbal adj.	
redupl. pres.	<u>tí-**thē**</u>-mi, <u>tí-**the**</u>-men	é-**thē**-k-a, é-t**he**-Ø-men	**the**-tós	'placed, put'
athem. *nŭ*-pres.	eks-<u>**aí**-nū</u>-mai, eks-<u>**ai**-nú</u>-metha	—	éks-**ai**-tos	'chosen; choice'
them. present	<u>e**úkh**-o</u>-mai, <u>e**ukh**-ó</u>-metha	<u>**ēuk**-sá</u>-mēn, <u>**ēuk**-sá</u>-metha	**euk**-tós	'prayed for, desired'

This formation can therefore be used as a diagnostic for presence vs. absence of v (or, rather, is in complementary distribution with verbalizers), cf. Grestenberger 2018 (based on Anagnostopoulou 2003, Alexiadou et al. 2015 for MG). [AG -*t(-os)* also selects *n*, e.g. *lepas-tḗ* 'snail-shaped drinking cup' (< **lepad-tó/ḗ*-, *lépad*- 'snail'), *a-dákrū-tos* 'tearless' (*dákru* 'tear'), etc., (21b).]

(21)　a. Asp$_{BE}$　　(b.　Asp$_{BE}$
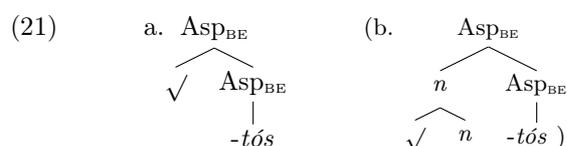
This differs from the participial suffixes -*nt*- (active ptcp.) and -*men-o/ē*- (nonact./"middle" ptcp.): these always select the verbal *stem*—contrast the participial forms in (22) with the "verbal adjectives" in (21).

(22)　(1Pl) finite verbs vs. participles, underlined = verbal stem, **bold** = root

	meaning	present (1Pl)	pres.ptcp.	aorist (1Pl)	aor.ptcp.
redupl. pres.	'put, place'	<u>tí-**the**</u>-men	<u>ti-**thé**</u>-nt-	é-**the**-Ø-men	**thé**-Ø-nt-
athem. *nŭ*-pres.	'pick out, choose'	eks-<u>**ai**-nú</u>-metha	eks-<u>**ai**-nú</u>-men-o-	—	—
them. present	'pray for'	<u>e**ukh**-ó</u>-metha	<u>e**ukh**-ó</u>-men-o-	<u>**ēuk**-sá</u>-metha	<u>**ēuk**-sá</u>-men-o-

(23)　Nonactive finite forms & participles of *títhemai* 'place for myself, take' (1Sg.nonact.), <u>underlined</u> = verbal stem, **bold** = root

	stem	finite verb	participle
present		<u>tí-**the**</u>-mai	<u>ti-**thé**</u>-men-o-
aorist		e-**thé**-Ø-mēn	**thé**-Ø-men-o-
perfect		<u>té-**thei**</u>-mai	<u>té-**thei**</u>-men-o-

(24)　Structure of AG participles (Grestenberger 2018, 2020):
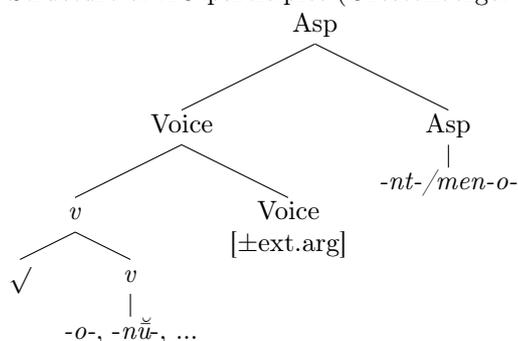
(25)　Spell-Out conditions for AG participles (Grestenberger 2018, 2020, based on Embick 2000):
　　a.　Asp ↔ -*men(os)*/ Voice[-ext.arg] __
　　b.　Asp ↔ -*nt*-: elsewhere

2.4 Interim summary

- Distribution of "simple" theme vowel -*o/e*- corresponds to that of primary athematic verbalizers.

- Theme vowels and verbalizers both spell out *v*, rather than Asp

2.5 Complex thematic suffixes

- Problem: "complex thematic" suffixes appear to consist of *v*/verbalizing affix + theme vowel - structurally the same problem as *clas-ific(-)a* in Spanish.

- ... thus potentially complicating the analysis—are these adjuncts to *v*?

- The verbal adjective/participle diagnostic introduced in the previous section won't help here (can distinguish between presence vs. absence of *v*, *not* between *v* vs. *v*+TH)

(26)   -*n-e/o*- (1Pl), verbal stem-forming suffix = **bold**, root = <u>underlined</u>

Meaning	Present		Aorist		Verbal adj.
'cut'	<u>tém</u>-**n-o**-men	<u>tém</u>-**n-o**-nt-	é-<u>tam</u>-**o**-men	<u>tám</u>-**o**-nt	<u>tmē</u>-tós
'work, toil'	<u>kám</u>-**n-o**-men	<u>kám</u>-**n-o**-nt-	é-<u>kam</u>-**o**-men	<u>kám</u>-**o**-nt-	á-<u>kmē</u>-tos 'unwearied'
'drink'	<u>pí</u>-**n-o**-men	<u>pí</u>-**n-o**-nt-	é-<u>pi</u>-**o**-men	<u>pí</u>-**o**-nt-	<u>po</u>-tós

(27)   -*an-e/o*- (1Pl), verbal stem-forming suffix = **bold**, root = <u>underlined</u>

Meaning	Present		Aorist		Verbal adj.
'seize'	<u>khand</u>-**án-o**-men	*<u>khand</u>-**án-o**-nt-	é-<u>khad</u>-**o**-n	<u>khád</u>-**o**-nt-	
'learn'	<u>punth</u>-**an-ó**-metha	<u>punth</u>-**an-ó**-men-o	e-<u>puth</u>-**ó**-metha	<u>púth</u>-**o**-nt-	á-<u>pus</u>-tos 'not learned'
'succed'	<u>tunkh</u>-**án-o**-men	<u>tunkh</u>-**án-o**-nt-	é-<u>tukh</u>-**o**-men	<u>túkh</u>-**o**-nt-	
'be hidden'	<u>lanth</u>-**án-o**-men	<u>lanth</u>-**án-o**-nt-	é-<u>lath</u>-**o**-men	<u>láth</u>-**o**-nt-	á-<u>las</u>-tos 'unforgettable'
'take, seize'	<u>lamb</u>-**án-o**-men	<u>lamb</u>-**án-o**-nt-	é-<u>lab</u>-**o**-men	<u>láb</u>-**o**-nt-	

(28)   -*(i)sk-e/o*-, verbal stem-forming suffix = **bold**, root = <u>underlined</u>

Meaning	Present		Aorist		Verbal adj.
'grow old'	<u>gērá</u>-**sk-o**-men	<u>gērá</u>-**sk-o**-nt-	e-<u>gērá</u>-**sa**-men	<u>gērá</u>-**sa**-nt-	—
'find'	<u>heur</u>-**ísk-o**-men	<u>heur</u>-**ísk-o**-nt	<u>hēúr</u>-**o**-men	<u>heúr</u>-**ó**-nt-	—
'die'	<u>thnḗ</u>-**isk-o**-men	<u>thnḗ</u>-**isk-o**-nt-	é-<u>than</u>-**o**-men	<u>than</u>-**ó**-nt-	<u>thnē</u>-tós 'mortal'

- Complex thematic suffixes have the same distribution as simple thematic suffixes, i.e., show up in all finite forms and participles (and infinitives, not shown here), but not in the verbal adjective (i.e., root-selecting formations).

- So if one accepts Fábregas (2017)'s argument concerning Span. -*a*- vs. -*ifica*-, one should also accept that Gr. -*e/o*- and -*ane/o*- are alternants of one and the same structural position.

3   Denominal verbs

Denominal verbs in -*e-e/o*- (< *-***e-je/o-***), *a-e/o*- (< *-***ă-je/o-***), *o-e/o*- (< *-***ŏ-je/o-***) = *Verba contracta*, contract verbs; and in *-C-je/o*- provide a crucial argument that primary verbalizers realize *v* rather than Asp, and for a structural difference between *synchronically* denominal/deadjectival verbs and *reanalyzed* denominal/deadjectival verb(alizer)s:

(29)   Denominal verbs from vocalic bases (contract verbs in -έω, -άω, -όω, Tucker 1990), 1Pl.

	Meaning	Pres.	Aor.	Basis	
a. -*é-e/o*	'love, like'	phil-**é-o**-men	e-phil-**ḗ-sa**-men	fíl**os**	'dear, beloved'
	'be/act as tyrant'	turann-**é-o**-men	e-turann-**ḗ-sa**-men	túrann**os**	'tyrant'
	'relate, tell'	mūth-**e-ó**-metha	e-mūth-**ē-sá**-metha	mũth**os**	'speech, tale'

b. *-á-e/o-*	'be victorious'	nīk-**á-o**-men	e-nīk-**ḗ-sa**-men	nī́kē 'victory'
	'treat with respect'	tīm-**á-o**-men	e-tīm-**ḗ-sa**-men (-**ā-sa**-, Pi.)	tīmḗ, tīmā́ 'respect, esteem'
	'shout, yell'	bo-**á-o**-men	e-bo-**ḗ-sa**-men (-**ā-sa**-, Dor.)	boḗ, boā́ 'scream, yell'
c. *-ó-e/o-*	'to crown'	stephan-**ó-o**-men	e-stephan-**ṓ-sa**-men	stéphanos 'crown'
	'straighten'	orth-**ó-o**-men	ōrth-**ṓ-sa**-men	orthós 'straight'
	'make angry'	khol-**ó-o**-men	e-khol-**ṓ-sa**-men	khólos 'gall; anger'

- Ad a.: base vowel = *e* of *o/e*-ablauting nominal theme vowel, cp. nom.sg. *túrannos* vs. voc.sg. *túranne*.
- Ad b.: Attic-Ionic raised *ā* to *ē*, hence the "theme vowel" of the aorist looks like that of class a.

(30)   Denominal verbs from consonantal bases (1Pl)

Present	Aorist		base	
basil-**eú-o**-men (< *-**eu-jo**)	e-basil-**eú-sa**-men	'be king'	basil-**eú**-s	'king'
tekt**aín**-o-metha (< *-**an-jo**-)	e-tekt**ḗn**-**á**-metha (< *-**an-sa**)	'be a carpenter'	téktōn (-**an**)	'carpenter'
salp**íz**-o-men (< *-**ig-jo**-)	e-salp**ínk-sa**-men	'sound the trumpet'	sálp**i(n)g**-	'trumpet'
phul**átt-o**-men (< *-**ak-jo**-)	e-phul**ák-sa**-men	'guard'	phúl**ak**-s	'guard'
er**íz**-o-men (< *-**id-jo**-)	ēr-**is**-**á**-metha	'seek strife'	ér**id**- (éris)	'strife'

- Note that the "vocalic themes" in (29), -*ĕ*-, -*ă*-, -*ŏ*-, behave exactly like the "consonantal themes" in (30) in terms of distribution.
- The verbalizing suffixes in both cases are clearly -*je/o*- (pres.) and -*sa*- (aor.), which suggests that *the "vocalic themes" in (29) are still synchronically nominal suffixes.*
- For both (29) and (30), we predict that 1) verbal adjectives select the base without any verbalizing suffix (i.e., without -*je/o*- & -*sa*-) and 2) Ionic "iterative" preterits *include* the verbalizing suffix. Both predictions are correct:

(31)   Verbal adjectives from denominal verbs (1Pl), **underlined** = verbal stem, <u>bold</u> = nominal base.

voc. theme	present	aorist	verbal adj.
'make'	**poié**-o-men	e-**poié**-sa-men	**poiē**-tós 'made'
'make angry'	**kholó**-o-men	e-**kholṓ**-sa-men	**khólō**-tós 'angered'
'love'	**agapá**-o-men	ē**gapḗ**-sa-men	**agapē**-tós 'to be loved'
cons. theme	present	aorist	verbal adj.
'ruin, distress'	**pēmain**-o-men (<*-**man-jo**-)	e-**pēmḗn**-a-men (<*-**man-sa**-)	a-**pḗman**-tos 'unharmed'
'begrudge'	**megaír**-o-men (<*-**ar-jo**-)	e-**megḗr**-a-men (<*-**ar-sa**-)	a-**mégar**-tos 'unbegrudged'
'oblige'	**kharíz**-o-men (<*-**id/t-jo**-)	e-**karís**-a-men (<*-**id/t-sa**-)	a-**kháris**-tos 'ungracious'

(32)   Ion. iterative preterits to denominal verbs (1Pl), primary stem = **bold**, iterative suffix = <u>underlined</u>, nominal base = *italics*.

	Iterative	verbal base		nominal base
a. voc. theme	***pothe*-é-<u>sk-o</u>-men**	***pothé*-o**-men (pres.)	'long for'	*pótho-s* 'longing'
	***poie*-é-<u>sk-o</u>-men**	***poié*-o**-men (pres.)	'make'	(**pójwo-s*)
	***sō̄*-é-<u>sk-o</u>-men**	***sō̄*-o**-men (pres.)	'save, rescue'	*sō̄-s* 'safe' (*sáo-s*)
b. cons. theme	***poimain*-é-<u>sk-o</u>-men**	***poimaín*-o**-men	'to (shep)herd'	*poimḗn, -man* 'shepherd'
	***eríz*-e-<u>sko</u>-men**	***eríz*-o**-men (< **id-jo*-)	'seek strife'	*érid*- (éris) 'strife'

4 Conclusion: new "themes" from denominal and deadjectival verbs

4.1 Summary

- AG primary verbal stem-forming suffixes (athematic/thematic) realize v, not Asp.

- Complex thematic suffixes pattern with the simple thematic suffix.

- Nonfinite forms of the verb (participles/verbal adjectives) select different "heights" of functional structure and can therefore be used as a diagnostic for presence/absence of v (and Voice, etc.)

- AG "secondary" vocalic themes (**contract verbs**) in -*ĕ-o-*, -*ă-o-*, -*ŏ-o-* have the same distribution as secondary consonantal themes–they still pattern as synchronically denominal.

- ... but evidence from MG that these are exactly the contexts where "upwards" reanalysis takes place and new verbalizers arise:

(33)   "Upwards reanalysis": a) $n \rightarrow v$, b) $a \rightarrow v$

a)
```
              v
         ┌────┴────┐
         n         v
      ┌──┴──┐      │
      √    n    -je/o- → -iz-
           │      ↑
          -id- ───┘
```

b)
```
              v
         ┌────┴────┐
         a         v
      ┌──┴──┐      │
      √    a    -je/o- → (-ō-)
           │      ↑
          -ŏ- ───┘
```
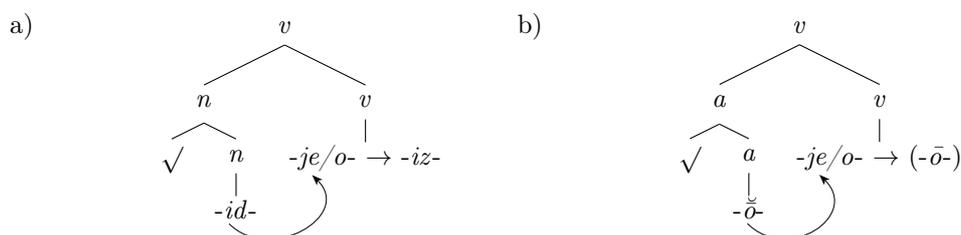
- Argument structure change often seems idiosyncratic, but there is some evidence for regularity even in this domain (van Gelderen 2018)

- If we can show that the development of verbalizers (and categorizers more generally) follows regular diachronic pathways, this would go some way towards establishing that the associated argument and event structure changes are also regular, and that the categorizer inventory is universal (to some extent) in the same way the morphosyntactic feature inventory is.

- Moreover, in both types of reanalysis (deadjectival → unaccusative, denominal → unergative), the features of a lower functional category are reanalyzed as belonging to a higher functional category. This parallels well-known instances of "upwards reanalysis" in the syntactic domain and is thus fully expected in an approach like DM in which morphological structure essentially reflects syntactic structure.

- Open issue: the status of the -*e/o-* element, i.e., the only element that is traditionally called "theme vowel" in AG. This is so widespread that any generalization as to its semantics seems impossible.

  - In terms of distribution, the same arguments as for Span. -*a*- vs. -*ifica*- apply (Fábregas 2017).
  - However, the same points of criticsm also apply → Oltra-Massuet's invited talk.
  - Maybe the difference is again diachrony? Unlike the other verbalizers, the "simple" theme vowel is assumed to have developed from reanalyzed *endings* (Watkins 1969, Jasanoff 1998, 2003, 2004, etc.), e.g.

*bhér-e	→	**bhér-**e**-t(i)*
carry-3SG.NONPAST.NONACT		carry-V/TH-3SG.NONPAST.NONACT
"carries (for him-/herself)"		"carries"

    ... so "downwards" reanalysis?

4.2 Future work

- There is mounting evidence that verbalizers, including *some* of those usually called "theme vowels", are associated with particular *Aktionsart* properties (cf. Panagiotidis et al. 2017, Kastner and Martin 2020 and many of the talks at this workshop, e.g., Arsenijević & Milosavljević, Kovačević, Milosavljević & Simonović, Mišmaš & Simonović ...)

- This is also the case for AG (and related older IE languages), though more work needs to be done:
    - *-(th)ē-*: inchoative → passive
    - *-nŭ-*: transitive-agentive
    - *-ŏ-e/o-*: factitive
    - *-eu-e/o-*: state (→ activity?)
    - *-sa-*: boundedness (?)

    ... etc.

- The interaction of different types of nominal & adjectival bases (agent nouns, instruments, verbal abstracts; (gradable) property vs. relation, ... see talk by Arsenijević & Milosavljević) with different types/"flavors" of verbalizers (v_{DO} vs. v_{BECOME} ...) and their diachrony still remain to be explored.

- Role of phonological change in upwards reanalysis/"resegmentation"? NB "phonological bleaching" in standard grammaticalization theories.

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