A new prosodic reconstruction of Proto-Indo-European *-*mon*-stems

Anthony D. Yates | ORCID: 0000-0002-3856-857X
Ludwig-Maximilians-Universität München, München, Germany
anthony.yates@lrz.uni-muenchen.de

Abstract

It is widely thought that (i) Proto-Indo-European had *-*mon*-stem nominals formed by internal derivation from neuter *-*men*-stems and that (ii) these *-*mon*-stems were characterized by "amphikinetic" inflection, thus stressed full-grade of the root in their strong case forms (*R(*é*)-*mon*-). This paper challenges the latter claim, arguing that these forms instead had stem-final stress (*R(*e*)-*món*-). I adduce prosodic evidence in support of this alternative reconstruction from Lithuanian, Greek, Hittite, and above all Vedic Sanskrit, where the attested reflexes of these *-*mon*-stems consistently show stem-final stress. I then propose a new account of their root full-grade, which on this new reconstruction is phonologically irregular, since it surfaces in a pretonic syllable. I contend that this full-grade was synchronically transferred from their neuter *-*men*-stem bases. In this respect, internally derived *-*mon*-stems are shown to pattern morphophonologically with other reconstructible non-primary derivatives, which similarly acquire their root vocalism from their derivational bases.

Keywords

1 Introduction

This paper is concerned with the reconstructible phonology of Proto-Indo-European (PIE) *-*mon*-stem nominals and their development into the IE daughter languages. More precisely, it focuses on the properties of those PIE

*-*mon*-stems that are widely thought to be formed by INTERNAL DERIVATION (ID)—viz., derivation marked only by changes in prosodic properties (i.e., word stress and/or ablaut), no overt ("external") affixation—from PIE neuter *-*men*-stem nouns.[1] The derivational relationship between these categories would under this view be reflected in attested nominal pairs like (1):[2]

(1)	*-*men*-stem (N.NOM/ACC.SG)	⇒		*-*mon*-stem	
a.	Ved. *bráhma*	'formulation'	Ved. *brahmā́nam*	'formulator; priest'	(M.ACC.SG)
b.	Ved. *dhárma*	'foundation'	Ved. *dharmā́nam*	'support(er)'	(M.ACC.SG)
c.	Gk. θῆμα	'tomb'	Gk. θημών	'heap'	(M.NOM.SG)
d.	Gk. μνῆμα	'remembrance'	Gk. μνήμων	'mindful'	(M/F.NOM.SG)
e.	Lat. *augmen*	'addition'	Lith. *augmuõ*	'sprout'	(M.NOM.SG)
			Ved. *ojmā́nam*	'strength'	(M.ACC.SG)

Similarly, there is broad agreement in this literature about the inflectional patterns of PIE *-*mon*-stems of the type in (1). Under the widely accepted Erlangen Model (EM) of IE athematic nominal inflection, these *-*mon*-stems exhibited "amphikinetic" (AK) inflectional paradigms—i.e., stressed full-grade of the root and *o*-grade of the suffix in the strong cases, and zero-grade of the root and suffix and stressed inflectional endings in the weak cases.[3, 4]

---

1 See Schindler (1975a:63–64), Widmer (2004:69), Rau (2009:134), Fortson (2010:122–123), Nussbaum (2014b:244, 248), Weiss (2020:281–282), i.a.

2 In Vedic *-*mon*-stems can be distinguished from animate *-*men*-stems only in the ACC.SG, NOM.PL, and NOM/ACC.DU, where the former have a suffixal long vowel reflecting PIE *o* (via BRUGMANN'S LAW; Brugmann 1876) vs. a short vowel in the latter reflecting PIE *e*. For this reason I cite the ACC.SG in (1) and in subsequent Vedic examples below.

3 First codified by Rix (1976/1992:121–124), EM represents the culmination of earlier research by Pedersen (1926, 1933), Kuiper (1942), and especially Schindler (1967, 1969, 1972, 1975b,c, 1994). Overviews of EM can be found in most recent IE handbooks, e.g., Tichy (2004:75–81), Clackson (2007:79–89), Fortson (2010:119–123), Weiss (2020:276–282), Meier-Brügger & Fritz (2021:207–224). In this paper, I assume that EM's reconstruction of ID *-*mon*-stems as an AK class represents a claim about their inflection in PIE, here defined as the last stage of the proto-language that is ancestral to all of the IE languages (viz., including the Anatolian branch). This is not the only possible interpretation of EM's reconstruction, however, which instead may be understood as a claim about their inflection at a deeper (i.e., pre-PIE) stage; see 7.3 below for further discussion.

4 Differently, Tremblay (1996:128–132) reconstructs "anakinetic" inflection—i.e., stem-final stress in the strong cases, root stress in the weak. Among other issues, this hypothesis fails to account for the Vedic evidence for stressed inflectional endings in the weak cases of ID *-*mon*-stems, which are an inherited feature both under the AK reconstruction and under the new prosodic reconstruction advanced here (see 7.2 for discussion).

In this paper, I propose a new phonological reconstruction of PIE internally derived *-*mon*-stems like (1) (henceforth, ID *-*mon*-stems). The proposed reconstruction partially aligns with the AK inflection posited by EM, especially in the weak cases (see 7.2 below for discussion). The main claim advanced in this paper, however, deals with the strong case forms of PIE ID *-*mon*-stems. I argue that these nominals were characterized by stress on the stem-final syllable, in this respect diverging from the AK pattern hypothesized by EM.[5] The contrast between these two reconstructions of the strong cases is represented for the PIE ancestor of Vedic *dharmán*- 'support(er)' from (1b) above in (2) below, where it can be observed that only the proposed reconstruction of PIE ID *-*mon*-stems directly accounts for the consistent stem-final stress observed in Ved. *dharmán*- and other Vedic nouns belonging to this class (cf. section 3 below).[6] I contend below that the reflexes of this class in the other IE daughter languages likewise support reconstructing stem-final stress for PIE itself and, in turn, that this fact provides decisive evidence against the AK reconstruction and in favor of the alternative proposal.

(2)   Two reconstructions of the strong cases of PIE ID *-*mon*-stems:

	a. AMPHIKINETIC	b. PROPOSED		VEDIC	
NOM.SG	*[dʰér-mōn]	*[dʰer-mṓn]	>	*dharmā́*	'support(er)'
ACC.SG	*[dʰér-mon-m̥]	*[dʰer-món-m̥]	>	*dharmā́ṇam*	"
NOM.PL	*[dʰér-mon-es]	*[dʰer-món-es]	>	*dharmā́ṇas*	'support(er)s'

---

5   I provisionally limit my claim to the ANIM.NOM.SG, ACC.SG, and NOM.PL due to uncertainties about whether the ANIM.ACC.PL was a strong case in PIE (as in Greek, Hittite, and probably Balto-Slavic) or a weak case (as in Indo-Iranian).

6   The NOM.SG of the PIE *-*mon*-stems in (2) and in subsequent examples below is reconstructed here with a word-final nasal. It is commonly assumed that already in PIE *n was lost in word-final position after *ō (Schindler 1974:5, Harðarson 1987a:118–121, Jasanoff 1989:138, 2002:35; cf. Mayrhofer 1986:159, Byrd 2015:21), given its absence in this environment in several IE branches (Anatolian, Balto-Slavic, Celtic, Indo-Iranian, Italic). However, it is also possible that it occurred independently in the prehistories of these branches, especially since most of them (viz., all except Italic and Celtic) also show loss of word-final *n after *ē (cf. the cautious formulations of Melchert 1983:10 n. 25 and Weiss 2020:331 n. 49). I assume the latter, but which of these historical scenarios is correct does not materially affect the analysis of the *-*mon*-stems developed here.

The rest of this article is structured as follows. I begin in section 2 with a brief discussion of the nature of the prosodic evidence for ID *-*mon*-stems. The next several sections constitute a survey of the reflexes of PIE ID *-*mon*-stems in the four IE languages that provide evidence for their inherited stress patterns: Vedic Sanskrit in section 3; Lithuanian in section 4; Greek in section 5; and Anatolian in section 6. This survey culminates in section 7 with an overall assessment of this evidence for the reconstruction of the strong case forms of ID *-*mon*-stems. Having briefly discussed the evidence for the weak cases, I present a new prosodic reconstruction of PIE ID *-*mon*-stem whereby these nominals were characterized by paradigmatic root full-grade; in the strong cases, the stem-final stress pattern seen in (2b); and in most of the weak cases, the same zero-grade of the suffix (with */m/-deletion; see 7.2 below) and stressed inflectional endings expected on the AK reconstruction (e.g., GEN.SG *[-n-é/ós]). Section 8 considers a possible theoretical objection to this new reconstruction—specifically, its full-grade root, which is phonologically unexpected in a pretonic syllable. I propose that this root vocalism was transferred from their derivational bases, neuter *-*men*-stems. In this respect, ID *-*mon*-stems are argued to parallel other types of non-primary derivatives, which as already observed Schindler (1975c:260) often exhibit phonological properties that appear to have been transferred from their derivational bases. Finally, I conclude in section 9 with some brief remarks on the morphophonology of PIE ID *-*mon*-stems and of PIE non-primary derivatives generally. Since previous analyses mismatch the phonological reconstruction in (2b), I discuss the properties of ID *-*mon*-stems that future analyses of this category must account for.

2   Evidence for word stress in ID *-*mon*-stems

As noted already in section 1, this paper is concerned specifically with the word-prosody of the subset of PIE *-*mon*-stems that stand in a derivational relationship with neuter *-*men*-stems—i.e., with ID *-*mon*-stems. In 2.1 I discuss two types of evidence from the IE daughter languages that inform the prosodic reconstruction of this PIE category. The remainder of this section deals with *-*mon*-stems that I argue are uninformative in this respect: compound *-*mon*-stems in 2.2; and PIE *h_2éḱmon*- 'stone; heaven' in 2.3.

2.1   *Sources for reconstructing word stress in ID *-mon-stems*
The first type of IE evidence that bears upon the prosodic reconstructions of PIE ID *-*mon*-stems is the stress patterns observed in direct reflexes of this

category—i.e., reflexes of *-*mon*-stems attested beside cognate neuter *-*men*-stems that (i) historically (and in some cases potentially also synchronically) served as their derivational bases, or (ii) whose bases are plausibly reconstructed for PIE by comparison. Examples of the former type were cited in (1). An example of the latter type is TB *klyomo* 'noble' (= TA *klyom* < *$\hat{k}leu$-*món*-); the cognate neuter *-*men*-stem is not found in Tocharian, but is attested in YAv. *sraoman*- 'hearing' (< *$\hat{k}léu$-*men*-) and with further suffixation in Indic and Germanic, Ved. *śrómata*- and OHG *hliumunt* '(good) reputation' (< *$\hat{k}léu$-*mn̥-to*-), on which basis it is possible to reconstruct a derivationally related pair PIE *$\hat{k}leu$-*món*- ⇐ N *$\hat{k}léu$-*men*- (⇐ *$\hat{k}leu$- 'hear'; cf. *NIL*: 425, *LIV*²: 334–335).

Also relevant for the prosodic reconstruction of ID *-*mon*-stems are deverbal and denominal *-*mon*-stems, which are generally held to have arisen by reanalysis of ID *-*mon*-stems.[7] These formations are attested in a number of IE language branches (at least Anatolian, Celtic, Indo-Iranian, Italic, and Tocharian), which suggests that this reanalysis may have occurred already in PIE itself (cf. Yates 2020b:253–254). Given the poverty of word equations across IE language branches, however, it is also conceivable that it occurred independently in each of these branches (cf. Weiss 2017:387 n. 53).[8] Which of these scenarios is correct is for present purposes immaterial; in either case, the stress patterns seen in these deverbal and denominal *-*mon*-stems would necessarily be based on the ID *-*mon*-stems from which the suffix was resegmented, and so indirectly testify to the prosodic properties of this category.

2.2 *The prosody of compound *-mon-stems*

In addition to the direct and indirect reflexes of ID *-*mon*-stems discussed in 2.1 above, there is robust evidence in the IE languages—especially in Greek (see further 5.2 below)—for exocentric compound adjectives (i.e., bahuvrīhis; BVs) with stem-final *-*mon*-. The second members (2Ms) of these compounds are in general segmentally identical to ID *-*mon*-stems and could thus in principle be analyzed as such. However, the standard view of these compounds is that the 2M is not an ID *-*mon*-stem per se, but rather a neuter *-*men*-stem stem that undergoes a morphophonological change as part of the compounding process,

---

7 See Watkins (1962:181–185), Melchert (1983:23), McCone (1995:4), Stüber (1998:145–146), Remmer (2002–2003:173–181), *i.a.*

8 While Weiss (2017:387 n. 53) rightly observes that across-branch word equations for non-primary derivatives formed with an independent suffix *-*mon*- are lacking, I discuss examples below (in 5.1, 5.2, and section 6) of apparent primary derivatives formed with this suffix that are supported by (near) word equations (cf. Stüber 1998:145–146). See also Yates (2020b) for fuller discussion of this material, including arguments that an independent suffix *-*mon*- is reconstructible for PIE.

whence stem-final *-mon-* (see, e.g., Brugmann 1906:233, 239, Wackernagel & Debrunner 1954:762, Risch 1974:52). Evidence for this view comes from the fact that, in both Greek and Vedic, there are numerous *-mon-*-stem BVs in which the 2M corresponds to an attested primary neuter *-men-*-stem stem, but is not independently attested (i.e., as a non-compound *-mon-*-stem)—e.g., (3). From such cases it can be inferred that neuter *-men-*-stems—not ID *-mon-*-stems— function as the input to compounding in *-mon-*-stem BVs.

(3)		NOM/ACC.SG *[-mn̥]	⇒		BV 2M *-mon-		ID *-mon-
a.	Ved.	*kár-ma*	'deed'	*viśvá-karmāṇam*		'having all deeds'	ˣ*kar-mán-*
b.	Ved.	*ján-ma*	'birth'	*bhrā́jaj-janmānas*		'having a brilliant birth'	ˣ*jan-mán-*
c.	Ved.	*mán-ma*	'thought'	*dur-mánmānam*		'having bad thoughts'	ˣ*man-mán-*
d.	Gk.	πρᾶγμα	'affair'	πολυ-πρᾱ́γμων		'having many affairs'	ˣπραγμών
e.	Gk.	ῥῆμα	'word'	κακο-ρρήμων		'having bad/evil words'	ˣῥημών
f.	Gk.	σχῆμα	'form'	ἀλλοιο-σχήμων		'having different forms'	ˣσχημών

According to EM, the apparent change in the shape of the stem seen in these compounds (N *-men-* ⇒ 2M *-mon-*) is the result of ID—more specifically, of "a productive derivational pattern in Proto-Indo-European by which posses-sive compounds could be derived from proterokinetic neuters by introducing amphikinetic inflection" (Stüber 1998:144; cf. Widmer 2004:69–70, Schneider 2010:66, Fellner & Grestenberger 2016, i.a.).[9] On this analysis, BV *-mon-*-stems are created by what is at least formally the same derivational process as ID *-mon-*-stems, in which case their prosodic properties might be relevant to the reconstruction of ID *-mon-*-stems.

Yet while the EM analysis of BV compounds has been widely adopted (e.g., Fortson 2010:137, Weiss 2020:282), its empirical basis is questionable. As pointed out by Kiparsky (2010:169–170) and by Lundquist (2021a:155–156), the only AK property that is observed in the attested IE reflexes of such BVs is

---

9 In fact, Schindler (1975c:263) did not restrict this process to just neuter or just PK nomi-nals (he cites Gk. εὐπάτωρ 'having a good father' with animate "hysterokinetic" πατήρ 'father' as 2M; but cf. n. 10 below), and proponents of EM now generally allow for AK inflection in BVs formed from nominals of any inflectional class (e.g., Widmer 2004:62–70, Nuss-baum 2014b:238–239, Jasanoff 2017:20–21). It would thus be attractive in this framework to assume that the change to AK inflection is directly conditioned by the compounding pro-cess, but this is incompatible with EM's reconstruction of BV compound *-es-*-stem adjectives with "hysterokinetic" inflection formed from N *-es-*-stem nouns. Since EM reconstructs both N *-es-*-stems and N *-men-*-stems with PK inflection, making this process sensitive to the inflec-tional class of the 2M would not work either.

o-vocalism of the stem-final suffix in the strong cases;[10] there is no evidence for AK stress mobility, either within the 2M of the compound (which also shows no trace of root or suffixal ablaut) or in the compound as a whole (assuming that "amphikinesis" in a compound would be equivalent to edge-to-edge mobility, i.e., word-initial stress in the strong cases and stressed inflectional endings in the weak).[11] In Vedic, BV *-mon*-stems are instead governed by the same principles of stress assignment as other BVs: the general rule is that the first member (1M) is stressed on the same syllable as when it occurs as an independent word.[12] This rule is illustrated in (4). The contrast between (4d) and (4e) in particular shows that the position of stress depends on the accentual properties of the 1M of the compound.

(4)

	1M		+	2M		⇒	BV *-mon*-	
a.	*śúci-*	'brilliant'		*ján-man-*	'birth'		*śúci-janman-*	'having a brilliant birth'
b.	*satyá-*	'true'		*mán-man-*	'thought'		*satyá-manman-*	'having true thoughts'
c.	*áśman-*	'stone'		*hán-man-*	'blow'		*áśma-hanman-*	'having blows like stones'
d.	*śatá-*	'hundred'		*yā́-man-*	'course'		*śatá-yāman-*	'having a hundred courses'
e.	*sahásra-*	'thousand'		*yā́-man-*	'course'		*sahásra-yāman-*	'having a thousand courses'

In Greek, on the other hand, all BV *-mon*-stems exhibit "recessive accentuation" (RA): stress—phonetically realized as a high tone—is assigned to the leftmost mora within the "Law of Limitation" (LoL), a right edge stress window that developed in Proto-Greek; stress thus surfaces on the final vocalic

10   While the reflexes of BV *-mon*-stems consistently exhibit *o*-vocalism, the evidence for
        o-vocalism in other BVs analyzed by EM as AK is less compelling; see now Lundquist
        (2021a), who raises doubts about the PIE status of the suffixal *o*-grade in BVs whose 2Ms
        exhibit "hysterokinetic" inflection as independent words (e.g., Gk. εὐπάτωρ; see n. 9 above).

11   The claim of EM is often formulated in an imprecise way, such that it is unclear whether
        AK inflection is a property of the compound as a whole (cf. Kiparsky 2010:169–170,
        Lundquist 2021a) or just of the 2M, and if the latter, whether the AK stress pattern
        obtains only at a level prior to compounding or on the surface. Stüber's (1998:44) formu-
        lation above is merely representative in this respect; the ambiguity is present already in
        Schindler's (1975c:263) seminal discussion. Jasanoff (2017:20–21) is somewhat more pre-
        cise in attributing AK inflection just to the 2M.

12   The term used by Pāṇini is *prakṛtyā* 'according to its natural place' (6.2.1; cf. Wackernagel
        1905:291, Lundquist 2016:10–11, 2017:94–95). While there are exceptions to this rule in BV
        -mon-stems, these exceptions are of the same kind as found in BVs generally (e.g., in
        BVs with 1M *a(n)-*, *su-*, or *dus-*; see the discussion in Wackernagel 1905:291–302 and n. 16
        below).

mora of the word's antepenultimate syllable if the final syllable is light (modulo final consonant extrametricality), otherwise on the initial vocalic mora of the penultimate syllable.[13] For BV *-*mon*-stems with primary neuter *-*men*-stems as their 2M, RA is descriptively identical to root stress of the 2M in most case forms, including the M/F.NOM.SG citation form, as evident in (3d–f) above. That root stress in these forms is the result of RA, however, is evident from paradigmatic forms like the N.NOM/ACC.SG (e.g., ἄν-αιμον 'bloodless'), VOC.SG ὀλβιό-δαιμον 'having a blessed lot', and M/N.GEN.PL εὐδαιμόνων 'having a good lot', which show that their stress pattern is determined purely by their phonological shape.[14]

A historical explanation for the prosody of these compounds was outlined already by Wheeler (1885:39–55), who observed that Greek words regularly exhibit RA when maintaining their PIE stress patterns (generally reconstructed on the basis of Vedic) would have resulted in stress falling closer to the left edge of the word than was permitted by the LoL. If this generalization is correct, then the RA pattern seen in Greek BV *-*mon*-stems (and in most other BV stem types) can be derived from a Vedic-like PIE grammar in which BVs had 1M stress:[15] since inherited 1M stress would consistently fall beyond the LoL in BV *-*mon*-stems, the emergence of RA in these compounds after the innovation of the LoL in Proto-Greek would be historically expected (cf. Lundquist 2016, 2017:70–71, 2021a).

The most economical account of the Greek and Vedic data is therefore that in PIE BV *-*mon*-stems were regularly stressed on their 1M—more precisely, on the same syllable of the 1M that bears stress when it occurs independently (cf. Brugmann 1905–1906:65, Lundquist & Yates 2018:2127–2128, i.a.).[16] This sit-

---

13   On "recessive accentuation" and the "Law of Limitation" generally see Probert (2006b:128–144) and Gunkel (2014a,b), and for a survey of theoretical analyses Probert (2010). On the origin of the "Law of Limitation" see Probert (2012).

14   The N.NOM/ACC.SG forms in particular show that these BVs do not bear a lexical accent on the root, since accented adjectives always show the same non-RA stress pattern in the N.NOM/ACC.SG as, e.g., in the M.NOM.SG (ἐρυθρός, N ἐρυθρόν 'red', etc.). The VOC.SG shows the same, but since there are at least a few accented words in Greek that have a vocative with RA (e.g., M.NOM.SG ἀδελφός, VOC ἄδελφε 'brother'; see Probert 2006b:67 n. 31), their diagnostic value is somewhat weaker.

15   The only Greek BVs that do not regularly exhibit RA are compound *-*es*-stem adjectives, on which see n. 91 below.

16   Brugmann (1905–1906:65) saw a trace of 1M stress in Germanic compounds like OE *fyðer-fēte* 'four-footed' (cf. Ved. *cátur-pad-* 'id.'), which would add further support for reconstructing a Vedic-like situation for PIE. Note, however, that I do not exclude the possibility that certain PIE BVs had 2M member stress—in particular, BVs in which the 1M was not a lexical word (cf. Lundquist 2017:97–110 on *h_1su-). Such cases merit further investigation.

uation is directly continued in Vedic, and is also reflected in Greek modulo the LoL. For present purposes, the major take-away from this discussion is that BV *-*mon*-stems are uninformative with respect to the position of stress in ID *-*mon*-stems. Even if it is the case that the 2M of these PIE compounds is formally equivalent to an ID *-*mon*-stem as assumed by EM (which is not assured; cf. n. 10 above), since the 1M determined their stress pattern as a whole, their reflexes provide no evidence as to whether the 2M had AK stress mobility, stem-final stress, or any other stress pattern as an independent word.

2.3   The relationship between PIE *h₂éḱmon- and ID *-mon-stems

In most previous scholarship, PIE *$h_2éḱmon$- 'stone; heaven' has been grouped together with ID *-*mon*-stems,[17] and its numerous IE reflexes—e.g., (5a–f) below—used to reconstruct a single inflectional pattern associated with all PIE primary *-*mon*-stem nominals, viz., AK inflection (e.g., Gotō 2013:39–40, Meier-Brügger & Fritz 2021:223). Yet while the segmental identity of their stem-final elements (*[-mōn] in NOM.SG, *[-mon-] in ACC.SG and NOM.PL) may suggest a connection at some historical stage, the comparative IE evidence does not support the assumption of a unified morphological category in PIE itself.

(5)   Reflexes of PIE *$h_2éḱmon$- (cf. *NIL*: 287):
   a. Vedic: ACC.SG *áśmānam*, INS.SG *áśnā* / *áśmanā* 'stone'[18]
   b. Younger Avestan: ACC.SG *asmanəm*, GEN.SG *ašnō* 'stone; heaven'[19]
   c. Old Persian: ACC.SG *asmānam* 'heaven'
   d. Greek: NOM.SG ἄκμων, GEN.SG ἄκμονος 'anvil; heaven (Hesych.)'
   e. Old Lithuanian: NOM.SG *ãkmuo/akmuõ*, GEN.SG *ãkmenes/akmenès* 'stone'
   f. Latvian: NOM.SG *akmens*, GEN.SG *akmens* 'stone'

The central morphological problem with treating *$h_2éḱmon$- as an ID *-*mon*-stem is the absence of a corresponding neuter *-*men*-stem from which it could be internally derived.[20] This absence is not likely to be accidental. A more

---

17   On the seemingly divergent meanings of this lexical item in IE and in Greek see Beckwith 1998 with references.

18   In Vedic and the other Indo-Iranian languages, animate *-*mon*-stems can be distinguished from animate *-*men*-stems only in the ACC.SG, NOM.PL, and NOM/ACC.DU; I therefore preferentially cite these case-forms whenever they are attested.

19   On the unexpected short vowel in the stem-final syllable of *asmanəm* see de Vaan (2003: 130).

20   It is in principle possible that Lith. *ašmuõ* 'cutting edge' (attested mostly in NOM.PL *ãšmenys*) and/or Latv. *asmens* 'id.' are reflexes of a neuter *-*men*-stem to *$h_2eḱ$-. Yet if Lith.

probable cause is that neuter *-*men*-stems were derived primarily from verbal roots (Fortson 2010:123, Lundquist & Yates 2018:2110, Weiss 2020:333–334, i.a.), but there is no known PIE verbal root from which such a *-*men*-stem could plausibly be derived, and in turn, a *-*mon*-stem via ID. The only established PIE root that is formally compatible with *$h_2\acute{e}\hat{k}mon$- is *$h_2e\hat{k}$- 'sharp, pointed', which is the source of various IE nominal forms (e.g., Lith. *aštrùs*, Lat. *ācer*, OIr. *aicher*, TB *akwatse* 'sharp'; Lat. *acus* 'needle'; Gk. ἄκρις 'mountain peak'),[21] but this root lacks securely reconstructible verbal forms (cf. *LIV*²: 261). More-over, on semantic grounds a derivational relationship in PIE between *$h_2e\hat{k}$- and *$h_2\acute{e}\hat{k}mon$- 'stone; heaven' is far from assured; the divergence in meaning is noted, for instance, by *NIL*: 290–291, who tentatively place *$h_2\acute{e}\hat{k}$-*mon*- with *$h_2e\hat{k}$-, but suggest that the latter may have been lexicalized in the meaning 'stone' already in PIE rather than deriving its meaning from the semantics of the root *$h_2e\hat{k}$-.[22]

In view of this evidence for a morphological distinction between *$h_2\acute{e}\hat{k}mon$- and ID *-*mon*-stems in PIE, it would be unsurprising if they also exhibited different prosodic behavior, and in fact, this is precisely what is observed in the IE languages. The clearest evidence comes from Vedic and (Old) Lithua-nian where—as will be seen in sections 3 and 4—the reflexes of ID *-*mon*-stems show a single stress pattern but those of *$h_2\acute{e}\hat{k}mon$- show a different pattern. In Vedic, ID *-*mon*-stems like *brahmán*- 'formulator; priest' in (1a) con-sistently have stem-final stress in their strong cases, whereas *áśman*- 'stone' in (5a) has word-initial stress. Similarly in Lithuanian, nouns with NOM.SG in -*muo* regularly show intraparadigmatic stress mobility, e.g., NOM.SG *raumuõ* 'mus-cle' vs. DAT *raũmeniui*; but while 'stone' conforms to this pattern in standard Lithuanian (NOM.SG *akmuõ* vs. DAT.SG *ãkmeniui*), in Old Lithuanian (Daukša) it shows almost exclusively fixed initial stress, e.g., NOM.SG *ãkmuo*, GEN.SG *ãkmenes* (cf. Senn 1966:139, Illič-Svityč 1979:49; see 4.2 below for further dis-cussion).

---

akmuõ and Latv. *akmens* show the regular outcome of *$\hat{k}m$ (with conditioned depalatal-ization of *$\hat{k}$; see Matasović 2005:368, Derksen 2015:47), then Lith. *ašmuõ* and Latv. *asmens* 'id.' are better explained as inner-Baltic formations; see Pardini (2011:30), who argues for independent formations in each language from their respective reflexes of the root *$h_2e\hat{k}$- (cf. 4.1 below).

21   See *NIL*: 288–300 for a much more extensive list of derivatives of *$h_2e\hat{k}$- with discussion and references.

22   *NIL*: 290–291 n. 7: "Gew[öhnlich] zu dieser W[urzel] gestellt, doch ist für *$h_2\acute{a}\hat{k}$-*mon*- eine bereits grundsprachlich lexikalisierte Bedeutung 'Stein' deutlicher faßbar, als es bei anderen Nominalbildungen von *$h_2a\hat{k}$-... der Fall ist."

The most straightforward explanation for these facts is that *h_2éḱmon-* was prosodically distinct from ID *-mon-*stems already in PIE, a difference which persisted into the attested IE languages. The fixed initial stress pattern observed in the Old Lithuanian and Vedic reflexes *h_2éḱmon-* is matched by Greek ἄκμων in (5d), which strongly supports the reconstruction of initial stress in its strong case forms in PIE—i.e., (6):[23]

	(6)	PIE		GREEK	
NOM.SG		*[$h_2$ákmōn]	>	ἄκμων	'anvil'
ACC.SG		*[$h_2$ákmon-m̥]	>	ἄκμονα	"
NOM.PL		*[$h_2$ákmon-es]	>	ἄκμονες	'anvils'

In contrast, I argue in section 7 below that ID *-mon-*stems were in PIE characterized by stem-final stress in their strong cases just like their Vedic reflexes. It is impossible to exclude that PIE *h_2éḱmon-* and ID *-mon-*stems ultimately derive historically from a single prosodically uniform category, but if so, I take this category and its prosodic properties to be matters of internal reconstruction (i.e., pre-PIE).

---

[23] A separate question is whether in PIE the weak cases of *h_2eḱmon-* had stressed inflectional endings—i.e., exhibited AK stress mobility, as traditionally assumed (e.g., *NIL*: 291)—or else root stress, as the combined evidence of Vedic, Greek, and Old Lithuanian suggests. Standardly cited as evidence for erstwhile AK mobility are weak case forms like GEN.SG Ved. *áśnas* and YAv. *ašnō*, where the deletion of the vowel in the stem-final syllable—and, as a consequence, of the preceding */m/ in the resulting /.Cmn/ cluster— are widely assumed to be conditioned by stress shifting to the inflectional ending (see, e.g., Schmidt 1895:87–159, Mayrhofer 1986:159, Kiparsky 2010:149, Nussbaum 2010). However, the empirical basis for this assumption is questionable. In Indo-Iranian, at least, deletion of the stem-final vowel occurs also in certain categories attested with fixed root stress such as *-tor-*stem agent nouns (e.g., Ved. *hótre* 'for the offerer(/priest)' = YAv. *zaoϑre*), which are reconstructed for PIE as "akrodynamisch" (i.e., with fixed root stress) by Rix (1992:123), as well as in individual lexical items (e.g., Ved. *rā́jne* 'for the king'). Another common assumption is that stem-final *o*-vocalism implies AK stress mobility, but for PIE this assumption is false (see Yates 2019b). In my view, the forms of *h_2éḱmon–* with */m/-deletion probably do point to AK stress mobility in PIE (cf. Schindler 1975c:263–264), but the issue calls for further research.

3   ID *-mon-stems in Vedic Sanskrit

The most robust direct evidence for the reconstructible prosodic patterns of
PIE ID *-mon-stems comes from Vedic Sanskrit. At least nine reflexes of pri-
mary neuter *-men-stem nouns are attested in the *Ṛgveda* (RV) beside cognate
*-mon-stems—in Vedic, masculine nouns—which are segmentally identical
but differ prosodically. The existence of such pairs is economically explained
under the view, widely accepted since Schindler (1975a:63–64), that historically
they reflect the input and output of ID—i.e., that *-mon-stems derive from
neuter *-men-stems by changing the prosodic properties of the latter (see fur-
ther section 9 below). In addition, there are at least two Vedic masculine nouns
that can be plausibly assumed to continue PIE ID *-mon-stems on the basis of
comparative or historical evidence. As will become clear presently, the Vedic
reflexes of these PIE ID *-mon-stems have stem-final stress without exception.

I begin with the *-mon-stems synchronically paired with primary neuter
*-men-stems. This set can be divided into two groups: a first group in (7) in
which a transparent semantic relationship obtains between neuter *-men-stem
and *-mon-stem; and a second group in (8) which are related to one another
formally in the same way but semantically do not conform to this pattern.

(7)   **NOM/ACC.SG *[-mn̥]**   ⇒   **ACC.SG *[-món-m̥]**

a.	*dā́ma*	'gift'	*dāmā́nam*	'giver; giving'
b.	*dhárma*	'support; ordinance'	*dharmā́ṇam*	'supporter; issuer of ordinances'
c.	*bráhma*	'sacred formulation'	*brahmā́ṇam*	'formulator; priest'
d.	*sádma*	'seat'	*sadmā́nam*	'sitter'

(8)   **NOM/ACC.SG *[-mn̥]**   ⇒   **ACC.SG *[-món-m̥]**

a.	*óma**	'aid'	*omā́nam*	'aid'
b.	*várima**	'expanse'	*varimā́ṇam*	'expanse'
c.	*várṣma**	'height'	*varṣmā́ṇam*	'height'
d.	*svā́dma*	'sweetness'	*svādmā́nam*	'sweetness'
e.	*bhū́ma*	'earth'	*bhūmā́ṇam*	'abundance'

In the first group, the ID *-mon-stem stem is generally a masculine agent noun, which denotes an entity that habitually/characteristically produces or employs the neuter deverbal (7a–c) result noun or (7d) instrument noun from which it is derived. Thus in (7c), for instance, N *brahmán-* 'formulator; priest' is the one who produces the N *bráhman-* 'ritual formulation' in his primary duty, the performance of the ritual. All of the *-mon-stems in (7) function as agent nouns in the RV; (7a) is also attested with event/result noun readings ('giving, gift'; e.g., RV IV.42.2c).[24] The fact that the meanings of the *-mon-stems are essentially predictable on the basis of their corresponding *-men-stems suggests that the historical relationship between them may be synchronically maintained, with the latter continuing to serve as the derivational base for the former.

This semantic relationship is not seen in the second group, however. In (8a–d), the neuter base and masculine derivative appear to be synonymous.[25] In (8e), the relationship is opaque, presumably due to lexicalization of the neuter *-men-stem in the meaning 'earth'; this change is confirmed by the semantic divergence seen also between this noun and the the Vedic root *bhū-* 'become', which historically was its base (viz., PIE *b^huh_x-; cf. *NIL*: 47, *LIV²*: 98–99).

A third and final group consists of Vedic masculine *-mon-stem nouns for which a cognate neuter *-men-stem is not directly attested but is in all likelihood reconstructible, and which thus may reflect PIE ID *-mon-stems. This group includes at least two nouns attested in the RV, which are given in (9) along with evidence that supports the reconstruction of the N *-men-stem from which they were derived historically:[26]

---

24   The word N *dhárman-* in (7b) has a number of senses in the RV (see Brereton 2004), which are also reflected in the derived agent noun M *dharmán-*; the latter can thus mean both 'supporter' (e.g., RV X.92.2b) and 'one with the power to issue ordinances' (e.g., IX.97.23c), which correspond respectively the meanings of its base 'support' (e.g., X.50.6c) and 'ordinance' (e.g., VII.89.5c; cf. Jamison & Brereton 2014:996, 1340, 1458, 1542).

25   In (8a), N *óman-* 'aid' is attested in INS.PL *ómabhis* (hapax in RV, 5.43.13b). In (8b–c), N *váriman-* and *várṣman–* are attested only in LOC.SG: *váriman* (5× in RV, e.g., IV.54.4c); *várṣman* (5× in RV, e.g., III.5.9b).

26   A possible third example is Ved. *hemán-* 'impulsion' (INS.SG *hemánā*, RV IX.97.1a), generally connected with OAv. *zaēman-* 'activity' (N.ACC.SG *zāemā*, Y 44.5); see Wackernagel & Debrunner (1954:759), *EWA* II: 819.

(9)   **EVIDENCE FOR N** *-*men*-STEM   ⇒   **ACC.SG** *[-món-m̥]

    a. Lat. *augmen*   'increase'   *ojmā́nam*   'strength'
            TB *auki*   'increase'
    b. Ved. *dárīman-*   'splitting'   *darmā́ṇam*   'splitter'

In the case of (9a), neuter *-*men*-stems derived from the same root (< PIE
h₂eug-; see *NIL*: 328–329, *LIV²*: 274–275) are found in Latin and Tocharian.[27]
They support the reconstruction of a neuter *-*men*-stem *h₂éug-men-* from
which *h₂eug-món-* (> Ved. *ojmā́nam*, Lith. *augmuõ* 'sprout'; on the latter see
4.2 below) was formed by ID.[28]

    For (9b) the neuter event noun Ved. *dárīman-* 'splitting' provides evidence
for an erstwhile *dár-man-*—i.e., the expected neuter *-*men*-stem from which
the *-*mon*-stem reflected in Ved. *darmā́ṇam* was historically derived. This noun
belongs to a small, idiosyncratic class of Vedic neuter nouns with stem-final
-*īman-*. Just eight stems of this type are attested in the RV, collectively occurring
twenty-seven times, only in the LOC.SG (–*īman-i* or, less commonly, ending-
less -*īman*) or INS.PL (–*īma-bhis*). Per Wackernagel & Debrunner (1954:763) the
core of this class consists of neuter *-*men*-stems built to PIE roots of the shape
(s)TeRH with irregular lengthening of the vocalic reflex of the root-final laryn-
geal (i.e., -*ī-man-* for expected *-*i-man-*)[29]—e.g., Ved. *sávī-man-* 'impelling' <
PIE *séuh₁-men-*, *stárī-man-* 'strewing' < *stérh₃-men-*, *hávī-man-* 'invoking' <
ǵʰéuhₓ-men-.[30] From this core were then built several new -*īman*-stems beside
existing *-*men*-stems, clear examples of which are *bhárīman-* 'support' beside

---

[27]   On the development of neuter *-*men*-stems in Tocharian see Adams (2015:178). TA *okäm*
       is almost certainly an exact match for TB *auki*, but the meaning is opaque (perhaps 'cir-
       cumspect'; see Adams 2013:137).

[28]   Ved. *ojmán-* must have retained a synchronic connection with the root *uj-* 'strong' (cf. *ój-
       as-* 'strength'), since the root-final *j* is not the phonologically regular outcome of *ǵ* in
       this context (ˣ*ogmán-* is expected; see Wackernagel & Debrunner 1954:754–755 for dis-
       cussion).

[29]   The long vowel (*ī*) is unexpected, perhaps attributable to metrical lengthening (see Wack-
       ernagel & Debrunner 1954:763 with references).

[30]   For the PIE roots see *LIV²*: 180–181, 538, 599–600. The last is reconstructed by *LIV²* as a
       "State II" root *ǵʰwehₓ-*, so the neuter *-*men*-stem with apparent "State I" shape is per-
       haps better viewed as an inner-Indic creation. Its formation would thus parallel Ved.
       párī-man- 'fullness' (RV IX.71.3d), whose PIE root is manifestly "State II" *pleh₁-* (cf. *LIV²*:
       482–483).

bhár-man- 'id.' (< **bʰér-men-*; cf. Gk. φέρμα 'offspring') and *dhárīman-* 'support' beside *dhár-man-* 'id.' (< **dʰér-men-*), both from PIE roots without a final laryngeal. In view of such cases, it is reasonable to assume an unattested Ved. **dár-man-*, the expected neuter **-men-*stem from the PIE root **der-* (*LIV²*: 119–120), as the basis for the creation of *dárīman-*.[31]

The forms in (7–9) above exhaust the direct evidence for PIE ID **-mon-*stems in Vedic. Prosodically, the Vedic reflexes of this category are effectively uniform: they exhibit paradigmatic full-grade of the root (in historical terms) and stem-final stress in their strong case forms.[32] Both of these properties fit precisely with the reconstruction of ID **-mon-*stems proposed in (2) above, but their stress pattern does not match the traditional AK reconstruction, which predicts stem-initial rather than stem-final stress in these forms.

Vedic also provides some indirect evidence for the reconstruction of PIE **-mon-*stems. Vedic has a substantial class of masculine nouns that appear to be primary derivatives formed with a suffix **-mon-*. These nouns are derived especially from adjectival roots that encode property concepts, e.g.: *prathimán-* 'breadth' (cf. *pr̥th-ú–* 'broad'), *jari-mán-* 'old age' (cf. *jár-ant-* 'old'), *mahimán-* 'greatness' (cf. *máhi-* 'big, great'), *drāgh-mán-* 'length' (cf. *dīrghá-* 'long').[33] Just like the Vedic reflexes of ID **-mon-*stems, these are consistently stressed on the stem-final syllable in their strong case forms.[34] As discussed in 2.1 above, it is generally assumed that nominals formed with an independent suffix **-mon-* arose by a reanalysis of ID **-mon-*stems. The fact that independent **-mon-*stems in Vedic bear stem-final stress can be understood only if the ID **-mon-*stems from which the suffix **-mon-* was resegmented also had

---

31 The application of Brugmann's Law (cf. n. 2 above) in N.NOM/ACC.SG Ved. *dáru* '(piece of) wood' (< PIE **dóru*; cf. Gk. δόρυ) and in 3SG.PFC.ACT *dadāra* 'is split' (< **de-dór-e*) argues explicitly against reconstructing the root as "**derh_x-*" with final laryngeal; see further *LIV²*: 120 n. 1.

32 The only exception is *bhū-mán-* in (8e) with the same exceptional zero-grade seen in its neuter base. This property can be attributed to the verbal root underlying this ID pair, which is often reconstructed as **bhuh_x-* with non-ablauting zero-grade of the root (e.g., Jasanoff 2003:112 n. 252).

33 On the basis of this usage, Rau (2009:72–74) includes **-mon-* as part of the "Caland system" in PIE. Examples like (8b–e) and (9a) are perhaps better understood synchronically as part of the same productive pattern of derivation from adjectival roots; see Wackernagel & Debrunner (1954:754–755) and Kiparsky (to appear) for discussion.

34 Macdonell (1910:128) lists just four exceptions: Ved. *áś-man-*, *ó-man-*, *jé-man-*, *bhás-man-*. Other than *áś-man-* 'stone' discussed in 2.3 above, none of these occurs in a strong case form that unambiguously identifies it as a **-mon-*stem, and at least one is better analyzed as a neuter (*ómabhis*, RV V.43.13b; cf. n. 25 above); see further Wackernagel & Debrunner (1954:757, 765–766).

stem-final stress at whatever stage this reanalysis occurred; accordingly, they constitute evidence that ID *-*mon*-stems had stem-final stress already in the prehistory of Vedic, or else even in PIE itself (cf. 2.1 above). In this respect, their indirect testimony is wholly consistent with the direct evidence for ID *-*mon*-stems in Vedic.

4   ID *-*mon*-stems in Lithuanian and Balto-Slavic

The Lithuanian evidence for PIE ID *-*mon*-stems is necessarily indirect, since prehistorically they fell together with neuter *-*men*-stems and animate *-*men*-stems into a single category, here referred to as the -*muo*-class after their characteristic NOM.SG form.[35] Section 4.1 discusses evidence for the diachronic merger of these categories, as well as the synchronic formal properties of the resulting class in derivation and inflection. The prosody of Lithuanian nouns in -*muo* is then treated in section 4.2, where I argue that ID *-*mon*-stems with stem-final stress play a pivotal role in explaining the word stress patterns observed in this class.

4.1   *The synchronic and diachronic morphology of the Lithuanian* -muo-*class*

The Lithuanian -*muo*-class consists of masculine nouns. Synchronically, this class is productive in deverbal derivation (cf. Skardžius 1943:293–297, Bammesberger 1973:118–122), especially in the formation of technical and scientific terms. Some representative examples of -*muo*-class nouns derived in this way are given in (10).

---

[35]   I assume the merger of these categories was a post-Proto-Baltic development in view of the Old Prussian evidence discussed in n. 47 below. It must in any case be a post-Proto-Baltic-Slavic development, since the inherited distinction between animate and neuter *-*mVn*-stems is preserved in Slavic. The animate *-*mVn*-stems could in principle offer insight into the reconstruction of PIE ID *-*mon*-stems, since in some Slavic languages they show a NOM/ACC.SG ending that appears to derive from this source (e.g., OCS -*my* < *-*mōn*). It is difficult, however, to draw any conclusions from Slavic animate *-*mVn*-stems as a class, since they do not seem to pattern together prosodically (see Pronk 2009:107–112 for discussion), nor from individual lexemes in this class, since I am not aware of any with ID *-*mon*-stems cognate elsewhere in IE. I therefore discuss the Slavic evidence no further here.

(10) **VERBAL BASE (3SG.ACT)** ⇒ **–*muo*-noun (M.NOM.SG)**

a.	*atitìkti*	'correspond to'	*atitikmuõ* 'correspondence'
b.	*dúoti*	'give'	*duomuõ* '(logical) given'
c.	*júosti*	'engird'	*juosmuõ* 'waist(band)'
d.	*reĩkti*	'be necessary'	*reikmuõ* 'need'
e.	*sèkti*	'follow'	*sekmuõ* 'consequence'
f.	*spė́ti*	'assume'	*spėmuõ* 'assumption'

A few other nouns in the -*muo*-class are more likely to be deradical. One example is *raumuõ* 'muscle', which may be derived from a root *raud-* 'red' (< PIE *h_1reud^h-; *NIL*: 580–584) at the base of the adjectives *raũdas* 'reddish-brown' and *rùdas* 'red-haired' (cf. Smoczyński 2018:1068–1070, 1110). Another is *ašmuõ* 'cutting edge', derived from the same root *aš-* 'sharp' (< PIE *$h_2e\hat{k}$-; *NIL*: 287–300) as *aštrùs* 'sharp' and *ašnìs* 'scythe blade; sprout' (cf. Smoczyński 2018:51–52).

Some of the strongest evidence for the diachronic confluence of *-*mon*-stems, neuter *-*men*-stems, and animate *-*men*-stems in the -*muo*-class comes from their intraparadigmatic suffixal allomorphy. The inflection of this class is exemplified in (11):

(11) Inflection of Lithuanian -*muo*-class (3[b] *raumuõ* 'muscle'):

	SINGULAR	DUAL	PLURAL
NOM	*raumuõ*	*raũmeniu*	*raũmenys*
VOC	*raumeniẽ*	*raũmeniu*	*raũmenys*
GEN	*raumeñs*	–	*raumenũ̃*
DAT	*raũmeniui*	*raumenìm*	*raumenìms*
ACC	*raũmenį*	*raũmeniu*	*raũmenis*
INS	*raũmeniu*	*raumeniñ̃*	*raumenimìs*
LOC	*raumenyjè*	–	*raumenysè*

Segmentally, the NOM.SG in -*muo* is standardly taken to reflect the NOM.SG of PIE *-*mon*-stems (< *[-mōn]; see, e.g., Senn 1966:87, Stang 1966:47, Olander 2015:83–84). On the other hand, the suffixal *e*-vowel seen in the other case forms can be attributed to the influence of (i) neuter *-*men*-stems, which had *e*-grade in their oblique cases (e.g., INS.SG Ved. *bráh-man-ā* 'with the sacred formula-

tion' < *-*men-eh₁*); (ii) animate *-*men*-stems, which had *e-grade in at least the ACC.SG (e.g., Gk. πυθ-μέν-α 'bottom' < *b^hud^h-*mén-m̥*), VOC.SG, NOM/VOC.PL, and NOM/ACC/VOC.DU; or (iii) some combination thereof.

The confluence of these three historically distinct categories is also supported by comparative-historical evidence. Lithuanian nouns in the -*muo*-class form word equations with nominals belonging to each of these categories in IE languages in which they remain distinct. Thus, for instance, Lith. *piemuõ* 'shepherd boy' matches Gk. ποιμήν 'shepherd', a clear case of an animate *-*men*-stem (< PIE *poh_2i-mén-; see further discussion below). This word equation guarantees that animate *-*men*-stems were among the historical inputs to the Lithuanian -*muo*-class, although it is the only established example of its kind. All the other members of the *-*muõ*-class with IE cognates align instead with *-*mon*-stems and/or neuter *-*men*-stems—e.g., (12). The comparative evidence therefore suggests that some combination of *-*mon*-stems and neuter *-*men*-stems was the principal historical input to the Lithuanian -*muo*-class.

(12) Word equations between Lith. -*muo*-class nouns and *-*mon*- or N *-*men*-stems in IE:

	LITHUANIAN	PIE *-*mon*-	PIE N *-*men*-	ROOT
a.	*akmuõ* 'stone'	Gk. ἄκμων 'anvil'	–	–
b.	*augmuõ* 'sprout'	Ved. *ojmā́nam* 'strength'	Lat. *augmen* 'increase'	*h_2eug-
c.	*dė́muõ* 'addition'	Gk. θημών 'heap'	Ved. *dhā́man-* 'domain'	*d^heh_1-
d.	*juosmuõ* 'waist(band)'	–	Gk. ζῶμα 'girdle'	*yeh_3s-
e.	*melmuõ* 'loins'	–	Ved. *márman-*'vulnerable spot'	*mel-ˀ
f.	*sekmuõ* 'consequence'	–	Ved. *sákman-* 'fellowship'	*sek^w-
g.	*sémenys* 'linseed' (PL)	–	Lat. *sēmen* 'seed'	*seh_1-
h.	*sraumuõ* 'stream'	–	Gk. ῥεῦμα 'stream'	*$sreu$-
i.	*st(u)omuõ* 'stature'	Gk. στήμων 'warp'	Ved. *sthā́man–* 'station'	*$steh_2$-
j.	*šelmuõ* 'roof ridge'	–	Ved. *śárman-* 'shelter'	*$ k̂el$-
k.	*želmuõ* 'shoot'	Ved. *harimā́ṇam* 'jaundice'	–	*$ĝ^helh_3$-

4.2   *The synchronic and diachronic prosody of the Lithuanian* -muo-*class*

The question of principal interest for this study is how word stress in the Lithuanian -*muo*-class is to be explained historically. In standard Lithuanian -*muo*-class nouns as a rule belong to ACCENT PARADIGM (AP) 3, exhibiting intraparadigmatic stress mobility of the type illustrated in (11) above. A handful of -*muo*-class nouns are also attested with AP 1 forms (i.e., fixed initial stress). In Old Lithuanian (Daukša), the word for 'stone' in (12a) is—as noted in 2.3

above—overwhelmingly AP 1 (e.g., NOM.SG *ãkmuo*); the (*plurale tantum*) word for 'linseed' in (12g) is mostly AP 1 (e.g., DAT.PL *sémenims*); and 'shepherd boy' is occasionally AP 1 (e.g., GEN.SG *píemenes*).[36] Senn (1966:138–139) states that *sémenys* retains AP 1 in the literary language, and adds that the same holds for *rémuo* 'heartburn'. Finally, Illič-Svityč (1979:55) reports that *st(u)omuõ* 'stature' in (12i) is attested in the dictionary of Mielcke (Mielcke 1800) as AP 1, and that the same stress pattern occurs in the eastern Aukštaitis dialect of the Pušalotas region. This distribution of forms suggests that for each of these nouns AP 1 is older, replaced by the AP 3 pattern that is regular in the productive *-muo*-class.[37]

What must be accounted for, then, from a diachronic perspective is how AP 3 came to be the regular stress pattern in the *-muo*-class. Regarding the prehistory of AP 3 there is widespread agreement: Lithuanian nominals with this stress pattern had stem-final stress (traditionally "oxytone") prior to the set of innovations that gave rise to the phenomenon of "Balto-Slavic accentual mobility"—i.e., the innovative stress mobility patterns that are characteristic of the Baltic and Slavic languages.[38] In contrast, inherited nominals with fixed root stress either preserve this stress pattern, hence AP 1 inflection, or undergo SAUSSURE'S LAW (de Saussure 1896; cf. Olander 2009:109–117, Jasanoff 2017:38–39), resulting in mobile AP 2 inflection. The emergence of generalized AP 3 in the *-muo*-class can thus be explained only if stem-final stress was well-represented among the historical inputs to this class.

It was established already in 4.1 above that ID **-mon*-stems, neuter **-men*-stems, and animate **-men*-stems were among these inputs. To judge from the comparative evidence in (12) above, the most common of these were neuter

---

36   For the attestation of *sémenys* see Senn (1966:138–139) and *ALEW*², s.v. *séti*; for *akmuõ* and *piemuõ* see Illič-Svityč (1979:49, 59) and *ALEW*², s.vv.

37   It is notable that, with the exception of *akmuõ*, most or perhaps all of these *-muo*-class nouns with AP 1 in Old Lithuanian have the phonological environment for HIRT'S LAW (Hirt 1929), whereby stress was retracted to an immediately preceding syllable if that syllable ended in a consonantal laryngeal (see Olander 2009:149–150 with references). A root-final laryngeal is well-established for *sémenys* (< **seh₁-* 'press; sow') and *st(u)omuõ* (< **steh₂-* 'stand'), and plausibly assumed for *rémuo*, although it lacks a secure PIE root etymology (see Smoczyński 2018:1081, 1154, 1318–1319). To account for *piemuõ* it is proposed by Rasmussen (1989:32–33, 272) that PIE **poh₂i-mén-* metathesized to **poih₂-mén-*, whence initial stress by HIRT'S LAW.

38   Thus, e.g., de Saussure (1896:533), Pedersen (1933:24–26), Illič-Svityč (1979:65–69), Derksen (1996:25), Kortlandt (2006:349), Olander (2009:202), Jasanoff (2017:109), Kim (2018:1982), Petit (2018:237). For a full review of literature on the phenomenon of "Balto-Slavic accentual mobility" see Olander (2009:14–52) (cf. Jasanoff 2017:108–116, Olander 2018, Kim 2019a).

*-*men*-stems. For this reason, it is attractive to consider scenarios in which neuter *-*men*-stems were a direct source of stem-final stress, as these would effectively solve the problem of AP 3 inflection in the Lithuanian -*muo*-class: the stress pattern best represented among the historical membership of the class was generalized to the rest. I discuss two such scenarios in 4.2.1 and 4.2.2 below. Having argued that neither is tenable, I then consider the possibility that the emergence of AP 3 inflection in the -*muo*-class owes crucially to animate *-*men*-stems (4.2.3) or ID *-*mon*-stems (4.2.4).

4.2.1   AP 3 inflection is due to neuter *-*men*-stems? The "proterokinetic" hypothesis

One scenario in which neuter *-*men*-stems facilitate the development of AP 3 in the Lithuanian *-*muo*-class would take as its starting point Schindler's (1975c: 263–264) widely accepted (pre-)PIE reconstruction of neuter *-*men*-stems with PK inflection: NOM/ACC.SG R($\acute{e}$)-*mn̥*, GEN.SG R($\varnothing$)-*mén-s*, DAT.SG R($\varnothing$)-*mén-ei*, etc. It would then be necessary to assume just two developments in the prehistory of Balto-Slavic: (i) analogical leveling of root full-grade from the strong cases to weak; (ii) analogical leveling of suffixal stress from the weak cases to the strong. If Schindler's reconstruction is correct, then the first step would have strong empirical support. There is no evidence for intraparadigmatic *$\acute{e}$/$\varnothing$-root ablaut among the members of the Lithuanian -*muo*-class in (12) that align etymologically with other neuter *-*men*-stems nor, for that matter, in any other members of this class. Likewise, deverbal neuter *-*men*-stems elsewhere in the IE family reflect only paradigmatic full-grade of the root;[39] thus, e.g., Lat. *augmen* 'increase' in (12b) (< PIE *$h_2\acute{e}ug$-men-) has a GEN.SG *augminis*, Ved. *dhā́man*– 'domain' in (12c) (< PIE *$d^h\acute{e}h_1$-men-; cf. Av. *dāman*- 'creation') has a GEN.SG *dhā́manas* (cf. YAv. *dāmąn*), Gk. ῥεῦμα 'stream' in (12h) (< PIE *$sr\acute{e}u$-men-) has a GEN.SG ῥεύματος, etc. Taken together, these IE forms strongly suggest that deverbal neuter *-*men*-stems already had paradigmatic full-grade in PIE itself (cf. Wackernagel & Debrunner 1954:759).[40]

---

39   A principled exception is the zero-grade in Ved. *bhū́man*– 'earth'; see n. 32 above. Note that by restricting my claim to deverbal neuter *-*men*-stems I exclude the inherited word for 'name' (> Lat. *nōmen*, Ved. *nā́man*–, Gk. ὄνομα, Hitt. *laman*-, Goth. *namo*, etc.), which is traditionally analyzed as a neuter *-*men*-stem (viz., because it is neuter and its stem terminates in *-*men*-) but lacks any identifiable PIE verbal root (cf. Lundquist & Yates 2018:2110). In my view, the complicated reflexes of the PIE word for 'name' (on which see Neri 2005) have no bearing on the prosodic reconstruction of deverbal neuter *-*men*-stems in PIE for essentially the same reasons as 'stone; heaven' is irrelevant for ID *-*mon*-stems (see 2.3 above for discussion). I intend to treat this issue in detail elsewhere.

40   Both Melchert (2007/8:184–186) and Nussbaum (2010:276 n. 244) suggest that PIE had at

The more serious problems with this scenario arise in the second step. There are two basic issues. First, if it is the case that neuter *-men-stems retained PK mobility going into Balto-Slavic, it would be a striking archaism against the other ancient IE languages, which otherwise point uniformly to fixed root stress already in PIE. In Vedic, all deverbal neuter *-men-stems exhibit fixed root stress (cf. Wackernagel & Debrunner 1954:755–759). In Greek, all deverbal neuter *-men-stems exhibit RA,[41] which presupposes an earlier Vedic-like situation. The Hittite evidence is more limited, but the neuter *-men-stem ᴺᴵᴺᴰᴬšaraman- 'ration bread' clearly shows root stress in the strong cases (ɴᴏᴍ/ᴀᴄᴄ. sɢ šarāman [srá:-man], ᴘʟ šarāma [srá:-ma]) and deletion of the suffixal vowel in the weak cases (e.g., ᴅᴀᴛ/ʟᴏᴄ.sɢ šaramni, ɢᴇɴ.sɢ šaramnaš), which suggest that these forms also had root stress (i.e., [srá:-mn-i], [srá:-mn-as]). This is corroborated by an Old Script plene spelling of the root vowel ᴅᴀᴛ/ʟᴏᴄ.ᴘʟ sarāmaš ([srá:-m(n)-as]; KBo 20.27 rev. 10).[42]

Thus for Balto-Slavic to have inherited neuter *-men-stems with suffixal stress requires that the apparent convergence between these other IE languages is accidental, the result of independent but parallel levelings of root stress from the strong cases to the weak in each branch. One might argue that this is a trivial (hence repeatable) innovation, but this would have awkward consequences for the second issue, the assumption that Balto-Slavic has leveled suffixal stress from the weak cases to the strong. If there were indeed certain structural factors at work in the grammar of PIE that facilitated the generalization of root stress in neuter *-men-stems in the prehistory of Indo-Iranian, Greek, and Anatolian, then it would be especially unlikely that the leveling went in the opposite direction in Balto-Slavic.

It is unlikely, then, that Balto-Slavic is an outlier in this way. The comparative data discussed above suggests instead that already in PIE neuter *-men-stems had stressed full-grade of the root in both their strong and weak cases (cf. Lundquist & Yates 2018:2110): ɴᴏᴍ/ᴀᴄᴄ.sɢ R(é)-mn̥, ɢᴇɴ.sɢ R(é)-men-(e/o)s, ᴅᴀᴛ.sɢ R(é)-men-ei, ɴᴏᴍ/ᴀᴄᴄ.ᴘʟ R(é)-mōn).[43] If this reconstruction is correct,

---

least a few "*o/e-acrostatic" deverbal neuter *-men-stems, but see Vine (2019) for critical discussion and alternative explanations of the relevant forms. More generally, see Nussbaum (2010:271–272) for a very different view of the prosody of neuter *-men-stems.

41   RA is more generally a property of all Greek third declension polysyllabic neuter nouns (Probert 2003:84).

42   See *CHD* Š: 239 for attestations. Per Gertz (1982:29) ɴᴏᴍ/ᴀᴄᴄ.ᴘʟ Hitt. šarāma 'ration breads' is best explained as a direct reflex of a PIE form with final *-mōn and thus supports its reconstruction as such in neuter *-men-stems (as argued in 4.2.2 below).

43   The reconstruction of the ɴᴏᴍ/ᴀᴄᴄ.ᴘʟ of PIE neuter *-men-stems is discussed further in 4.2.2 below. It is commonly assumed (following Schindler 1975b:9) that the *-s allomorph

PIE neuter *-*men*-stem should simply have maintained fixed root stress (= AP 1 inflection) into (Old) Lithuanian, just like OLith. *ãkmuo* 'stone' (< *$h_2$ék̂mon-* per 2.3 above). Consequently, neuter *-*men*-stems would not have contributed to the development of word stress in the Lithuanian -*muo*-class; rather, this class must have developed AP 3 on the basis of its other members, and erstwhile neuter *-*men*-stems owe their AP 3 inflection (in place of historically expected AP 1) to their eventual incorporation into this class.

4.2.2 AP 3 inflection is due to neuter *-*men*-stems? The "hysterokinetic" hypothesis

Jasanoff (2017:166–168) has raised the possibility of an alternative scenario in which neuter *-*men*-stems play a crucial role in the development of AP 3 inflection in the Lithuanian -*muo*-class.[44] Following Nussbaum (1986:118–123), he assumes that in PIE the NOM/ACC.PL ("collective") of neuter *-*men*-stems could be formed in one of two ways, AK *R(é)-*mōn* or "hysterokinetic" (HK) *R(∅)-*mḗn*. In his view, the latter is continued in Slavic, where neuter *-*men*-stems have NOM/ACC.SG forms in Proto-Slavic (PSl.) -*mę* (e.g., OCS *sěmę* 'seed', *vrěmę* 'time') that cannot reflect PIE *-*mn̥*,[45] which would have yielded PSl. *ˣ-mĭ*. Jasanoff argues that inherited *-*mn̥* was remade after PIE NOM/ACC.PL *-*mḗn*,

---

of the GEN.SG ending serves as a diagnostic of erstwhile PK inflection, and thus that neuter *-*men*-stems should be assigned to this inflectional class, since some of their Avestan reflexes (e.g., OAv. *casmə̄ng* 'of sight', YAv. *dāmạn* 'of the creation' < *-*men-s*) appear to show this ending (Gotō 2013:42, Meier-Brügger & Fritz 2021:215, i.a.). Yet since this allomorph also occurs in "acrostatic" nominals (e.g., PIE *négʷ-t-s* > Hitt. *nekuz* (*mēḫur*) '(time) of evening'; cf. *NIL*: 504–505) and in other nominals standardly reconstructed with fixed initial stress (e.g., PIE *bʰréh₂ter-s* > Ved. *bhrātur*, OE *broþor* 'of the brother'; cf. *NIL*: 38, Fortson 2010:116), its occurrence in neuter *-*men*-stems is also perfectly consistent with the reconstruction of fixed root stress in this PIE category. For further discussion of the distribution of GEN.SG *-*s* see Kiparsky (2010:149–153) and Jasanoff (2017:27–28).

44   Jasanoff (2017:166–168) focuses on the inherited word for 'name', which in my view should not be taken as representative for the properties of PIE neuter *-*men*-stems in general (see n. 40 above). The question considered here, then, is whether an account along the lines of what he proposes for 'name' can be extended to ordinary deverbal neuter *-*men*-stems. While I argue it cannot, this does not entail rejecting his analysis of 'name', which potentially explains why this lexical item—unlike deverbal neuter *-*men*-stems (see n. 52 below)—has a mobile paradigm (AP *c*) securely reconstructible for PSl. (cf. Pronk 2009:110–112).

45   This claim has been challenged by Olander (2015:85–86), who argues that PIE *-*mn̥* regularly yielded PSl. -*mę*. If correct, it would obviate the need to assume an HK collective in Slavic just like the analogical account advanced by Kim (2019b) and others discussed below.

whence PSl. *-mę.[46] Supposing that this change took place already in Proto-Balto-Slavic (PBS),[47] one could envision a scenario whereby the stem-final stress of the new N.NOM/ACC.SG in *-mḗn was leveled through the paradigm of (some) neuter *-men-stems, creating new weak case forms with stem-final stress (GEN.SG *-mén-e/os, DAT.SG *-mén-ei, etc.).[48]

This scenario encounters morphological problems, however. The basic issue is the lack of comparative support for N.NOM/ACC.PL forms in *-mḗn (cf. Harðarson 1987b:94). Outside of Balto-Slavic, the only possible trace of such forms is in Indo-Iranian where, according to Jasanoff (2017:168 n. 101) and Nussbaum (*apud* Jasanoff 1989:138 n. 10), they are directly reflected in Avestan N.NOM/ACC.PL -mą̨n (or -mą̨m with assimilation), e.g., OAv. *dāmą̨n* 'bonds', *hax⁽ə⁾mą̨m* 'retinues'. Jasanoff (1989:138) argues that it is advantageous to derive these forms from *-mḗn rather than the standardly reconstructed *-mōn because, in his view, word-final *n was lost already in PIE after *ō but not after *ē (cf. n. 6 above), thus only from *-mḗn can OAv. -mą̨n/–mą̨m be *lautgesetzlich*. Yet the assumption that *-mḗn would yield -mą̨n/–mą̨m is problematic, since the nasal-less NOM.SG of OAv. *a⁽ʲ⁾riiāmā* 'hospitality' (< *-mḗn) suggests that word-final *n was also lost in this environment, likely already in Proto-Indo-Iranian (PIIr.; cf. Ved. *aryamā́* 'Aryaman').[49] Therefore regardless of whether the starting point for OAv. -mą̨n/–mą̨m is *-mḗn or *-mō(n), it is necessary to assume that the word(/suffix)-final *n was analogically restored in Indo-Iranian from a paradigm cell in which it was preserved—i.e., singular weak cases with PIIr. *-man-V or GEN.PL *-man-aHam.

A still more serious objection to deriving OAv. -mą̨n/–mą̨m from *-mḗn is prosodic. While there is no way to determine how the reflexes of neuter *-men-stems were stressed in Avestan, there is no reason to suspect that it

---

46 As discussed especially by Jasanoff (2002) (cf. Nussbaum 2014a:292–294), there are good IE parallels for N.NOM/ACC.SG forms being replaced by N.NOM/ACC.PL forms. This case, however, would not involve a wholesale replacement, since Slavic neuter *-men-stems regularly reflect full-grade of the root (e.g., OCS *sěmę* < *séh₁-, *vrěmę* < *wért-), not the zero-grade proper to HK inflection.

47 A PBS date for this change is suggested by N.NOM/ACC.SG OPr. *semen*, which could continue *-mḗn, but can also reflect the form *-men argued to underlie PSl. *-mę below. The Old Prussian evidence is significant because it alone of the Baltic languages appears to preserve a trace of the inherited distinction between animate and neuter *-mVn-stems. The occurrence of NOM.SG *semen* without final -s in the Elbing Vocabulary ensures that it continues a neuter (see Petit 2010:141–153).

48 The scenario proposed by Jasanoff (2017:168) differs somewhat, but likewise produces a Proto(-Balto)-Slavic paradigm with NOM/ACC.SG *-mḗn, weak *-mén-.

49 As expected on this analysis, other Vedic animate nouns formed with the suffix *-en- are similarly nasal-less, e.g., NOM.SG *vŕ̥ṣā* 'bull', *ukṣā́* 'ox' (< PIE *-ḗn).

was different from Vedic, where the cognate class shows only root stress in the NOM/ACC.PL—e.g., Ved. *kármāṇi* 'deeds', *sádmāni* 'seats', *dā́māni* 'cords' (cf. OAv. *dāmn̥* above). A pre-form *-*mḗn* with final stress cannot account for the root stress pattern in these Vedic forms. Root stress is expected, however, if they derive from PIE *R(*é*)-*mōn* via the series of developments in (13) (cf. Harðarson 1987b:96–97):

(13) Chronological development of NOM/ACC.PL of PIE neuter *-*men*-stems into Vedic:
    a. PIE *R(*é*)-*mōn* > pre-PIIr. *R(*á*)-*mā*
        Phonological loss of word-final *n* after *ō* in PIE (per Jasanoff 1989) or after *ā* in pre-PIIr.
    b. pre-PIIr. *R(*á*)-*mā* >> PIIr. *R(*á*)-*mān*
        Analogical restoration of suffix-final *n* from elsewhere in the paradigm in PIIr.[50]
    c. PIIr. *R(*á*)-*mān* >> PInd. *R(*á*)-*mānH* > Ved. R(*á*)-*māni*
        Recharacterization with the N.NOM/ACC.PL marker *-*H* (< PIE *-*h_2*) in Proto-Indic (PInd.).[51]

Since OAv. -*mn̥*/–*mm̥* can equally continue *-*mḗn* or *-*mōn* and Ved. -*māni* can only continue the latter, the most economical account of the Indo-Iranian data is that both reflect *-*mōn*.

    The Slavic evidence for N.NOM/ACC.PL *-*mḗn* is likewise equivocal. Kim (2019b) provides a critical assessment of various accounts of the historically unexpected NOM/ACC.SG *-*mę* found in Slavic neuter *-*men*-stems, including that of Jasanoff (2017). He argues in favor of an explanation first proposed by

---

50   A few Vedic neuter *-*men*-stems have NOM/ACC.PL forms in -*mā* or -*ma* (e.g., *dhármǎ* 'foundations'). The former could in principle reflect PIE *-*mō*(*n*) without analogically restored nasal, but I follow Harðarson's (1987b:97) derivation of both forms from an innovative *-*mn̥*-*h_2*. Structurally, *-*mn̥*-*h_2* (or *-*mn̥*-*H* in PInd. terms) could have been built on the model of neuter *-*u*-stems, where NOM/ACC.PL = N.NOM/ACC.SG + pluralizing *-*h_2* (e.g., N.NOM/ACC.SG Ved. *vásu* : PL *vásū* 'good(s)' < *-*u* : *-*u*-*h_2*). See also n. 51 below for the possibility that *-*h_2* was used already in PIIr. to recharacterize certain N.NOM/ACC.PL forms that have lost this marker by sound change.

51   The creation of the recharacterized desinence -*mān*-*H* is perhaps datable to PIIr., since Avestan also has neuter *-*men*-stems with NOM/ACC.PL in -*mānǐ̄* (OAv. *afšmānī* 'damages', YAv. *cinmānī* 'desires'). Yet if so, it would be necessary to explain how the congenitors of the OAv. forms in -*mn̥*/–*mm̥* either escaped recharacterization or else subsequently lost *H*. I tentatively assume that the same recharacterization occurred independently in Indic and, incompletely, in Iranian (cf. Harðarson 1987b:96), but this assumption has no consequences for the point at hand.

Vondrák (1905:215) and subsequently endorsed by a number of scholars (e.g., Kortlandt 1983:176, Szemerényi 1996:170–171, Rasmussen *apud* Olander 2015:85): inherited NOM/ACC.SG *-mņ was replaced in PBS by *-men, which was analogically leveled from the weak cases in *-men-V; PBS *-men then developed regularly into PSl. *-mę.[52]

Thus neither Slavic nor Avestan provides compelling evidence for an inherited NOM/ACC.PL *-mḗn in neuter *-men-stems. Accordingly, I reject the reconstruction of such forms for PIE. An upshot of this conclusion is that PIE neuter *-men-stems can be reconstructed with a single exponent of NOM/ACC.PL, schematically *R(é)-mōn, thereby eliminating the need to explain why this category should have two N.NOM/ACC.PL forms without any apparent functional difference. However, it also implies that *-mḗn did not factor into the prehistory of Lithuanian neuter *-men-stems (as in the scenario outlined above), in which case it is necessary to look elsewhere for the source of AP 3 inflection in this class.

4.2.3 AP 3 inflection is due to animate *-men-stems?

A different potential source of AP 3 in the -muo-class is animate *-men-stems. It is uncontroversial that this class had suffixal stress in their strong case forms in PIE, as is the case in Greek (e.g., NOM.SG ποιμήν 'shepherd', πυθμήν 'bottom', ὑμήν 'membrane') and Vedic (ACC.SG *aryamáṇam* 'Aryaman'). If the strong stem were then leveled at an early stage (resulting in, e.g., GEN.SG *-mén-e/os, DAT.SG *-mén-ei) as in other Balto-Slavic consonant stems,[53] by the standard view the Lithuanian reflexes of this class should have developed AP 3 inflection.

The main issue with attributing AP 3 inflection in the -muo-class to animate *-men-stems alone is that there is just a single clear reflex of this category in Lithuanian, *piemuõ* 'shepherd boy', which cannot on its own have constituted a sufficient basis for generalizing AP 3 in the -muõ-class at the expense of the AP 1 inflection that is historically expected for the much more numerous neuter *-men-stems (per above). There is also an issue particular to this lexical item— namely, that it is attested with AP 1 inflection in Old Lithuanian (cf. n. 37 above).

---

[52] Unlike Jasanoff's (2017:166–168) proposal, this analysis does not predict stress mobility in ordinary Slavic neuter *-men-stems (see n. 44 above on 'name'). It is difficult to evaluate these differing predictions, since the prosodic facts in this class are complicated and often contradictory across the Slavic languages (for thorough discussions of the evidence see Snoj 1993 and Pronk 2009). This issue calls for further research.

[53] Leveling of the strong stem vocalism explains, e.g., the apparent full-grade in GEN.SG OLith. *dukterès* (< PIE *dʰugh₂tr-é/ós; cf. Gk. θυγατρός). The same development occurred independently in the Greek cognate of Lith. *piemuõ*: Gk. ποιμήν 'shepherd' has weak cases like GEN.SG ποιμένος for expected ˣποιμνός (cf. GEN.SG Ved. *aryamnás* 'of Aryaman').

However these forms are to be explained, they suggest that *piemuõ* adopted AP 3 inflection within the history of Lithuanian; it thus can hardly have played a role in establishing AP 3 as the regular prosodic pattern in the *-muo*-class.

4.2.4   AP 3 inflection is due to ID *-*mon*-stems

The last remaining historical input to the Lithuanian *-muo*-class was PIE *-*mon*-stems. I propose that it was mainly PIE nominals stems of this type that served as the historical basis for the generalization of AP 3 inflection in the *-muo*-class. If ID *-*mon*-stems like (12) were inherited into Balto-Slavic with the same stem-final stress pattern consistently observed in Vedic (e.g., ACC.SG *-mā́n-am*, GEN.SG *-mán-as*; see section 3 above), they would naturally have developed AP 3 inflection in Lithuanian. Taken together with any other animate *-*men*-stems (viz., besides *piemuõ*) that may have been inherited into Lithuanian, these ID *-*mon*-stems could have provided a robust enough core of nominals with AP 3 inflection that this stress pattern was extended to neuter *-*men*-stems when they fell together with the other *-*mVn*-stems into the *-muo*-class.

For comparison, consider what would have happened if PIE ID *-*mon*-stems were instead inherited into Balto-Slavic with the AK stress pattern reconstructed by EM. The outcome of such forms would in all likelihood have been the same AP 1 inflection as observed in OLith. *ãkmuo* (cf. 4.2.1) above). In this scenario, the emergence of AP 3 inflection in the Lithuanian *-muo*-class would be surprising, since nearly all of the historical inputs to this class should have developed AP 1 inflection. In contrast, the proposal outlined above offers a plausible pathway to AP 3 in the *-muo*-class by making ID *-*mon*-stems a direct source of this stress pattern.

5   ID *-*mon*-stems in Greek

The Greek evidence for the reconstruction of PIE ID *-*mon*-stems is difficult to interpret. Like Vedic, Greek maintains the inherited distinction between *-*mon*-stems, animate *-*men*-stems, and neuter *-*men*-stems, preserving all three as separate classes. Greek *-*mon*-stems, however, exhibit a much greater diversity of formal properties. Morphosyntactically, they may be nouns or adjectives. Some are probably formed from primary or non-primary neuter *-*men*-stems by ID, whereas others appear to be derived from verbal or nominal bases with a suffix *-*mon*-. As for their prosodic properties, some have fixed stem-final stress throughout their inflectional paradigm, while others are subject to RA (for the term see 2.2 above).

Morphosyntax and prosody are correlated in Greek *-*mon*-stems. A first-order division can be made between, on the one hand, *-*mon*-stem nouns, which show a mixture of stem-final stress and RA, and on the other, *-*mon*-stem adjectives, which uniformly exhibit RA (cf. Schwyzer 1939:522).[54] I begin by examining the nouns in 5.1, then proceed to the adjectives in 5.2. Finally, 5.3 provides an overall assessment of this evidence. I argue on Greek-internal grounds that RA in some *-*mon*-stem nouns and all *-*mon*-stem adjectives is innovative, a diachronic replacement for the stem-final stress pattern that is to some extent preserved in nouns of this type.

5.1   *The phonology and morphology of Greek* *-mon-*stem nouns*

I organize my discussion of Greek *-*mon*-stem nouns along morphological lines, based on their likely historical and/or synchronic derivational bases. Greek nouns that may directly continue ID *-*mon*-stems are treated in 5.1.1, followed by nouns that were formed by suffixation of *-*mon*- to verbal or nominal stems in 5.1.2. A residual set of archaic-looking *-*mon*-stems are examined in 5.1.3.

5.1.1   Greek *-mon-*stem nouns derived from primary neuter* *-men-*stems*

Greek *-*mon*-stem nouns provide some direct evidence for the prosodic reconstruction of PIE ID *-*mon*-stems. This evidence consists of a small set of *-*mon*-stem nouns attested beside cognate primary neuter *-*men*-stems from which they may have been formed historically by ID. These derivationally related pairs are given in (14), where it can be observed that the *-*mon*-stems exhibit an even mixture of stress patterns: (14a–c) have RA, which descriptively yields root stress except in the GEN.PL (-μόν-ων), while (14d–f) have fixed stem-final stress (GEN.SG -μῶν-ος, DAT.SG -μῶν-ι, etc.).[55]

---

54   In some cases, it is difficult to determine whether a *-*mon*-stem nominal is a noun or properly an adjective used substantively (on this phenomenon in general in Greek see, e.g., Probert 2006b:156). For the *-*mon*-stems discussed below, I follow the classification of *LSJ* except where otherwise noted.

55   The nouns in (14d–f) with stem-final stress appear to have generalized the stem-final long vowel of the NOM.SG throughout the paradigm. This analogical leveling did not affect all *-*mon*-stem nouns with stem-final stress, however; the non-primary *-*mon*-stem agent nouns discussed below have a short vowel in these case-forms (GEN.SG -μόν-ος, DAT.SG -μόν-ι, etc.).

(14) Greek *-*mon*-stem nouns attested beside cognate primary neuter *-*men*-stem nouns:

		NOM/ACC.SG *[-mn̥]	⇒	NOM.SG *[-mōn]	
a.	Gk.	τέρμα	'end, boundary'	τέρμων	'boundary'
b.	Gk.	στήμα	'stamen; shaft of penis'	στήμων	'warp'
c.	Gk.	γνῶμα	'judgment'	γνώμων	'judge, interpreter'
d.	Gk.	θῆμα	'tomb'	θημών	'heap'
e.	Gk.	χεῖμα	'winter (weather)'	χειμών	'winter (weather), storm'
f.	Gk.	κεῦθμα*	'hiding place'	κευθμών	'hiding place'

The implications of this evidence for IE reconstruction are not immediately clear. Since the result of RA in (14a–c) is generally root stress, it is plausible to view RA in these nouns as the regular diachronic outcome in Greek of prehistoric root stress and thus to take them as evidence for reconstructing PIE ID *-*mon*-stems with this pattern. On the other hand, (14d–f) point to stem-final stress as the inherited pattern.

A closer examination of these forms yields little to suggest that one stress pattern or the other is innovative. All six *-*mon*-stems in (14) occur in archaic or classical Greek, and both groups include nouns that are attested already in early Greek epic: στήμων in (14b) is found in Hesiod (*Op.* 538), while θημών in (14d), χειμών in (14e), and κευθμών in (14f) occur in Homer. Neither group shows predictable semantic relationships between base and derivative of the type that are characteristic of productive derivation. γνώμων in (14d) is related to the neuter *-*men*-stem γνῶμα semantically (and phonologically) in much the same way as *-*mon*-stem adjectives are typically related to cognate neuter *-*men*-stem nouns (e.g., μνῆμα 'remembrance': μνήμων 'mindful'; see further 5.2 below on this pattern);[56] it is thus perhaps a substantivization of a relatively recently formed *-*mon*-stem adjective (see further 5.3 below). The other pairs in

---

56 An alternative possibility is that γνώμων, at least in the sense 'judge, interpreter', is just an adjective that happens to be attested only substantively in early Greek texts. In support of this possibility, *NIL*: 154 notes an unambiguous adjectival usage of γνώμων (ἐμὸς γνώμων νόος 'my discriminating mind'; *IG* XII.5.739, 141), but given its very late occurrence—likely late 1st c. BCE—this form is hardly probative as to the lexical category of γνώμων in archaic/classical Greek.

(14), however, may be better viewed as the residue of derivational relationships that obtained only in the prehistory of Greek. Semantically, the *-mon-stems are either (nearly) synonymous with their corresponding neuter *-men-stems, as in (14a) and (14e–f), or else have idiosyncratic meanings, as in (14b) and (14d). The relevant neuter *-men-stems are plausibly regarded as ancient and thus pose no obstacle to the hypothesis that these *-mon-stems were formed by ID at a prehistoric stage. τέρμα in (14a), θῆμα in (14d), and χεῖμα in (14e) are attested in Homer and have cognates elsewhere in IE: Lat. *termen* (<< *$terh_2$-men-), Ved. *dhā́-man*– (< *$d^héh_1$-men-), and Ved. *hé-man*- 'winter' (< *$ĝ^héi$-men-).[57] στῆμα in (14b) is not attested until the common era (in Hesychius, among other authors), but similarly has clear IE cognates (Ved. *sthā́-man*– 'station', Lat. *stāmen* 'warp' < PIE *$stéh_2$-men-; *NIL*: 640) and so may well be inherited. Finally, the neuter *-men-stem κεῦθμα* in (14f) is not directly attested,[58] but is implied by κευ-θμός 'hiding-place' (Hom.+) if correctly derived from *$keud^h$-m(n)-ó- (⇐ *$kéud^h$-men- + *-o- per Nussbaum 2014b:249)

   In sum, neither of the two stress patterns in (14)—i.e., RA in (14a–c) or stem-final stress in (14d–f)—has an obviously stronger claim to diachronic priority. The situation is clearer, however, in Greek's indirect reflexes of PIE *-mon-stems, which are the subject of 5.1.2.

5.1.2   Greek *-mon-stem nouns derived from verbal or nominal stems
           with a suffix *-mon-
Greek also has *-mon-stems that lack corresponding neuter *-men-stems. Most of these appear to be derived from attested verbal or nominal stems with an independent suffix *-mon-stem, and as such, indirectly testify to the stress patterns of PIE ID *-mon-stems (cf. 2.1 above). Greek *-mon-stem nouns formed in this way are listed in (15) along with their derivational bases.[59] That these

---

57   For the etymologies see, e.g., Beekes (2010:1469, 1482–1483, 1619–1620), *NIL*: 100, 162. On the non-vocalization of root-final *h_2 in Gk. τέρμα and τέρμων see Nussbaum (1997:184, 2010:275–276), who attributes it to Saussure-Hirt's Law (see Nussbaum 1997; cf. Beekes 1969:238–240, 254).

58   Buck & Petersen (1945:232) actually list a neuter *-men-stem κεῦθμα, whose expected DAT.PL κεύθμασι is printed in Thgn. 243 by Gaisford (1814). All modern editions read κεύ-θεσι, however.

59   I follow Schwyzer's (1939:522) view that *-mon-stems derived from contract verbs in -έω and -άω should have a long presuffixal vowel (Att.-Ion. η), as is the case in deverbal *-mon-stem adjectives like αἰδήμων, ἐλεήμων, and ἀλήμων in (17c–e) below. On this analy-sis, the short presuffixal vowel (ε) in (15b–c) and (15e) is irregular, per Fraenkel (1952:25–26) analogical to the type in (15a)—i.e., *-mon-stem nouns derived from simple thematic verbs. For the expected distribution, compare deverbal agent nouns in -τωρ—e.g., ἡγήτωρ 'leader' ⇐ ἡγέομαι in (15b) vs. νεμέτωρ 'dispenser of justice, avenger' ⇐ νέμω 'dispense,

-mon-stem nouns are non-primary derivatives is evident from the fact that, in each case, overt stem-forming morphology contained in the base also surfaces in the derived noun.

(15) Greek nouns derived from verbal or nominal stems with a suffix *-mon*-:

	BASE	⇒	**NOM.SG** *[-mōn]	
a. Gk.	κήδομαι	'care for'	κηδεμών	'attendant'
b. Gk.	ἡγέομαι	'lead'	ἡγεμών	'leader'
c. Gk.	ἀγρέω	'seize'	ἀγρεμών	'hunter'
d. Gk.	ἰχνεύω	'track'	ἰχνεύμων	'(type of weasel/wasp)'
e. Gk.	ἀρτάω	'hang'	ἀρτέμων	'foresail'
f. Gk.	δαιτύς	'meal'	δαιτυμών	'diner'
g. Gk.	ἀκρός	'top; end'	ἀκρεμών	'branch'
h. Gk.	θηλή	'teat'	θηλαμών	'wet nurse'

In the *-mon*-stem nouns in (15) stem-final stress is the predominant pattern. It is the only stress pattern attested for denominal *-mon*-stem nouns—i.e., δαιτυμών in (15f), ἀκρεμών in (15g), and θηλαμών in (15h)—all of which are attested in archaic Greek.[60] Likewise, both of the deverbal *-mon*-stem nouns attested in Homer, κηδεμών in (15a) and ἡγεμών in (15b), have stem-final stress.[61] On the other hand, the two deverbal *-mon*-stem nouns that exhibit RA are first attested significantly later: ἰχνεύμων in (15d) occurs first in Aristotle, ἀρτέμων in

----

allot'. The shortening of the presuffixal vowel in the *-mon*-stem nouns in (15b–c) and (15e) but not the adjectives in (17c–e) below supports the idea that *-mon*-stem nouns and adjectives constitute synchronically distinct categories in Greek.

60   On the derivations in (15f–g) cf. Weiss (2017:386), but note that δαιτυμών in (15f) has stem-final stress, as reported in Ps.-Arcadius' epitome of Herodian (see Roussou 2018:124). In (15h) I assume θηλαμών reflects a virtual *d^heh_1-l-h_2-*món*-; the zero-grade of the feminine suffix *-eh_2- in pretonic position is paralleled by the other archaic non-primary derivatives treated in 8.2 below. Other analyses are possible, however. One is that the presuffixal vowel was affected by the same analogical shortening as (15b–c) and (15e) above (cf. n. 59 above). Another is that it is deverbal to θηλάζω 'suckle' (see, e.g., Beekes 2010:546), but the absence of the verbal stem-forming suffix in the derived noun would be surprising (cf. N σπούδασμα 'pursuit' ⇐ σπουδάζω 'pursue earnestly').

61   Chantraine (1933:173) views both words as archaisms in Greek. While ἀγρεμών in (15c) does not occur in Homer, it may occur as a title in Mycenaean: *a-ke-re-mo* (KN Uf 838; see *DMic* I: 38).

(15e) in the New Testament.[62] It is also notable that whereas the other *-*mon*-stem nouns in (15) function as generic agent nouns, their semantics predictable from their respective derivational bases, ἰχνεύμων and ἀρτέμων appear to have developed specialized meanings: ἰχνεύμων, originally *'tracker', denotes specific types of animals known for tracking their prey (cf. *LSJ*, s.v.); and ἀρτέμων, originally *'hanging' (based on the intransitive sense of the verb), denotes a specific type of sail that hangs from the mast of a ship. This fact is relevant for their stress patterns because, as discussed in 5.3 below, there is a general diachronic tendency for nominals to develop RA within the history of Greek, especially those that undergo lexicalization. Since semantic differences between base and derivative are commonly an indicator of lexicalization, there is reason to suspect that the RA patterns of ἰχνεύμων in (15d) and ἀρτέμων in (15e) are innovative, products of this diachronic tendency.

Yet however RA in these two forms is to be explained, it is evident that that stem-final stress is the better established pattern in non-primary *-*mon*-stem nouns, especially in the oldest layer of Greek. These nouns accordingly constitute a *prima facie* argument for reconstructing stem-final stress in ID *-*mon*-stems.

5.1.3   Other Greek *-*mon*-stem nouns

Not all Greek *-*mon*-stems fit neatly into the morphological types discussed in 5.1.1 or 5.1.2. Here I briefly discuss three such *-*mon*-stems that, in view of their early Greek attestation and possible IE comparanda, have a credible claim to inheritance: τελαμών 'strap, belt', πλαταμών 'broad body/space', and δαίμων 'deity, spirit'.

The first, τελαμών 'strap, belt' (GEN.SG -μῶν-ος like (14d–f) above), is well attested in Homer and has an exact cognate in OIr. *talam* 'earth' (< *telh₂- *món-).[63] Schwyzer (1939:522 n. 6) suggests that it is derived from the AOR.INF τελάσαι 'endure', which would perhaps make it an inner-Greek deverbal formation comparable to those in (15a–e) above. An unattractive aspect of this analysis, however, is that the AOR.INF τελάσαι with root full-grade occurs only in Hesychius;[64] the only non-perfect stems of this verb attested in Homer—i.e.,

---

62   A PN Ἀρτέμων is attested in Anacreon, but its relationship to the noun in (15e) is uncertain. In fr. 43 4–6 the poet mockingly connects the PN with ἄρτος 'cake; loaf of bread' (Hom.+).

63   See Weiss (2017:386 n. 51), who suggests that the Latin PN *Tellumō* may reflect the same pre-form.

64   Beekes (2010:1446–1447) assumes that Hesychius preserves an archaism, seeing in τελέσαι "the old full-grade *telh₂-, like in ἐλάσαι, κεράσ(σ)αι, κρεμάσαι, etc." While this possibility cannot be excluded, it is simpler to take the textual chronology at face value, in which

contemporaneous with the earliest occurrences of τελαμών—are (INF) τλῆναι (cf. (17a) below) and ταλάσσαι, neither of which can account for the shape of the noun's stem. Alternatively, Yates (2020b:260–261) proposes that the ancestor of τελαμών was formed by ID from a neuter *-*men*-stem *$télh_2$-men-. If correct, τελαμών would belong with the other *-*mon*-stem nouns paired with primary neuter *-*men*-stems in (14) above, but since no assured reflexes of *$télh_2$-men- have (yet) been identified, this analysis remains uncertain.

The second, πλαταμών 'broad body/space' (GEN.SG -μῶν-ος), occurs first in the Homeric Hymns (*Merc.* 128) and is standardly compared to Ved. *prathi-mán-* 'breadth' (*NIL*: 564). The Greek and Vedic forms both have stem-final stress, but show a mismatch in root vocalism: zero-grade *$pl̥th_2$– in Greek vs. full-grade *$pleth_2$- in Vedic. One possibility is that the apparent zero-grade in Greek is actually a mirage, the result of regressive vowel assimilation (πλαταμών < *πλεταμών; Garnier & Sagot 2017:55 n. 63); but given that this phonological change is not regular (cf. τελαμών above), and that the Greek evidence for vowel assimilation is more generally dubious (see especially van Beek 2011), this scenario is unlikely. More plausibly, the full-grade was replaced in Greek by analogy to the *-*u*-stem adjective πλατύς 'broad' (= Ved. *pr̥th-ú-* 'id.' < PIE *$pl̥th_2$-ú–; see, e.g., Frisk 1960:553–554, *EWA* II: 180, van Beek 2013:82, 104). However, Yates (2020b:259–260) and Kiparsky (to appear) contend instead that the Greek zero-grade is archaic—i.e., that Gk. πλαταμών directly reflects PIE *$pl̥th_2$-món–. Morphologically, Yates further argues that *$pl̥th_2$-món– is derived from the root *$pleth_2$- 'broad', and accordingly shows the zero-grade root proper to primary derivatives formed with the suffix *-*mon*- (for further discussion of this pattern see section 6 below).

Finally, δαίμων 'deity, spirit' is well-attested in Homer and has possible cognates in Germanic, OE *tīma* 'time' and ON *tími* 'id.', which likewise derive from the root *deh_2(*y*)- 'divide' (> Gk. δαίομαι, Ved. *dáyate* 'distribute').[65] The long *ī* in Germanic requires a zero-grade root *dih_2- (< *dh_2*i*- via metathesis; cf. Kroonen 2013:517), whereas the Greek form appears to continue *$déh_2$i-mon- with stressed full-grade of the root. These forms are perhaps most easily reconciled by reconstructing a primary AK *-*mon*-stem—i.e., strong *$déh_2$i-mon- vs.

---

case the apparent full-grade in τελάσαι could be analogical to the other aorists cited by Beekes.

65   For the connection between δαίμων, δαίομαι, and the Germanic material see Frisk (1960: 340–342). The root is reconstructed *deh_2(*i*)- by *LIV*[2]: 103 (cf. Rasmussen 1989:51); differently, Jasanoff (2003:104–107) argues that *i* is a present-forming suffix. There is no evidence in any IE language for a neuter *-*men*-stem derived from the *i*-ful form of this root.

weak *dh_2i-mn-ʹ—with analogical leveling of the root zero-grade in Germanic. However, a primary *-mon-stem *dh_2i-$món$- parallel to *$plth_2$-$món$– above is also possible. On this analysis, the Germanic forms with root zero-grade are straightforwardly predicted. It is usually thought that zero-grade *dh_2i- would not yield Gk. δαι- by sound change, but since the Greek reflexes of this PIE root show only δαι-, even in zero-grade contexts (e.g., δαιτύς 'feast' in (15f) above, Cret. δαισις 'division of property'), it is plausible to assume that inherited zero-grades of this root were systematically replaced by analogical full-grades in Greek, including in δαίμων.[66] As for its stress pattern, δαίμων is surely lexicalized in Greek,[67] and may show the same diachronic replacement of stem-final stress by RA that was proposed above for ἰχνεύμων and ἀρτέμων (see further 5.3 below).

Questions thus remain concerning the morphological background of τελαμών, πλαταμών, and δαίμων. What is clear, however, is (i) that these nouns are very likely to be inherited, given their early attestation in Greek and their IE cognates, and (ii) that the majority (2/3) show stem-final stress. In the latter respect, they converge with the non-primary deverbal and denominal *-mon-stem nouns in (15), bolstering the case for reconstructing stem-final stress in PIE ID *-mon-stems.

5.2   *The phonology and morphology of Greek *-mon-stem adjectives*

Greek *-mon-stem adjectives as a class differ from *-mon-stem nouns in at least two general ways. The first is phonological: all Greek *-mon-stem adjectives have RA, in contrast to the mixture of RA and stem-final stress seen in *-mon-stem nouns. They also differ morphologically, in that relative to the nouns the adjectives more often appear to be inner-Greek formations, derived by productive processes in the language. Consistent with this view is the fact that (virtually) all *-mon-stem adjectives have clear derivational bases—in some cases, more than one possible base—with which they stand in a transparent semantic relationship,[68] and that a non-trivial number of these adjectives

---

66   For discussion see Jasanoff (2003:104–107), who similarly posits an analogical spread of
      *deh_2i- in these forms.

67   Gk. δαίμων has a complex set of meanings in Greek (see *DELG*: 246–247 with references)
      which go well beyond its likely etymological sense of 'distributor' (first suggested by von
      Wilamowitz 1931:363).

68   There are no well-attested counter-examples to this generalization among the non-compound *-mon-stem adjectives cited by Stratton (1899:126–134), Schwyzer (1939:522) or
      Buck & Petersen (1945:216–220). Among less frequent stems a possible example is αἴμων
      'eager' (ACC.SG αἴμονα, *Il.* 5.49).

are hapax forms.[69] Conversely, *-*mon*-stem adjectives with exact cognates in other IE languages are almost entirely lacking, and even *-*mon*-stem adjectives paired with reconstructible primary neuter *-*men*-stems—i.e., the type that bear directly on the reconstruction of PIE ID *-*mon*-stems—are relatively rare. In the remainder of this section, I lay out the evidence for Greek *-*mon*-stem adjectives, focusing especially on their morphological structure, which often admits more than one analysis; I then return to the issue of their prosody in 5.3 below.

5.2.1 Greek *-*mon*-stem adjectives beside neuter *-*men*-stems

A first group of *-*mon*-stem adjectives are attested beside neuter *-*men*-stem nouns from which they could in principle be formed by ID. Examples of this type are given in (16):[70]

(16) Greek *-*mon*-stem adjectives with corresponding neuter *-*men*-stem nouns:

		NOM.SG *[-mn̥]	⇒	NOM.SG *[-mōn]	
a.	Gk.	μνῆμα	'remembrance'	μνήμων	'mindful'
b.	Gk.	ἧμα	'projectile'	ἥμων	'projectile-throwing'
c.	Gk.	αἷμα	'blood'	αἵμων	'bloody'
d.	Gk.	πῆμα	'misery'	πήμων	'baneful'
e.	Gk.	νόημα	'thought'	νοήμων	'thoughtful'
f.	Gk.	δήλημα	'harm'	δηλήμων	'harmful'
g.	Gk.	πένθημα	'mourning'	πενθήμων	'mournful'
h.	Gk.	μείδημα	'smile'	μειδάμων	'smiling'
i.	Gk.	ἄνθημα	'blossom'	ἀνθήμων	'blooming'
j.	Gk.	τέχνημα	'work of art'	τεχνήμων	'artful'
k.	Gk.	βλάστημα	'offspring'	βλαστήμων	'sprouting'

---

69 According to the *TLG*, πήμων in (16d), μειδάμων in (16h), and ἀνθήμων in (16i) are each hapax in the entire corpus of Greek, while ἥμων in (16b), πενθήμων in (16g), μαχήμων in (17f), παιγνιήμων in (17g), ἀλιτήμων in (18a), δειδήμων in (18b), and ζηλήμων in (18c) are each hapax in pre-Hellenistic authors. See Sandell (2015:34–35) for general discussion of how *hapax legomena* are indicative of productivity, as well as for specific discussion of Greek *-*mon*-stems (op. cit. 201–204).

70 In classifying ἥμων in (16b) as an adjective rather than a noun I depart from *LSJ* (s.v.). It is

Of these *-*mon*-stem adjectives at least μνήμων in (16a) and ἤμων in (16b)—both attested in Homer—are plausibly inherited. Their corresponding neuter *-*men*-stem stems, μνῆμα and ἦμα, are also attested in Homer and primary derivatives of well-established PIE roots (< *mneh₂-, *h₁yeh₁-; *LIV*²: 225–226, 447).[71] These *-*mon*-stem derivatives would thus bear directly on the prosodic reconstruction of PIE ID *-*mon*-stems. The other *-*mon*-stem adjectives in (16) in all likelihood provide only indirect testimony. αἷμα in (16c) and πῆμα in (16d) are attested in Homer and on structural grounds could continue neuter *-*men*-stems, but neither has a secure root etymology;[72] the related *-*mon*-stem are thus probably inner-Greek formations. The other adjectives in (16) are manifestly created within Greek. If the derivations in (16e–k) are correct, then they are based on neuter *-*men*-stems which are themselves non-primary derivatives of verbal stems formed by productive Greek derivational processes: in (16e) νόημα ⇐ νοέω 'think'; in (16f) δήλημα ⇐ δηλέομαι 'hurt'; and in (16g) πένθημα ⇐ πενθέω 'mourn'; in (16h) μείδημα ⇐ μειδάω 'smile'; in (16i) ἀνθήμα ⇐ ἀνθέω 'bloom'; in (16j) τέχνημα ⇐ τεχνάομαι 'make by art/skill'; and in (16k) βλάστημα ⇐ βλαστέω 'sprout'.[73] Since it is generally thought that neuter *-*men*- was only a primary suffix in PIE (as is still the case in Vedic Sanskrit), these neuter *-*men*-stems must have been produced within Greek, and so in turn, their *-*mon*-stem derivatives.[74]

It is uncertain, however, whether the *-*mon*-stems in (16) are really related to their corresponding neuter *-*men*-stems in the way represented in these derivations. A well-known distributional property of *-*mon*-stem adjectives is that BV compounds are much more common by type than non-compounds, and as a consequence, there are numerous *-*mon*-stem adjectives that occur only as the 2M of BV compounds, where they function as the compositional

---

effectively a Homeric hapax (*Il.* 23.886), and is there straightforwardly interpretable as an adjective: καὶ ῥ' ἤμονες ἄνδρες ἀνέσταν 'And the spear-throwing men stood up.'

71   The initial *h₁ in *h₁yeh₁- 'throw' (reconstructed with *H in *LIV*²: 225) is in accordance with Bozzone's Law (Bozzone 2013).

72   See Beekes (2010:38–39, 1186). An etymological relationship between Gk. πῆμα and N YAv. *pāman* '(type of skin-disease)' and M Ved. *pāmán*- 'id.' is perhaps possible (cf. Frisk 1960:529, *EWA* II: 121). However, deriving these forms from the root of Ved. *píyati* 'rebuke, abuse'—reconstructed as *peh₁i- 'id.' by *LIV*²: 459–460 (without *i-less verbal forms)—is doubtful on both formal and semantic grounds.

73   On the development of -ημα in Greek see Chantraine (1933:177–178).

74   Consistent with this view is the absence of clear word equations across IE branches for non-primary neuter *-*men*-stems. The mechanism(s) for extending neuter *-*men*- from primary into non-primary derivation within the IE languages are discussed already by Brugmann (1906:236–237).

form of neuter *-*men*-stems (cf. 2.2 above). Thus, e.g., beside the neuter *-*men*-stems κτῆμα 'possession' and εἶμα 'garment' (both Hom.+) occur the adjectives πολυ-κτήμων 'having many possessions' and κακο-είμων 'ill-clad' (both Hom.+), but the non-compounds ˣκτήμων and ˣεἴμων are unattested. Moreover, for *-*mon*-stem adjectives that occur both as the 2M of BV compounds and independently, it is often the case that the compound is attested earlier (in some cases, significantly) than the non-compound.[75] Thus, e.g., ἀν-αίμων 'bloodless' and ἀ-πήμων 'lacking misery' occur in Homer, but the non-compound αἵμων in (16c) does not appear until the 5th c. BCE, and πήμων in (16d) is a late Orphic hapax. These facts lead Risch (1974:52–53) to conclude that (at least some) Greek non-compound *-*mon*-stem adjectives of the type in (16) are not formed directly from their corresponding *-*men*-stems by ID, but are rather back-formed within Greek from compounds in which they occur as the 2M (cf. Sandell 2015:201–202). The possible implications of this analysis for the prosody of these adjectives are discussed further in 5.3 below.

5.2.2   Greek deverbal and denominal *-*mon*-stem adjectives formed with a suffix *-*mon*-

Also found in Greek are *-*mon*-stem adjectives without corresponding neuter *-*men*-stems. Two of these, ἴδμων 'knowing' and τλήμων 'enduring', could be primary formations, historically derived from the roots *weid*- 'know' and *telh₂*- 'endure' respectively (*LIV²*: 622–623, 665–667).[76] The former is not directly attested until the 6th c. CE (Leont.; *Anth. Pal.* 7.575), but is perhaps implied by ἰδμοσύνη 'knowledge', which occurs already in Hesiod (*Theog.* 377). A unique feature of ἴδμων among *-*mon*-stem adjectives is that it has a possible cognate—namely, Ved. *vidmán*- 'knowledge' (cf. *DELG*: 779).[77] A pre-form

---

75   A rare exception to this generalization is μνήμων 'mindful' in (16a), which occurs twice in Homer (*Od.* 8.163, 21.95), but as the 2M of a compound first in Pindar (ἀ-μνάμονες 'forgetful', *Isthm.* 7.17). This fact supports the idea that μνήμων—like ἧμα 'projectile-throwing' in (16b), which does not occur in BV compounds—really does continue an inherited ID *-*mon*-stem rather than being backformed from a compound, as suggested in 5.3 below.

76   A possible third example is φράδμων 'understanding' (Hom.+), but its primary status is complicated by the final *d* of the "root," which occurs in the related verb φράζω (cf. 3SG.AOR.ACT πέφραδε 'has made known') but not in the related noun φρήν 'mind'. In any case, φράδμων differs from these other primary(-looking) formations in lacking external IE comparanda.

77   The Vedic noun is attested in the INS.SG *vidmánā* (6× in RV) and, used infinitivally, in the DAT.SG *vidmáne* (RV I.164.6b, X.88.18d). The absence of strong case forms precludes

*wid-món- with the same root zero-grade and suffixal stress proposed for πλατα-μών in 5.1 above would account for both Ved. vidmán- and Gk. ἴδμων, provided only that root stress in the latter is an innovation in Greek, as argued in 5.3 below. Other morphological analyses have obvious drawbacks. For instance, derivation within Greek from the perfect stem could account for the root-zero grade of ἴδμων (cf. Hom. PFC.INF ἴδμεν(αι)), but the use of the perfect stem as a base for the formation of *-mon-stems in Greek is otherwise unparalleled.

The other candidate for a primary derivative, τλήμων 'enduring' (Hom.+), contains a zero-grade of the root *telh₂- (i.e., $t\underset{\circ}{l}h_2-$).[78] τλήμων could thus continue a pre-form *$t\underset{\circ}{l}h_2$-món– exactly parallel to *wid-món-, again provided that its root stress is innovative (cf. Yates 2020b:261 n. 30). In this case, though, there may be independent evidence for this assumption: a pre-form *$t\underset{\circ}{l}h_2$-mon– would have yielded ˣταλάμων via the "palma-Rule" (see, e.g., Weiss 2020:119).[79] Yet while this analysis is attractive, it is not the only option. Another possibility is that τλήμων was built within Greek from the verb's aorist stem, (INF τλῆναι), which is based on the generalized zero-grade of the root *telh₂- (cf. LIV²: 622 n. 2). Given the existence of deverbal *-mon-stem adjectives like δαή-μων, which must be formed from an overtly derived aorist stem (INF δαῆναι), it is arguably more economical to assume that τλήμων is formed in the same way.

On this view, τλήμων and δαήμων would pattern with the Greek *-mon-stems adjectives in (17), which likewise lack corresponding neuter *-men-stems, but can be analyzed as non-primary derivatives of verbal or nominal stems formed with a suffix *-mon-:[80]

---

definitive identification of vidmán- as a *-mon-stem, but given the poverty of animate *-men-stems it is the likeliest analysis.

78   The full-grade occurs in τελαμών 'strap, belt' (discussed in 5.1 above), which demonstrates the "State I" character of the PIE root (cf. LIV²: 622 n. 1).

79   For more detailed discussion of this rule see Vine 1998:66–70 and Höfler 2017a with references.

80   In classifying ἀλήμων in (17e) as an adjective rather than a noun I depart from LSJ (s.v.). In its two Homeric occurrences (Od. 17.376, 19.74), it can be interpreted as a noun or a (substantivized) adjective, but in its next oldest attestation (Aratus Phaen. 1101) it is unambiguously adjectival: μογεροὶ καὶ ἀλήμονες 'wretched and inconstant (men)' (for a similar metaphorical sense of the base verb, cf. Soph. Aj. 23).

(17) Greek adjectives derived from verbal or nominal stems with a suffix *-mon-:

	BASE		⇒	NOM.SG *[-mōn]	
a. Gk.	τλῆναι	'endure'		τλήμων	'enduring'
b. Gk.	δαῆναι	'learn'		δαήμων	'experienced'
c. Gk.	αἰδέομαι	'be ashamed'		αἰδήμων	'modest'
d. Gk.	ἐλεέω	'show mercy'		ἐλεήμων	'merciful'
e. Gk.	ἀλάομαι	'wander'		ἀλήμων	'wandering; inconstant'
f. Gk.	μάχη	'battle'		μαχήμων	'warlike'
g. Gk.	παιγνίη	'play, game'		παιγνιήμων	'playful'

With the exception of τλήμων in (17a), the examples in (17) are unambiguous non-primary formations, the stem-forming morphology of the verbal or nominal base present in the derived *-mon-stem adjective.[81] The majority of the *-mon-stems adjectives in (17) are attested in Homer,[82] thereby establishing the derivational process by which they were formed for the earliest layer of Greek.

5.2.3   Greek deverbal and denominal *-mon-stem adjectives formed with a suffix -ημον-

Finally, Greek has a number of *-mon-stems adjectives that appear to be derived from simple thematic verbs or nouns but unexpectedly show a presuffixal long vowel (NOM.SG -ήμων), e.g., (18).[83] Stratton (1899:128) suggests that these are formed with a complex suffix -ημον- (cf. Schwyzer 1939:522), which was

---

81   In (17f–g) the feminine suffix of the base surfaces in its full-grade form (*-eh₂-) in the derived *-mon-stem adjectives μαχήμων and παιγνιήμων, which thus contrast with θηλαμών in (15h), where the zero-grade (*-h₂-) is found (cf. n. 60 above). One possible explanation is that μαχήμων and παιγνιήμων were formed with a suffix -ημον, as suggested below.

82   The others occur first in classical Greek: αἰδήμων in (17c) occurs first in Xenophon; παιγνιήμων in (17g) is a hapax in Herodotus (co-occuring in 2.173 with its base noun παιγνίη).

83   ἀλιτήμων in (18a) and θελήμων in (18e) in fact have corresponding neuter *-men-stems, ἀλίτημα 'sin, transgression' and θέλημα 'will'. It is likely that such *-mon-stem adjectives and *-men-stem nouns are parallel derivatives of the same verbal stems (i.e., formed with suffixes -ημον- and -ημaτ-) rather than the latter serving as the base for the former. This is particularly clear in the case of (18a), where both the base verb (AOR.INF) ἀλιτεῖν and the derived adjective ἀλιτήμων are attested in Homer, but the neuter does not occur until the 6th c. CE (Agath.; *Anth. Pal.* 5.277, 9.643).

probably resegmented from *-*mon*-stem adjectives like those in (16a–b), (16e–k), and (17) above, where the long vowel is part of the base.[84]

(18) Greek adjectives derived from verbal or nominal stems with a suffix -ημον-:

		BASE	⇒	NOM.SG *[-mōn]	
a.	Gk.	ἀλιτεῖν	'sin, transgress'	ἀλιτήμων	'wicked'
b.	Gk.	δείδω	'fear'	δειδήμων	'fearful'
c.	Gk.	ζῆλος	'jealousy'	ζηλήμων	'jealous'
d.	Gk.	ἔθω	'be accustomed'	ἐθήμων	'accustomed'
e.	Gk.	(ἐ)θέλω	'want, wish'	θελήμων	'voluntary'
f.	Gk.	ψεύδω	'lie'	ψευδήμων	'lying, false'

At least three *-*mon*-stem adjectives derived in this way occur in Homer: ἀλιτήμων in (18a), δειδήμων in (18b), and ζηλήμων in (18c). The others are not attested until much later: θελήμων in (18f) occurs first in Apollonius of Rhodes (*Argon.* 2.557), while ἐθήμων in (18e) and ψευδήμων in (18g) do not occur until well into the common era.

　　Significantly, the examples in (18) raise the possibility of an alternative analysis of many of the adjectives discussed above—namely, that they are formed with the same non-primary suffix -ημον- (cf. Chantraine 1933:173). In fact, of all the examples above only αἵμων in (16c) and πήμων in (16d) are not amenable to such an analysis—the former because the stem does not terminate in -ημον-, and the latter because there is no independent base (ˣπ(η)-) to which -ημον- could be suffixed. The other *-*mon*-stem adjectives in (17) could be derived with the suffix -ημον- directly from the verbal stems that serve as the base for their corresponding neuter *-*men*-stem stems rather than from these neuters, in effect skipping the original intermediate derivational step (viz., ID)—e.g., in (16f) δηλήμων 'harmful' ⇐ δηλέομαι 'hurt'.[85] For the *-*mon*-stem adjectives in (17) the bases would remain the same, only the segmentation would differ.

　　This type of analysis cannot of course reflect the original situation: as noted above, there must have been an original core of *-*mon*-stem nominals formed

---

84　On the issue of vowel length see n. 59 above. It is generally accepted that a similar resegmentation took place in neuter *-*men*-stems, resulting in a productive suffix -ηματ- (see, e.g., Buck & Petersen 1945:222). For the derivation in (18c) see Stratton (1899:129).

85　Haspelmath (1995) refers to this type of morphological change as "affix telescoping."

by ID or by suffixation of *-*mon*- from which -ημον- arose by reanalysis. Yet the existence of -ημον- already in Homeric Greek makes it uncertain which of the *-*mon*-stem adjectives in (16a–b), (16e–k), or (17) belong to the original core or are novel forms created with this reanalyzed suffix. Indeed, the available evidence is compatible with the hypothesis that the only strategy for forming *-*mon*-stem adjectives that was productive within the historical period of Greek was by suffixing -ημον- to nominal or verbal stems.[86] A virtue of this hypothesis is that it predicts the virtual absence in Greek of *-*mon*-stem adjectives with stems that do not terminate in -ημον-. Thus, for instance, the verbal stem-forming suffix -εύω becomes productive in Greek (e.g., ἱππεύς 'horseman' ⇒ ἱππεύω 'be a horseman', δοῦλος 'slave' ⇒ δουλεύω 'be a slave'), and from such stems are productively formed neuter *-*men*-stems (e.g., ἵππευμα 'journey on horseback', δούλευμα 'service').[87] There is, however, not a single *-*mon*-stem adjective in ˣ–εύμων (e.g., ˣἱππεύμων 'skilled at horse-riding', ˣδουλεύμων 'servile'), although such adjectives could in principle be derived by ID from the corresponding neuter *-*men*-stems or directly from the verbs with a "simple" suffix -μον-.[88] This gap would be surprising if either of these derivational processes were productive, but is wholly expected if -ημον- were the only means for producing new *-*mon*-stem adjectives in Greek.

It is not crucial for present purposes whether the strong form of this hypothesis is correct. What is clear from the discussion above is that the majority of Greek *-*mon*-stem adjectives are created within Greek or its shallow prehistory, and that many of these can be attributed to one of two innovative morphological processes: (i) back-formation from compounds; or (ii) suffixation of -ημον- to a nominal or verbal stem. In the next section (5.3), I argue that there is a connection between these morphological facts and the RA pattern consistently observed in Greek *-*mon*-stem adjectives.

---

86   More sporadically, new *-*mon*-stem adjectives may also have been produced within the historical period by back-formation from compounds. Two likely examples of this kind were discussed above, αἵμων in (16c) and πήμων in (16d). Notably, these are also the only Greek non-compound *-*mon*-stem adjectives that cannot be formed with the suffix -ημον-.

87   See Schwyzer (1939:522–523, 732) for general discussion of the development of verbs in -εύω and of neuter *-*men*-stems in Greek. The productivity of neuter *-*men*-stems in -ευ-μα is assured: Buck & Petersen (1945:239–240) list over 150 non-compound types, many of which first occur in classical Greek or later.

88   There is, however, one Greek noun in -εύμων—namely, ἰχνεύμων in (15d) above. On this basis, it is reasonable to posit an early stage of Greek at which there were two productive suffixes, noun-forming -μον- and adjective-forming -ημον-. The fact that nouns derived with the former suffix are overwhelmingly confined to the archaic and classical periods suggests that only the latter remained productive in the later stages of the language.

5.3 *The synchronic and diachronic prosody of Greek *-mon-stems*

The preceding two sections examined the Greek evidence for *-mon-stem nouns (5.1) and adjectives (5.2), which exhibit a prosodic split: nouns have a mixture of suffixal stress and RA, while adjectives uniformly have RA. This section is concerned with the diachronic development of this prosodic distribution. I consider three possible explanations below, all of which depart from the standard assumption that the morphosyntactic distinction between nouns and adjectives is a Greek innovation, as there is no evidence for such a distinction in Vedic Sanskrit or elsewhere in IE.

5.3.1 Explaining word stress in Greek *-mon-stems: the "amphikinetic" hypothesis

The first possibility is that *-mon-stem nominals were inherited into Greek with AK stress mobility (as in (2b) above), then generalized root(/initial) stress at an early prehistoric stage. On this scenario, the more frequent RA pattern would be explained straightforwardly: in *-mon-stems formed by ID from primary neuter *-men-stems, root stress and RA are formally equivalent except in the GEN.PL (cf. 5.1.1 above). After the emergence of the right edge stress window in Proto-Greek ("Law of Limitation;" see Probert 2012; Gunkel 2014b), the transition from root stress to RA would be essentially trivial. What requires a special explanation on this account are the cases of stem-final stress in Greek *-mon-stem nouns, which were argued in 5.1 to support the reconstruction of this pattern for PIE ID *-mon-stem. One such explanation is offered by Buck & Petersen (1945:216), who observe that stem-final stress is especially well-represented in Greek *-mon-stem agent nouns, which include (nearly) all of the forms in (15) and, from a historical perspective, likely also τελαμών 'strap' (< *'upholder'); they accordingly suggest that these "owe their accentuation … to the influence of other oxytone agent nouns, in -τήρ, -ός, etc."

This proposal encounters at least two problems, however. One is that Greek agent nouns do not uniformly exhibit stem-final stress—for instance, the numerous agent nouns formed with the suffix -τορ- consistently show RA (e.g., δώτωρ 'giver', γενέτωρ 'begetter'). Since the -τορ-stems are approximately as common as the -τηρ-stems and more phonologically similar to the *-mon-stem stems, there is no clear motivation for the *-mon-stem agent nouns to have their stress patterns remodeled after those in -τηρ-. A second issue is that it fails to explain why stem-final stress is also found in some *-mon-stem nouns with non-agentive semantics—i.e., θημών 'heap' in (14a), χειμών 'winter, storm' in (14b), κευθμών 'hiding place' in (14c), and πλαταμών 'broad body/space'.

5.3.2   Explaining word stress in Greek *-mon-stems: the modified "amphikinetic" hypothesis

A second possibility is that Greek inherited *-mon-stems with NOM.SG *´–mōn but ACC.SG *-món-m̥ and NOM.PL *-món-es due to the operation of the so-called "*kʷetwóres-Regel" over an erstwhile AK paradigm (Rix 1985; cf. Klingenschmitt 1994:389–390 n. 131). The resulting stress alternation was then variously leveled: some Greek *-mon-stems generalized the root stress of the NOM/ACC.SG, others the stem-final stress of the ACC.SG and NOM.PL.

This approach—recently endorsed, e.g., by Neri (2017:112 n. 114)—is difficult to falsify: if one starts from a primary nominal paradigm that has a combination of root, suffix, and ending stress, then one can in principle explain any attested stress pattern by paradigm leveling. Yet positing such analogical leveling is by no means cost-free, and in this case, it is necessary to explain why the root-suffix-ending stress alternation, which should have arisen in every AK paradigm via the "*kʷetwóres-Regel," was eliminated in every one of these paradigms in every single daughter language. Even the two Vedic nominal paradigms that uniquely retain AK-type edge-to-edge stress mobility exhibit only root stress in their strong cases (ACC.SG púmāṃs-am 'man'; NOM.PL pánthās 'paths'), never the peninitial stress expected on this hypothesis (ˣpumáṃs-am < *-ós-m̥, ˣpanthā́s < *-óh₂-es). More generally, too, there are good reasons to be skeptical of the "*kʷetwóres-Regel." Rasmussen (2001) has criticized the putative evidence for this rule and argued that it should be abandoned.[89] To the empirical problems raised by Rasmussen can be added a theoretical consideration—namely, that no plausible phonetic motivation for the change has ever been proposed (cf. Yates 2019b:217 n. 23).

Yet even if these issues were left aside and the "*kʷetwóres-Regel" were accepted as a PIE-level sound change, there are certain facts about Greek *-mon-stems that it does not neatly account for. The most problematic set of nominals once again includes θημών 'heap' in (14a), χειμών 'winter, storm' in (14b), and κευθμών 'hiding place' in (14c). On this approach, their stem-final stress pattern must be analogically generalized from the ACC.SG and the NOM.PL. However, these nominals show suffixal long vowels throughout their inflectional paradigm (ACC.SG -μῶν-α, GEN.SG -μῶν-ος, DAT.SG -μῶν-ι, NOM.PL -μῶν-ες, etc.), which must be leveled from the NOM.SG. The observed distribution of stress and vowel length in these forms can thus be obtained only by

---

89   Notably, Rasmussen's (2001:27) conclusion that "the accented *ó of *me-món-e is simply the reflex of original, accented /o/" is consistent with Jasanoff's (2018) recent analysis of the development of the PNIE perfect.

the assumption of bidirectional paradigm leveling, which is cross-linguistically rare (see Garrett 2011 for a critique of this mechanism).

5.3.3   A new historical account of word stress in Greek *-mon-stems

The third possibility is that *-mon-stem nominals were inherited into Greek with stem-final stress (at least in their strong case forms, as in (2b) above). On this scenario, stem-final stress in the non-agentive *-mon-stem nouns noted above is instead a conservative feature, a direct reflex of PIE ID *-mon-stems with stem-final stress in (14a–c), and an indirect reflex of the same in πλατα-μών. Likewise, the non-primary agent nouns (15) formed with a suffix *-mon- have stem-final stress because they arose by a reanalysis of ID *-mon-stems with stem-final stress, which may have taken place either in PIE or in the subsequent prehistory of Greek.

If this account of the diachrony is correct, then it is the RA pattern observed in a smaller set of Greek *-mon-stem nouns and consistently in the more numerous Greek *-mon-stem adjectives that remains to be explained.[90] For the latter, I propose that a three step change has occurred. In the first step, new *-mon-stem adjectives were abstracted from existing BV compounds. Per Risch (1974:52–53) a likely example of a *-mon-stem adjective created at this prehistoric stage is νοήμων 'thoughtful' in (16e) (Hom.+), back-formed from ἀ-νοήμων 'thoughtless' (Hom.+), which has the neuter *-men-stem νόημα (Hom.+) as its 2M. These BV compounds have RA, which is the historically expected outcome of regular 1M stress in this PIE compound type (cf. 2.2 above). I suggest that these new *-mon-stem adjectives received RA just like the compounds from which they were abstracted in accordance with the broader generalization in (19). Evidence for this hypothesis comes from the pattern observed in Greek non-compound *-es-stem adjectives. Building on Parmentier (1889:131) and others, Meissner (2005:206–210) has demonstrated that these are frequently back-formed from *-es-stem compound adjectives, which are hugely productive in Greek and regularly exhibit stem-final stress.[91] The non-compound adjectives abstracted from these compounds show the same stem-final stress pattern—e.g., ψευδής 'lying' (Hes.+) from ἀ-ψευδής 'without falsehood' (Hes.+),

---

90   This conclusion was also reached by Bonfante (1930), who proposed that the forms with RA result from a phonological process that shifted stress from a final heavy syllable onto a penultimate heavy syllable. Much of his evidence for this process is better explained in other ways, however; see Probert (2006a:129–131) for discussion.

91   Some exceptions to this rule are discussed by Lundquist (2016, 2017:61–110, 2021b), who argues partially on this basis that stem-final stress is a Greek innovation in *-es-stem BV compounds, a replacement for inherited 1M stress (cf. Tucker 1990:62, Meissner 2005:200, Blanc 2018:304–305).

σθενής 'strong' (Hesych.) from ἐρισθενής 'very strong' (Hom.+). Supposing that back-formation from compound *-*mon*-stem adjectives works in exactly the same, the resulting non-compound *-*mon*-stem should exhibit RA.

(19) Greek non-compound adjectives back-formed from compounds exhibit the same stress pattern as the compound:
   a. BV compound *-*mon*-stem adjective (RA) >> *-*mon*-stem adjective (RA)
   b. BV compound *-*es*-stem adjective (stem-final stress) >> *-*es*-stem adjective (stem-final stress)

In the next step, the suffix -ημων- was extracted from νοήμων and other adjectives similarly back-formed from compounds, then extended productively into deverbal and denominal derivation. Adjectives formed with this newly created suffix were characterized by the same RA pattern as the adjectives from which they were extracted.[92] Adjectives with RA like ἀλιτήμων 'wicked' in (18a), δειδήμων 'fearful' in (18b), and ζηλήμων 'jealous' in (18c), which must contain -ημων- and are attested in Homer, were probably formed at this (still prehistoric) stage. The same likely holds for at least some of the other adjectives with stem-final -ημον- attested in Homer—i.e., δηλήμων 'harmful' in (18f), τλήμων 'enduring' in (17a), δαήμων 'experienced' in (17b), ἐλεήμων 'merciful' in (17d), ἀλήμων 'wandering' in (17e), and μαχήμων 'warlike' in (17f)—although these admit alternative analyses (cf. 5.2 above).

   At this point, Greek still had some *-*mon*-stem adjectives with stem-final stress—on the one hand, the reflexes of PIE ID *-*mon*-stems, which likely include μνήμων 'mindful' in (16a) and ἥμων 'projectile-throwing' in (16b) (cf. n. 75 above); and on the other, any adjectives originally formed with the "simple" suffix *-*mon*-, which may include ἴδμων 'knowing' and some of the adjectives terminating in -ημον- noted just above (τλήμων, etc.). The third and final step was a consequence of the productivity of -ημων-: *-*mon*-stem adjectives formed with this novel suffix, which uniformly had RA, came to be much more common than those with suffixal stress. This distribution—perhaps taken together with the general preference for RA in Greek (discussed below)—led to the generalization of RA in this category: the remaining *-*mon*-stem with inherited

---

stem-final stress acquired RA after the predominant type in -ήμων, e.g., *mneh₂-mṓn >> Gk. μνήμων, *wid-mṓn >> Gk. ἴδμων (cf. Ved. vid-mán-).

The remaining forms to be addressed, then, are the *-mon-stem nouns with RA: τέρμων 'boundary' in (14a), στήμων 'warp' in (14b), γνώμων 'judge, interpreter' in (14c), ἰχνεύμων '(type of weasel/wasp)' in (15d), ἀρτέμων 'foresail' in (15e), and δαίμων 'deity, spirit'. As suggested already in 5.1 above, γνώμων may be a recently substantivized adjective; as such, it could have RA because it was back-formed from a compound (e.g., ἀ-γνώμων 'lacking judgment'), or simply due to the generalization of RA in *-mon-stem adjectives (i.e., step three above).[93] The other two *-mon-stem attested beside primary neuter *-men-stems, τέρμων 'boundary' in (14a) and στήμων 'warp' in (14b), require a different explanation. One possibility is raised by Nussbaum (2014b:254–255), who proposes that some apparent ID *-mon-stems, including explicitly τέρμων, actually have a different historical source—more specifically, that they reflect reanalyzed neuters, which originally had root stress.[94] If this analysis is correct, then essentially no change has occurred in these nouns, since root stress would develop naturally into RA after the development of the "Law of Limitation" in Greek (per above).

Yet if instead τέρμων and στήμων do in fact continue inherited ID *-mon-stems, another explanation for their RA pattern is available. Probert (2006a,b) has provided robust empirical evidence showing that (i) inherited non-RA stress patterns tend to be replaced by RA over time in Greek, and that (ii) lexicalized (i.e., synchronically non-derived) words are particularly likely to undergo this prosodic change.[95] Probert attributes this recurring pattern of

---

93   The first attestation of γνώμων is contemporaneous with the compound ἀ-γνώμων (both Theog.+), but since the neuter *-men-stem γνῶμα 'judgment' is probably inherited (cf. OCS znamę 'sign'; see NIL: 154), such compound forms could be considerably older; γνώμων therefore has properties characteristic of a back-formation (see 5.2 above for discussion).

94   Nussbaum's (2014b:254–255) proposal addresses cases in which *-mon-stems are paired with (virtually) synonymous cognate primary neuter *-men-stems—thus Gk. τέρμων 'boundary' and τέρμα 'end, boundary' and and so perhaps too, from a diachronic perspective, Gk. στήμων 'warp' and Lat. stāmen 'id.'. He suggests that such neuter *-mon-stems reflect neuter "instantials," which in his view were formed in exactly the same way as NOM/ACC.PL of neuter *-men-stems, and were subsequently reanalyzed as masculines due their formal similarity with the NOM.SG of ID *-mon-stems. This proposal would directly account for RA in τέρμων and στήμων, since as discussed in 4.2.1 above, the N.NOM/ACC.PL of neuter *-men-stems certainly had root stress in PIE.

95   Probert's evidence for this change comes from thematic adjectives—e.g., *-no-, *-mo-, *-ro-, and *-to-stems (2006b:289–284)—and from deverbative *-eh₂-stems (Probert 2006a). For further discussion of why default stress often emerges in lexicalized words—

prosodic change to the status of RA as the "default" (i.e., phonologically pre-ferred) stress pattern in Greek.[96] Viewed in this way, the Greek pattern of change finds close parallels in other IE languages: the diachronic tendency for lexical items with non-default stress to adopt the language's default stress pattern has now been documented in the history of Sanskrit (Lundquist 2015, Sandell 2016, Yates 2019b:215–216), Anatolian (Yates 2015), and English (Kipar-sky 2015a:82–83).

It was suggested already in 5.1 that δαίμων, ἰχνεύμων, and ἀρτέμων have under-gone this change; the same may hold too for τέρμων and στήμων, which like-wise fit the profile of lexical items that adopt default stress. I assume that any synchronic derivational relationship between them and their correspond-ing neuter *-*men*-stems, τέρμα 'boundary, end' and στῆμα 'stamen; shaft of the penis', was lost at an early, likely prehistoric stage of Greek. This assumption is supported by the fact that these neuter *-*men*-stems do not contribute in a pre-dictable way to the semantics of the *-*mon*-stems (cf. 5.1 above); thus τέρμα and τέρμων are essentially synonymous, while στῆμα and στήμων refer to very dif-ferent things. There is also reason to doubt that the inherited process whereby *-*mon*-stems were formed by ID from neuter *-*men*-stems remained produc-tive for long in Greek. There are at most seven *-*mon*-stem nouns in Greek that, from a historical perspective, are plausibly attributed to this process: the six examples in (14) plus τελαμών 'strap'. If it is the case, as seems likely, that the *-*mon*-stem adjectives in (16c–e) are formed not by ID but rather by back-formation from compounds or with a suffix -ημον-, then just two adjectival reflexes of ID remain, μνήμων 'mindful' in (16a) and ἥμων 'projectile-throwing' in (16b). Given how few Greek *-*mon*-stem can be accounted for by ID, and that many of these diverge semantically from their corresponding neuter *-*men*-stems, it is reasonable to assume that that these *-*mon*-stem became lexicalized ("demorphologized" in terms of Probert 2006a,b) early in the (pre)history of Greek. This morphological change would in turn have made them susceptible to developing the default RA pattern in Greek.

I therefore contend that is easier to account for the mixed prosodic behavior of *-*mon*-stems in Greek starting from an inherited situation in which this stem class uniformly had stem-final stress (in the strong cases) than one in which it had root stress. This claim may seem counter-intuitive, since *-*mon*-stems with stem-final stress are considerably less common by type than those with RA.

---

and conversely, why non-default stress patterns are more stable in synchronically derived words—see Yates (2015:176–178) and in more detail Sandell (2015:192–214).

96   For diverse evidence that RA is the default stress pattern in Greek see Probert (2006b:128–144).

However, much of the apparent synchronic robustness of RA is likely to be a recent historical development, owing above all to the inner-Greek productivity of the innovative suffix -ημον-, which forms non-primary deverbal and denominal adjectives with RA. Also at work in effecting this distribution is the general phonological preference for RA in Greek, which is in all likelihood responsible for the diachronic replacement of stem-final stress by RA in some *-*mon*-stem nouns.

A consequence of this analysis is that the complicated Greek evidence for word stress in *-*mon*-stems aligns historically with what is directly observable in Vedic (section 3), as well as with what was argued above to be the best starting point for explaining the prosodic properties of the Lithuanian -*muo*-class (section 4). I return to the implications of this agreement in section 7 after treating the Anatolian evidence for *-*mon*-stems in section 6 below.

6   ID *-*mon*-stems in Anatolian

The Anatolian evidence for ID *-*mon*-stems is sparse. Since Yates (2020b) has recently provided a comprehensive treatment of the direct and indirect reflexes of ID *-*mon*-stems in Anatolian, I present here just a brief discussion of the most important piece of evidence: Hitt. *išḫiman*- 'bond, cord'.[97] This noun derives historically from the PIE root *sh_2ei- 'bind', which is also the source of the Hittite radical *ḫi*-verb *išḫ(a)i*- 'bind'.[98] That Hitt. *išḫiman*- is animate gender—thus the reflex of a *-*mon*-stem rather than a neuter *-*men*-stem— is assured, as unambiguously animate strong case forms are securely attested in Old Script texts: NOM.SG ⟨*iš-ḫi-ma-a-aš*⟩ (KBo 17.15 rev.! 11); NOM.PL ⟨^KUŠ*iš-ḫi-ma-a-ne-eš*⟩ (KBo 17.15 rev. 10); and likely ACC.PL ⟨[^KUŠ*iš-*]⌐*ḫi-ma-a-nu*⌐-*uš*⟩ (KBo 17.15 rev.! 7). Oblique case forms are more limited; only ABL and INS are attested and both occur first in Middle Script: ABL ⟨*iš-ḫi-ma-na-az*⟩ (KUB 36.55 ii 16); INS ⟨*iš-ḫi-ma-ni-it*⟩ (KUB 17.60 obv. 3).

---

97   The other Anatolian *-*mon*-stems discussed by Yates (2020b) are either non-probative with respect to their inherited stress pattern (Hitt. *arkamman*- 'tribute') or perhaps point to stem-final stress (Lyd. *sadmẽ*- 'seal' < *seh_1i-*món*- with vowel weakening in the unstressed root syllable).

98   Thus *LIV*²: 544; for the morphological reconstruction of Hitt. *išḫ(a)i*-, however, I follow Jasanoff (2018:144–145), who derives it from an *h_2e-conjugation aorist PIE *$sh_2ói$–/*$sh_2éi$- (with early prehistoric replacement of the original weak stem by zerograde *sh_2i–'; for the pattern see Melchert 2013). Kloekhorst (2008:391–393) likewise reconstructs *$sh_2ói$–/*sh_2i–' ablaut, but with a different morphological analysis.

All of these forms are phonologically expected if the Hittite noun continues *sh_2i-món-*—i.e., a primary *-*mon*-stem with zero-grade of the root and stressed suffixal *ó*-vocalism of the type proposed above for Gk. πλατα-μών 'broad body/space' (5.1.3) and ἴδμων 'knowing' (5.2.2). Suffixal *o*-vocalism directly accounts for the *a*-quality of the stem-final vowel (cf. Melchert 1983:10), while the plene spellings of this vowel in all three Old Script strong stem forms (*išḫimā(n)*- [isχi-má:(n)-]) are diagnostic of suffixal stress.[99]

The pre-form *sh_2i-món-* may hold special interest for the historical morphology of IE *-*mon*-stems. On the one hand, this form could have been created within Anatolian, since the verbal root *sh_2ei-* is preserved in Hittite (*išḫ(a)i*- 'bind') and elsewhere in the Anatolian languages (e.g., reduplicated CLuw. *ḫišḫi(ya)*–/HLuw. ⟨*hi-sà-hi*-⟩ 'id.').[100] It is thus compatible with the view discussed in 2.1 above that an independent suffix *-*mon*- developed separately in the prehistory of the IE languages in which it is attested (Anatolian, Celtic, Indo-Iranian, Italic, and Tocharian). On this analysis, Anatolian would have inherited ID *-*mon*-stems with stem-final stress; from these, a suffix *-*mon*- was then resegmented and used to form (at least) primary *-*mon*-stems with stem-final stress, including the congenitor of Hitt. *išḫiman*- 'bond, cord'.

Yet there is comparative evidence that suggests a different diachronic scenario. Strikingly, potential reflexes of *sh_2i-món-* (or of *sih_2-món-* with laryngeal metathesis) are found in at least three other IE branches: OIr. *sim* 'chain' (or *sím*; the quantity is unknown); Germanic words for 'rope', including OSax. *sīmo*, OE *sīma*, and ON *sími*; and Ved. *sīmán*- 'boundary; hairline' (see *KEWA* III: 475, Frisk 1960:724–725, Beekes 2010:489–490).[101] The Vedic form is of particular significance, as it corroborates the stem-final stress pattern observed in Hitt. *išḫiman*-. This convergent evidence for *sh_2i-món-* across four IE branches makes a strong case—indeed, probably a stronger case than for any other primary deverbal *-*mon*-stem—that it should be reconstructed for PIE, and so too, for the PIE status of the derivational process by which it was formed. If *sh_2i-món-* is reconstructed for this stage, it would imply that already in PIE itself the

---

99   In New Script texts a few aberrant forms of the noun are also attested (e.g., ACC.SG ⟨[*i*]*šḫimenan*⟩), on which basis Oettinger (1982:167–168, 173–175, 2003:146–147) reconstructs an animate HK *-*men*-stem as the source of *išḫiman*-. The principal issue with this analysis is that it fails to account for the older and more abundant evidence for [á:] (< *ó*) in the derivational suffix; for discussion and further arguments in support of *sh_2i-món-* see Yates (2020b:252–256).

100   On the reduplicative pattern see Yates & Zukoff (2018).

101   Ved. *sīmán*- refers to a part of the head, perhaps the crest or the hairline, in its earliest occurrence (ACC.SG *sīmā́nam*, AVŚ IX.8.13); this can be understood as a specialized sense of the meaning 'boundary' found in later Vedic texts.

independent suffix *-*mon*- was resegmented from ID *-*mon*-stems with stem-final stress and used to form (at least) primary derivatives that likewise had stem-final stress, such as *sh_2i-*món*- (thus Yates 2020b:257–258; cf. 2.1 above).

For present purposes, it does not matter which of these scenarios is correct. In either case, the stem-final stress pattern of Hitt. *išḫiman*- ([isχi-máː(n)-]) provides indirect evidence for the same pattern in PIE ID *-*mon*-stems. The Anatolian evidence for the prosodic reconstruction of this category is thus limited, but what is available supports reconstructing stem-final stress.

7   Reassessing the phonology of PIE ID *-*mon*-stems

The preceding four sections have systematically examined the direct and indirect reflexes of PIE ID *-*mon*-stems in those IE languages that provide evidence for their inherited stress patterns. The principal question of interest in this survey was whether ID *-*mon*-stems had root stress in their strong cases, as expected on EM's AK reconstruction, or stem-final stress, as proposed in section 1 above. In 7.1, I bring together the results of this survey in order to answer this question and thereby establish the reconstructible prosodic properties of ID *-*mon*-stems in their strong case forms. In 7.2 the evidence for the reconstruction of the weak cases is briefly reassessed, and on this basis, some revisions to the AK reconstruction are proposed. Finally, in 7.3 I combine the findings of the 7.1 and 7.2 in order to present a new prosodic reconstruction of PIE ID *-*mon*-stems.

7.1   *Reconstructing the strong cases of PIE ID *-*mon-*stems*
With respect to word stress in the strong cases of ID *-*mon*-stems, the evidence of Anatolian, Lithuanian, and Vedic all point in the same direction—namely, toward stem-final stress. In Anatolian (section 6), there is at least one *-*mon*-stem whose stress pattern can be identified, Hitt. *išḫiman*- 'bond, cord', and it clearly exhibits stem-final stress, as evident from Old Script plene spellings like NOM.PL ⟨^{KUŠ}*iš-ḫi-ma-a-ne-eš*⟩ (KBo 17.15 rev. 10). In Lithuanian (section 4), direct evidence for the stress patterns of ID *-*mon*-stems is obscured by their historical merger with neuter and animate *-*men*-stems, but the most plausible explanation for regular stress mobility (AP 3) in the resulting category (i.e., the *muo*-class) is that it spread analogically from ID *-*mon*-stems (e.g., Lith. *aug-muõ* 'sprout' < PIE *h_2eug-*món*-; cf. Ved. *oj-mán*- in (12b) above), where it is the expected historical outcome of prehistoric stem-final stress. Finally, Vedic has direct reflexes of ID *-*mon*-stems, most securely attested beside the primary neuter stems from which they were (historically) derived (e.g., M Ved. *dā-mán*-

'giver' ⇐ N *dā́-man*– 'gift' in (7a) above), as well as indirect reflexes of this category, primary derivatives of adjectival roots formed with a suffix *-*mon*- (e.g., *prathi-mán*- 'breadth' << *$pl̥th_2$-món*– ⇐ PIE *$pleth_2$*-; cf. 5.1 above); both types consistently exhibit stem-final stress.

The only language that complicates this picture is Greek (section 5): some *-*mon*-stems have stem-final stress, but more (by type) exhibit RA, which is mostly formal equivalent to and thus easily explained diachronically as a reflex of root stress. In 5.3 I made the case on purely Greek-internal grounds that stem-final stress is nevertheless an archaism in this stem class. I proposed a new explanation for the development of RA in Greek *-*mon*-stems, at the core of which are two well-established observations about the diachrony of the language generally and about *-*mon*-stems in particular: (i) that there is a tendency for words with inherited non-RA stress patterns to adopt RA over time (Probert 2006a,b; cf. 5.3 above); and (ii) that at least some (and perhaps many) non-compound *-*mon*-stem adjectives are historically back-formed from BV compounds (Risch 1974:52–53; cf. 5.2 above).

A consequence of (i) is that RA is the *lectio facilior* in Greek—i.e., in the general case, RA is more likely to be innovative than stem-final stress or other non-RA patterns. It is therefore unsurprising that no plausible explanation for stem-final stress in Greek *-*mon*-stems as an innovation has yet been put forward (cf. 5.3 above). As for (ii), I suggested that such "de-compositional" *-*mon*-stem adjectives were created with RA (just like the corresponding BV *-*mon*-stem compounds); the innovative adjectival suffix -ημον- was then resegmented from these adjectives, and used productively to form the new deverbal and denominal *-*mon*-stem adjectives with RA that constitute the bulk of evidence for this stress pattern in Greek.

This particular explanation of the Greek facts (and the premises it rests upon) are of course open to challenge, and I concede that, when considered independently, the mixture of stem-final stress and RA seen in Greek *-*mon*-stems is hardly probative evidence for reconstructing stem-final stress in PIE. Still, Greek does not provide compelling evidence for reconstructing root stress either. Thus when the comparative IE evidence for ID *-*mon*-stems is taken into account, there can be little doubt that the strong case forms of nouns belonging to this category had stem-final stress in PIE (not root stress per EM). This stem-final stress pattern was maintained in Vedic and into the prehistory of Lithuanian, indirectly reflected in Anatolian, and partially preserved in Greek.

The final point that must be addressed in order to complete this new reconstruction of the strong cases of PIE ID *-*mon*-stems is their root vocalism. In this respect, the traditional AK analysis of this category and the alternative proposed in section 1 converge, both reconstructing full-grade of the root in this

context. This agreement is not surprising, since the comparative evidence is unequivocal: all direct reflexes of ID *-mon-stems—i.e., *-mon-stems which are attested beside primary neuter *-men-stems in the same IE language or whose corresponding primary neuter *-men-stems are reconstructible for PIE—show full-grade of the root in their strong case forms.[102] The strong case forms of PIE ID *-mon-stems can therefore be reconstructed schematically as in (20) ([CeC] = full-grade root; cf. (2b) above):

(20) Strong case forms of ID *-mon-stems in PIE:

	PIE
NOM.SG	*[CeC-món]
ACC.SG	*[CeC-món-m̥]
NOM.PL	*[CeC-món-es]

7.2 *Reconstructing the weak cases of ID* *-mon-*stems*

In the preceding sections, I have generally left aside the issue of the reconstruction of the weak case forms of PIE ID *-mon-stems, primarily because in the weak cases—unlike in the strong cases—the AK reconstruction hypothesized by EM is in my view on the right track.[103] Nevertheless, there are some differences between AK inflection and the reconstruction of the weak case forms that—as I will argue below—the comparative evidence supports. My proposal for the reconstruction of the PIE weak case forms is given in (21b) beside the AK reconstruction in (21a):[104]

---

102 A single Vedic exception, *bhū-mán-* 'abundance' in (8e), is discussed in n. 32 above.

103 A secondary consideration is that the reconstruction of the weak case forms is problematized by a number of outstanding morphological and phonological questions at the PIE level, which lie beyond the scope of this study to resolve (see, e.g., nn. 104 and 105 below). The conclusions presented here should accordingly be regarded as provisional, pending a separate treatment of these forms and the relevant questions elsewhere.

104 I include in (21) all weak cases with inflectional endings whose PIE reconstruction can be regarded as relatively secure (cf. Lundquist & Yates 2018:2182–2183). I therefore exclude the non-singular weak cases that may have been marked by consonant-initial endings, which have questionable PIE status, especially in view of their absence in Anatolian; in this vein see Jasanoff (2008:140–141), who argues persuasively for reconstructing DAT.PL PIE *-os (> Hitt. -aš) rather than *-bʰ(y)os (> Ved. -bhyas, Lat. -bus) or *-mos (> Lith. -mus, OCS -mŭ). It should be noted, however, that such consonant-initial weak forms would be of significant prosodic interest, since these constitute another locus in which Kiparsky's (2010)'s analysis of ID *-mon-stems (discussed in n. 107 below) predicts a non-AK stress pattern. The historical development of these consonant-initial endings calls for further research.

(21) Two reconstructions of the weak cases of PIE ID *-*mon*-stems:

	a. AMPHIKINETIC	b. PROPOSED
INS.SG	*[CC-n-éh$_1$]	*[CeC-n-éh$_1$]
DAT.SG	*[CC-n-éi]	*[CeC-n-éi]
ABL/GEN.SG	*[CC-n-é/ós]	*[CeC-n-é/ós]
LOC.SG	*[CC-mén]	*[CeC-mén]
DAT.PL	*[CC-n-ós]	*[CeC-n-ós]
GEN.PL	*[CC-n-óh$_{1/3}$om]	*[CeC-n-óh$_{1/3}$om]

As evident in (21), I tentatively reconstruct for PIE essentially the same desinential patterns: when the inflectional ending was vowel-initial, zero-grade of the suffix (with deletion of suffixal */m/; see below) and stressed inflectional endings (e.g., GEN.SG *[-n-é/ós]); and in the "endingless locative," stressed full-grade of the suffix (LOC.SG *[-mén]). The Vedic reflexes of ID *-*mon*-stems support this reconstruction of the locative—e.g., LOC.SG Ved. *brahmáṇi* 'at the priest' (cf. ACC.SG *brahmā́ṇam* in (7c) above), which appears to continue *[-mén] recharacterized by the synchronic LOC.SG ending -*i*. Vedic also provides evidence for zero-grade of the *m-less suffix and stressed inflectional endings. Traces of this pattern are attested (e.g., INS.SG Ved. *dānā́* 'with giving'; cf. ACC.SG *dāmā́nam* in (7a) above) beside a much more common pattern whereby the suffixal vowel surfaces and receives stress (e.g., INS.SG *omā́nā* 'with aid'; cf. ACC.SG *omā́nam* in (8a) above). Since */m/-deletion appears to be reconstructible for PIE (see, e.g., Mayrhofer 1986:159),[105] it seems likely that the former Vedic pattern reflects the PIE situation, while the latter emerged in (the prehistory of) Vedic after this */m/-deletion process was lost.

In a different respect, however, I contest the AK reconstruction of the weak cases of PIE ID *-*mon*-stems. I propose that these forms were characterized by full-grade of the root rather than the zero-grade expected if ID *-*mon*-stems exhibited AK inflection in PIE. It was observed in 7.1 above that all assured

---

105   The reconstruction of this process is supported by forms in a variety of IE languages (see Schmidt 1895:87–159, Nussbaum 2010, Pronk 2014, i.a.), which notably include at least one word equation: Ved. *budhná-* 'deep' = Lat. *fundus* 'id.' < PIE *b^hud^h-n-ó-, which shows */m/-deletion vis-à-vis its derivational base, the animate *-*men*-stem PIE *b^hud^h-mén- (> Gk. πυθμήν 'bottom'; cf. Weiss 2020:123). Still, the details of this PIE process remain disputed; compare, e.g., the differing treatments of Mayrhofer (1986:159) and Byrd (2018:2060). In my view, a full reassessment of the comparative evidence is needed.

direct reflexes of ID *-*mon*-stems in the IE languages continue full-grade of the root in their strong case forms. While the survey of these IE reflexes conducted in sections 3–6 above focused on their strong case forms, a complementary observation is relevant here: none of these IE forms shows any evidence for intraparadigmatic root ablaut. In other words, these forms all appear to reflect paradigmatic full-grade of the root, including in the weak cases. This point is effectively conceded by Stüber (1998:147), who attributes it to intraparadigmatic leveling from the strong cases.[106] Since leveling of root ablaut is a common phenomenon in the IE languages, such a change could plausibly have occurred independently in each of these languages. Nevertheless, given the absence of evidence for zero-grade in the weak (or strong) cases, it is more economical to assume that the weak cases of ID *-*mon*-stem should be reconstructed as in (21b) with full-grade of the root already in PIE. It is therefore a virtue of the analysis of the morphophonology of ID *-*mon*-stems developed in §8 below that it straightforwardly accounts for this weak root full-grade, which it explains via the same mechanism as the root full-grade in the strong cases of PIE ID *-*mon*-stems.

7.3   *A new prosodic reconstruction of PIE* *-mon-*stems*

The comparative evidence for the prosodic reconstruction of the strong and weak cases of PIE ID *-*mon*-stems was reevaluated in 7.1 and 7.2 respectively. I have argued that this evidence supports reconstructing for PIE ID *-*mon*-stems the (partial) inflectional paradigm in (22), which deviates from the traditional AK reconstruction in two principal ways: (i) stem-final stress in the strong cases (vs. root stress); (ii) paradigmatic full-grade of the root (vs. zero-grade in weak cases).[107]

---

106   Stüber (1998:147): "[T]he full-grade of the root appears to have been generalized almost universally." The one example that she adduces of a PIE root zero-grade is Gk. ἴδμων 'knowing' (< *wid-mon-), which as discussed in 5.2.2 is a deverbal formation rather than an ID *-*mon*-stem.

107   The proposed reconstruction of the strong and weak cases in (21) are wholly compatible, as Kiparsky (2010:143–149) has demonstrated. I provisionally follow his analysis of stress assignment in these forms: the stem-final vowel bears a lexical accent in the input (*/-món-/; cf. n. 121 below), which explains why it attracts stress in the strong cases; when the stem-final vowel is deleted in the weak cases, this lexical accent then shifts to accented vowel-initial endings (via "secondary mobility;" see further Yates 2020a), which therefore attract stress. Notably, this analysis predicts stem-final stress in the context of consonant-initial weak case endings rather than the stressed inflectional endings expected on the AK reconstruction. Whether such endings are reconstructible for PIE is uncertain (cf. n. 104 above); if reconstructible, though, the relevant Vedic forms (e.g., M.INS.PL -*má-bʰis*, DAT.PL -*má-bhyas*) suggest they would be consistent with Kiparsky's predictions.

(22) A new reconstruction of PIE ID *-*mon*-stems:

	SG	**PL**
NOM	*[CeC-món]	*[CeC-món-es]
ACC	*[CeC-món-m̥]	
INS	*[CeC-n-éh₁]	
DAT	*[CeC-n-éi]	*[CeC-n-ós]
ABL	*[CeC-n-é/ós]	
GEN	*[CeC-n-é/ós]	*[CeC-n-óh₁/₃om]
LOC	*[CeC-mén]	

A reviewer raises the possibility that the AK inflection hypothesized by EM for ID *-*mon*-stems could still be reconciled with the IE evidence that I have argued supports the reconstruction of the paradigm in (22) for PIE. One way to bridge this gap would be to assume that the AK paradigm reconstructed under EM obtained in pre-PIE and was then transformed via a series of analogical innovations into the PIE paradigm in (22), which in turn was inherited into the IE languages along the lines described in sections 3–6 above.[108]

On this view, the relevant analogical innovations would need to occur just once (viz., between pre-PIE and PIE), and indeed, such changes are conceivable. The paradigmatic full-grade in (22) could have been leveled from the weak cases, as already noted in 7.2 above. As for the stress pattern of the strong cases in (22), one possibility is that it spread analogically from the endingless locative, the lone site of stem-final stress per EM (see, e.g., Schindler 1975c:262, Meier-Brügger & Fritz 2021:222–223). An alternative possibility, raised by the same reviewer, is that the weak cases with stressed inflectional endings somehow caused stress to shift to the stem-final syllable in the strong cases. One could imagine a scenario whereby stress on the weak inflectional endings was rean-

---

108   It is possible that some of the scholars who endorse EM's reconstruction of ID *-*mon*-stems as an AK class (see n. 1 above) do so as a claim about pre-PIE rather than PIE itself. This view would be in keeping with the original conception of EM's inflectional classes, which—as emphasized by early researchers like Pedersen (1933:21) and Schindler (1975c:259–261)—are the output of internal reconstruction, intended to serve as a pre-PIE starting point for analyzing the subsequent development of (P)IE athematic nominal inflection (cf. Lundquist & Yates 2018:2134). In this camp would belong, e.g., scholars who would use the "*k^w*etwóres*-Regel" as a mechanism for explaining their IE reflexes with stem-final stress (cf. 5.3.2 above).

alyzed in phonological terms as peninitial stress, and on this basis, generalized throughout the paradigm, yielding strong case forms with the innovative stress pattern in (22), which is peninitial in phonological terms and stem-final in morphological terms.[109]

Strictly speaking, it is impossible to rule out such scenarios, since the relevant changes would be situated in pre-PIE and so by definition separated from the actual facts of the IE languages (see Lundquist & Yates 2018:2135 for further discussion). Still, insofar as the IE data bear on the plausibility of pre-PIE changes, they are not supportive. If it were the case that the phonologically-driven analogy outlined above was a general mechanism of prosodic change in PIE (or in languages like Vedic and Hittite that broadly preserve its prosodic system intact), one might expect to find evidence for a similar spread of peninitial stress in other categories. Thus, for instance, root nouns with stressed inflectional endings in their weak cases could have developed a phonologically uniform, peninitially-stressed paradigm by shifting stress in the strong cases from the root onto inflectional endings. No IE language shows any trace of this development, however (i.e., no attested reflexes of NOM.PL ˣ[C(e)C-és], ACC.SG ˣ[C(e)C-ḿ] with peninitial/ending stress).

Similarly, there is little basis for the assumption that the endingless locative of ID *-mon-stems was privileged by IE speakers in such a way that the stem-final stress pattern uniquely associated with this case-form would have replaced earlier root stress in the more numerous (viz., at least three) strong case forms of ID *-mon-stems. In this respect, it is perhaps notable that the Vedic evidence points in the opposite direction: among the direct and indirect reflexes of ID *-mon-stems discussed in section 3 above, not a single stem attests an "endingless locative" in the RV, and even LOC.SG forms recharacterized with the ending -i appear to be quite rare (brahmáṇi cited above is an isolated RVic example). The marginal role of the "endingless locative" in Vedic is hardly probative as to its pre-PIE status, given the time-depth separating these two linguistic stages, but at minimum it does not recommend a scenario in which the inflectional paradigm of ID *-mon-stems was re-built on the basis of this single case-form.

I am therefore skeptical of the idea that PIE ID *-mon-stems exhibited AK inflection at any point in their deeper prehistory. It should be emphasized, however, that this is not the main claim of this paper, which is concerned specif-

---

109   Proponents of EM should be reluctant to posit this sort of phonologically-driven analogy as a mechanism for prosodic change in the proto-language, since it is at odds with the core assumption of this model that stress was fundamentally a morphologically-determined property.

ically with PIE. I have argued that at this historical stage ID *-*mon*-stems were characterized by the inflectional pattern in (22) rather than by AK inflection, which would require that the convergent IE evidence for stem-final stress in the strong case forms of ID *-*mon*-stems be the result of independent parallel innovations. The analogical changes that could give rise to this pattern were just discussed: if they are indeed unlikely as a one-time event, then it is especially improbable that they unfolded in the same way in the separate prehistories of each of these IE languages. In my view, then, there is no viable way to bridge the gap between an AK paradigm for ID *-*mon*-stems in PIE and the IE data; yet however one assesses the plausibility of this scenario, it is clear that the IE evidence for stem-final stress is most economically explained by reconstructing this stress pattern for PIE, as in (22).

8   The morphophonology of ID *-*mon*-stems

In the preceding sections it was argued on empirical grounds that PIE ID *-*mon*-stems should be reconstructed as in (22), with paradigmatic full-grade of the root; stressed *$\acute{o}$-vocalism in their stem-final syllable in the strong cases; and zero-grade suffix and stressed inflectional endings in most of the weak cases. In this section, I discuss a possible theoretical objection to this reconstruction— namely, that in pretonic syllables only zero-grade of the root should occur. The basis for this objection is outlined in 8.1. Having concluded that this full-grade root is indeed phonologically irregular and thus unexpected in a primary derivative, in 8.2 I propose a new explanation for its appearance in PIE ID *-*mon*-stems. This proposal depends crucially on the fact that PIE ID *-*mon*-stems are non-primary derivatives, which as observed already by Schindler (1975c:260) may contain phonological properties that are proper to their derivational bases.

8.1   *Pretonic root vocalism in ID *-*mon*-stems and PIE primary derivatives*

Descriptively, the traditional AK reconstruction of PIE ID *-*mon*-stems and the new reconstruction in (22) partially agree on the root vocalism of this category: both reconstruct full-grade of the root in the strong cases, and thus diverge only in the weak, where the former reconstructs zero-grade and the latter full-grade. There is a fundamental morphophonological difference between these reconstructions, however. A correlation between full-grade and word stress is a well-established feature of PIE (see, e.g., Lundquist & Yates 2018:2133–2134 with references). This correlation is maintained on the AK reconstruction of

ID *-*mon*-stems, where the ablaut of the root varies with the position of stress: the root appears in full-grade when it bears stress in the strong cases (e.g., ACC.SG *[CéC-mon-m̥]); and in zero-grade when the following inflectional ending bears stress in the weak cases (GEN.SG *[CC-n-é/ós]). In contrast, no such correlation obtains in the new reconstruction: the root always exhibits full-grade but never bears stress, which falls instead on the following stem-final vowel in the strong cases (ACC.SG *[CeC-món-m̥]) and on the following inflectional endings in the weak cases (GEN.SG *[CeC-n-é/ós]).

The invariant pretonic full-grade in the new reconstruction of ID *-*mon*-stems is especially striking, since there is particularly strong evidence that PIE morphemes regularly appeared in their zero-grade allomorphs in this phonological context. Notably, this generalization is directly encoded in EM, which systematically excludes root *e- and *o-grades in immediately pretonic syllables from the four inflectional classes that it reconstructs for primary athematic nominals. HK nominals are reconstructed with zero-grade of the root and suffixal stress in their strong cases (e.g., NOM.SG PIE *dh_3-tér > Gk. δοτήρ 'giver'), and PK nominals with the same properties in their weak cases (e.g., GEN.SG PIE *mn̥-téi-s > Ved. *matés* 'of thought'). The same goes for derivational suffixes when stress surfaces on inflectional endings. HK nominals are reconstructed with zero-grade of the suffix in their weak case forms (e.g., DAT.SG PIE *dh_3-tr-éi >> Ved. *dātré* 'for the giver'), and so too AK nominals (e.g., GEN.SG PIE *pn̥t-h_2-é/ós > Ved. *pathás*, YAv. *paϑō* 'of the path'; cf. ACC.SG PIE *pént-oh_2-m > Ved. *pánthām*, YAv. *paṇtąm*).[110]

The same generalization holds in primary derivatives that stand outside the scope of EM proper. Thus, e.g., the ending-stressed plural forms of PIE root presents regularly show zero-grade of the root (e.g., 3PL.PRS PIE *h_1s-énti > Ved. *sánti*, Osc. **sent**, Goth. *sind* 'are'), which contrasts with the full-grade root of their root-stressed singular forms (3SG.PRS PIE *$h_1$és-ti > Ved. *ásti*, Hitt. *ēšzi*, Osc. **est**, Goth. *ist* 'is'). Likewise, suffix-stressed primary thematic derivatives like *-*to*-adjectives regularly have zero-grade of the root (e.g., ANIM.NOM.SG PIE *ḱlu-tó-s > Ved. *śrutás*, Gk. κλυτός 'heard (of)'; Lat. *inclutus* 'famous'), which contrasts with full-grade of the root in root-stressed primary thematic derivatives (e.g., 2PL.PRS PIE *b^hér-e-te > Ved. *bháratha*, Gk. φέρετε, OIr. ·*beirid* 'you bear').[111]

---

110   On the EM inflectional classes see the literature cited in n. 3 above. The PIE reconstructions of 'path', 'thought', and 'giver' are standard; see, e.g., Fortson (2010:124–125, 234).

111   The PIE reconstructions of 'be', 'heard (of)', and 'bear' are standard; see, e.g., Lundquist & Yates (2018:2122, 2127, 2133).

The broad take-away from this brief discussion is that there is robust evidence in the IE languages that pretonic non-zero-grades were phonologically dispreferred in PIE. The pretonic root full-grade reconstructed for ID *-*mon*-stems in (22) is thus indeed phonologically irregular, a fact which could in principle constitute grounds for rejecting the reconstruction altogether: despite the empirical evidence for stem-final stress in the strong cases, the root full-grade must point to erstwhile root stress, as is the case in EM's AK reconstruction. In the next section (8.2), however, I argue that this assessment is unwarranted. I contend that it fails to take into account a crucial morphological difference between the forms cited above and PIE ID *-*mon*-stems—namely, that the former are primary derivatives, but the latter are non-primary derivatives.

8.2 *Pretonic root vocalism in ID* *-mon-*stems and PIE non-primary derivatives*

In this section I propose a new account of the phonologically irregular pretonic full-grade root vocalism of PIE ID *-*mon*-stems as reconstructed in (22). The inspiration for this proposal is a significant but generally overlooked observation of Schindler (1975c:260): "Es besteht dabei generell die Möglichkeit, dass spezifische Ablautstufen der zugrundeliegenden Primärbildungen auch in den sekundären Ableitungen erscheinen." Schindler does not specify whether his statement is intended as a synchronic claim about the prosodic properties of PIE primary derivatives, or else a diachronic one, the result of *einzelsprachlich* analogical developments. Whatever the case, it is clear that his observation to some extent holds already for PIE itself. I provide in (23) some examples of non-primary derivation involving overt affixation, the outputs of which are generally thought to be reconstructible for PIE:

(23) PIE "external" non-primary derivatives and their IE reflexes:

    a. PIE *(h₁)rot-eh₂-* 'wheel'   ⇒ *(h₁)rot-h₂-ó-* 'wheeled'
       >   Lat. *rota*   'wheel'   Ved. *rátha-*, 'chariot'
                                     YAv. *raϑa-*

    b. PIE *sokʷ-eh₂-* 'accompaniment' ⇒ *sokʷ-h₂-ói-* 'comrade'
       >   – (⇒ Gk. 'comrade')   Ved. *sákhā(y)-* 'friend'
            ὀπάων

    c. PIE *wét-es-*   'year'   ⇒ *wet-s-ó-*   'having a year'
       >   Gk. ἔτος   'year'   Ved. *vatsá-* 'calf'

   d. PIE *$pék̂-os-$ 'wool'   ⇒ *$pek̂-s-ó-$ 'having wool'
      >   Gk. πέχος   'wool'   Lat. *pexus*   'wooly'
          Lat. *pecus*   'herd'

   e. PIE *$léuks-men-$ 'light'   ⇒ *$leuks-m̥n-ó-$ 'having light'
      >   Lat. *lūmen*   'light'   YAv. *raoxšna-* 'bright'

The derivation of Ved. *rátha-* in (23a) can be fairly said to reflect the *communis opinio*, appearing in recent handbooks (e.g., Weiss 2020:126, 320, Meier-Brügger & Fritz 2021:126; cf. *NIL*: 575–578) and etymological dictionaries (e.g., *EWA* IIII: 429–430, de Vaan 2008:527). Likewise secure is the derivation of Ved. *sákhā(y)-* in (23b), which was first proposed by Schindler (1969:164 n. 65) and since widely accepted (e.g., *EWA* II: 684–685, Beekes 2010:112–113, 1089).[112] The frequently cited derivation of Ved. *vatśa-* in (23c) is supported by the majority of scholars (e.g., Stüber 2002:31, 187–188, Schaffner 2004:292–293, Meissner 2005:153 n. 82, 165).[113] Finally, the derivations of Lat. *pexus* in (23d) and YAv. *raoxšna-* in (23e) reflect traditional analyses (Schmidt 1895:101–102, Ernout & Meillet 2001:491), which have recently been endorsed respectively by Höfler (2017b:307–308) and Nussbaum (2010:270).[114]

    Each of the examples in (23) exhibit two properties that are of particular interest here. In each case (i) the non-primary derivative is characterized by a non-zero-grade root allomorph in an immediately pretonic syllable: pretonic *o-grade in (23) and pretonic full-grade in (23c–e). From a purely phonological perspective, the root vocalism of these non-primary derivatives is irregular (per 8.1 above). However, in each case (ii) it also has the same root vocalism as its derivational base, which at least for (23c–e) provides a phonological envi-

---

112   On the prosody of PIE *$sok^w-h_2-ói-$—and of PIE animate *$-oi$-stems generally—see Yates (2019b), who argues that stem-final stress is preserved in the BV compound Ved. *su-ṣakhā́(y)-* 'having good fellowship'. The same stem-final stress pattern is reconstructed for the simplex by Gotō (2013:29), though without argumentation.

113   Vine (2009) proposes instead that both Ved. *vatsá-* and CLuw. *ušša/i–*/HLuw. *usa/i-* 'year' (< *$ut-s-ó-$) are decasuative formations (on which process see now Fortson 2020), derived with the same adjectival suffix */$-ó-$/ but from the GEN.SG of the root noun continued by Hitt. *witt-* 'year'.

114   For the neuter *$-men$-stem base in (23e) I reproduce the segmentation of Nussbaum (2010:270), who appears to derive it from an *s-extended form of the root *$leuk-$ 'shine' (see *LIV*²: 418–419). Alternatively, Höfler (2017b:464–465) argues that YAv. *raoxšna-* is a *$-no$-adjective derived from a neuter *$-es$-stem *$léuk-es-$ (> Ved. *rokás-*, YAv. *raocah-* 'light'), but this analysis is problematized by the weak comparative evidence for *$-no-$ as a non-primary suffix in PIE.

ronment in which it is stressed and thus regular.[115] These examples thus fit the general pattern observed by Schindler (1975c:260): ablaut grades proper to a derived base also surface in its further derivatives. Furthermore, they suggest that this generalization holds even when the transfer of root ablaut grades from base to derivative results in non-zero-grade root allomorphs that are irregular in their new phonological context.

Significantly, examples of such base-derivative transfer effects are not confined to non-primary derivatives formed by overt affixation. The same phenomenon occurs in "τομός-type" nominals, which are standardly thought to be formed from "τόμος-type" action nouns by an ID process that is reconstructible for PIE.[116] Some representative examples from several IE language branches are given in (23).[117]

(24) PIE τόμος- and τομός-type nominals and their IE reflexes:
   a. PIE   *tómh₁-o-   'slice'   ⇒   *tomh₁-ó-   'cutting, cutter'
       >   Gk. τόμος   'slice'   Gk. τομός   'cutting'

   b. PIE   *wólh₁-o-   'choice'   ⇒   *wolh₁-ó-   'choosing, chooser'
       >   Ved. *vára-*   'choice'   Ved. *vará-* 'suitor'

   c. PIE   *ḱóuh_x-o-   'swell'   ⇒   *ḱouh_x-ó-   'swelling'
       >   – (⇒ Sp. *cueva* 'cave')   Lat. *cavus* 'hollow'

Just as in the "external" non-primary derivatives in (23), the internally derived τομός-type nominals in (24) show a non-zero-grade root allomorph that (i) is phonologically irregular in pretonic position, but that (ii) is also present in its derivational base.

The non-primary derivatives in (23) and (24) thus open the door for a principled explanation of the root vocalism of PIE ID *-*mon*-stems. I propose that

---

115   I am aware of no evidence as to whether the bases in (23a–b) were root-stressed (*(*h₁*)*rót-eh₂-, *sókʷ-eh₂-*) or suffix-stressed (*(*h₁*)*rot-éh₂-* and *sokʷ-éh₂-*). If the latter, supposing the generalization proposed in this section is on the right track, their pretonic root *o*-grade may be a sign of their own non-primary status.

116   See, e.g., Schaffner (2001:98), Widmer (2004:32), Fortson (2010:122), Nussbaum (2014b: 243–251), 2017:237–239, Jasanoff (2017:21–22), Lundquist & Yates 2018:2108–2109, Weiss 2020:287. Differently, Benveniste (1935:172) and Krasukhin (2000:133–134) argue on semantic grounds for the opposite direction of derivation, taking the τομός-type as primary and the τόμος-type as its derivative.

117   The examples in (24a–b) are commonly cited in the literature in n. 116 above (e.g., Jasanoff 2017:21–22). On (24c) see Vine (2006:235–237).

the pretonic root full-grade of PIE ID *-mon-stems was transferred from their neuter *-men-stem bases, where this full-grade was stressed (cf. 4.2.2 above). This proposal is consistent with Schindler's (1975c:260) observation regarding base-derivative transfer of ablaut grades, but I explicitly suggest that the transfer of root vocalism was a synchronic phenomenon in PIE ID *-mon-stems, a part of the morphophonological process by which they were derived from neuter *-men-stems. I represent this process schematically in (25), where the attested IE forms can be traced back directly to PIE ID *-mon-stems with base-derivative transfer of root vocalism from their corresponding neuter *-men-stems, not to the pseudo-forms ˣ[dʰr̥-món-m̥], ˣ[h₂ug-mṓn], and ˣ[dʰəh₁-mṓn] with phonologically regular pretonic zero-grade of the root (the transferred root vowel is underlined):

(25) Synchronic transfer of root vocalism from PIE neuter *-men-stems to ID
     *-mon-stem stems:

PIE *[dʰér-mn̥]   ⇒   PIE *[dʰer-món-m̥]   >   Ved. *dharmā́ṇam*   (≮ ˣ[dʰr̥-món-m̥])

PIE *[h₂áug-mn̥]   ⇒   PIE *[h₂aug-mṓn]   >   Lith. *augmuõ*   (≮ ˣ[h₂ug-mṓn])

PIE *[dʰéh₁-mn̥]   ⇒   PIE *[dʰeh₁-mṓn]   >   Gk. θημών   (≮ ˣ[dʰəh₁-mṓn])

On this proposal, PIE ID *-mon-stems would exhibit what are commonly referred to as cyclic effects (or perhaps more intuitively, as "synchronic analogy" by Kiparsky 2015b:3): a phonological property is transferred from a base to its derivative, resulting in the opaque under- or overapplication of an active phonological process in the latter. Specifically, ID *-mon-stems would show underapplication of the PIE vowel deletion process that is responsible for the phonological distribution discussed in 8.1—i.e., that roots and suffixes regularly exhibit zero-grade in pretonic position.[118] Such cyclic effects are cross-linguistically common and admit a range of theoretical analyses.[119] I make no strong claim here as to which of these analyses is to be preferred. For present

---

[118] How precisely this PIE deletion process should be analyzed is not crucial here. One possibility is Kiparsky's (2010; 2018) "Zero-Grade Rule," but for a different conception see Yates (2019a).

[119] Bermúdez-Otero (2011) and Kiparsky (2015b) provide recent overviews and critical discussion of this literature.

purposes, it is sufficient that the base-derivative transfer effect proposed for ID *-*mon*-stems has solid cross-linguistic parallels and that there are well-established formal mechanisms that can account for their pretonic full-grade while still predicting regular pretonic zero-grade in primary derivatives.

9 Discussion and conclusions

In this paper I have proposed a new prosodic reconstruction of PIE *-*mon*-stem nominals that were formed by internal derivation from neuter *-*men*-stems. Above all, I have argued that these nominals were characterized by full-grade of the root and stressed *$\acute{o}$*-vocalism of the stem-final syllable in their strong case forms. I repeat this new reconstruction in (26) (= (22) above; [CeC] = full-grade root):

(26) A new reconstruction of PIE ID *-*mon*-stems:

	SG	PL
NOM	*[CeC-mốn]	*[CeC-món-es]
ACC	*[CeC-món-m̥]	
INS	*[CeC-n-éh$_1$]	
DAT	*[CeC-n-éi]	*[CeC-n-ós]
ABL	*[CeC-n-é/ós]	
GEN	*[CeC-n-é/ós]	*[CeC-n-óh$_{1/3}$om]
LOC	*[CeC-mén]	

I have argued (in section 7) that the reconstruction in (26) better accounts for the word-prosodic patterns attested in the IE languages than the traditional "amphikinetic" inflection reconstructed by the Erlangen Model. In particular, only this new reconstruction plausibly explains why the direct and indirect reflexes of this category in Vedic Sanskrit consistently show stem-final stress (cf. section 3), a pattern that is matched by the available evidence in Anatolian (cf. section 6). Moreover, the reconstruction in (26) offers the best starting point for explaining the development of AP 3 inflection in the Lithuanian -*muo*-class (cf. section 4), as well as the mixture of stem-final stress and RA in the direct and indirect reflexes of ID *-*mon*-stems in Greek (cf. section 5 above). Having established this new reconstruction on empirical grounds, I then addressed (in

section 8) a theoretical objection that it may encounter—namely, that a pretonic root full-grade is phonologically irregular in PIE. I argued that PIE ID *-mon-stems acquire this root vocalism from their neuter *-men-stem bases, which had stressed full-grade of the root. In this respect, it was demonstrated that ID *-mon-stems align formally with other securely reconstructible PIE non-primary formations, which likewise exhibit exceptional pretonic root full-grades (or *o-grades) that are phonologically regular in the context of their derivational bases.

One consequence of this new prosodic reconstruction is that the traditional EM analysis of the derivational relationship between neuter *-men-stems and ID *-mon-stems can no longer be maintained. EM analyzes ID as a process whereby an athematic base undergoes a change in its inflectional class membership, switching from one primary inflectional class to a different primary inflectional class. On this view, the derivation of ID *-mon-stems from neuter *-men-stems would involve a switch from PK inflection to AK inflection. However, this analysis is unsatisfactory in at least two respects. The first and most obvious is that the output of this process did not exhibit AK inflection, but instead had strong case forms with stem-final stress as in (26) above.

Yet there is also a deeper conceptual issue. By analyzing ID as involving a switch between primary inflectional classes, EM fundamentally claims that internal derivatives should have the same formal properties as primary derivatives. In other words, there should be nothing on the surface that distinguished, e.g., between (i) a PK *u-stem adjective formed by ID from an AS noun and (ii) a PK *u-stem adjective derived from a (verbal) root, and thus no phonological reason to suspect that (i) is a non-primary derivative but (ii) a primary derivative.[120] Yet this type of analysis precisely fails to capture the fact that ID *-mon-stems pattern morphophonologically with other non-primary derivatives, exhibiting phonologically irregular ablaut grades that are proper to their "zugrundeliegenden Primärbildungen" (Schindler 1975c:260).

In 8.2 I advanced a proposal that explicitly accounts for this fact: the root vocalism of PIE neuter *-men-stems was transferred to ID *-mon-stems as a regular part of the synchronic process whereby the latter were derived from the former. A full analysis of the morphophonology of this process is beyond the scope of this paper; for future work in this vein, however, I note that if such an analysis is to be viable, it must account not only for fact that ID *-mon-stems have the same root vocalism as their neuter *-men-stem bases, but also for two prosodic differences between these categories that emerge from this process:

---

120   Nussbaum (1998:147 n. 63) explicitly allows for both types of formations in PIE.

(i) a rightward shift in word stress from the root in the base to the stem-final syllable in the derivative; and (ii) the discrepancy in the vocalism of the stem-final syllable (e.g., ACC.SG *[-mn̥] vs. *[-món-m̥]).[121]

The new prosodic reconstruction of ID *-*mon*-stems in (26) also raises fresh questions about PIE morphophonology—in particular, of non-primary derivatives. One such question concerns the base-derivative transfer effect proposed to account for ID *-*mon*-stems: is transfer of root vocalism from base to derivative a more general property of synchronic PIE non-primary derivation? It was shown in 8.2 that there are clear examples of PIE non-primary derivatives formed by overt affixation that at least descriptively exhibit this transfer, as well as at least one other category of ID formations, τομός-type nominals, in which it appears to be regular. Yet it is also claimed that PIE had non-primary derivatives that did not preserve the root vocalism of their bases. EM posits internally derived nominals of this kind, reconstructing, e.g., zero-grade of the root in the weak stem of PK *u*-stem adjectives (e.g., GEN.SG *R(∅)-*éw-s*) internally derived from AS nominals with root *ó/é*-ablaut (see Nussbaum 1998:147, Widmer 2004:65, Jasanoff 2017:21, i.a.). Another type is hypothesized by Höfler (2015, 2017b), who proposes that PIE had thematic adjectives derived from neuter *-*es*-stems with zero-grade of both the primary suffix and the root (schematically, N *R(*é*)-*es*- ⇒ ADJ *R(∅)-*s-ó-*).[122] It therefore remains uncertain at present whether base-derivative transfer effects were a regular property of PIE non-primary derivation or else an idiosyncratic feature of individual lexical items and of particular morphological categories, which would include at least ID *-*mon*-stems and τομός-type nominals. Further research investigating the morphophonology of non-primary derivatives in the ancient IE languages is needed before this question can be adequately addressed.

Acknowledgments

---

121 Kiparsky (2010) and Keydana (2013) provide two possible analyses of (i); for a provisional analysis of (ii) see Yates (2019c).
122 Notably, Höfler (2015, 2017b) reconstructs for PIE both this "double zero-grade" pattern and the more familiar type with root-full grade represented by Ved. *vatsá-* 'calf' in (23c) and Lat. *pexus* 'wooly' in (23d) above.

Abbreviations

ALEW²   Hock, Wolfgang, Rainer Fecht, Anna H. Feulner, Eugen Hill, & Dagmar S. Wodtko (eds.). 2019. *Altlitauisches etymologisches Wörterbuch*. Version 2.0. https://alew.hu-berlin.de.

CHD   Güterbock, Hans G., Harry A. Hoffner, & Theo van den Hout (eds.). 1989. *The Hittite dictionary of the Oriental Institute of Chicago*. Chicago: The Oriental Institute of the University of Chicago.

DELG   Chantraine, Pierre. 1968–80 [1999]. *Dictionnaire étymologique de la langue grecque. Histoire des mots²*. Paris: Klincksieck.

DMic   Aura Jorro, Francisco. 1985–93. *Diccionario micénico*. 2 vols. Madrid: Consejo superior de investigaciones científicas.

EWA   Mayrhofer, Manfred. 1986–2001. *Etymologisches Wörterbuch des Altindoarischen*. 3 vols. Heidelberg: Winter.

KEWA   Mayrhofer, Manfred. 1956–64. *Kurzgefasstes etymologisches Wörterbuch des Altindischen*. 4 vols. Heidelberg: Winter.

LIV²   Rix, Helmut & Martin J. Kümmel (ed.). 2001. *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen²*. Wiesbaden: Reichert.

LSJ   Liddell, Henry G., Robert Scott, Henry Stuart Jones, Roderick McKenzie, Peter G.W. Glare, & Anne A. Thompson. 1996. *Greek-English lexicon with a revised supplement⁹*. Oxford: Clarendon Press.

NIL   Wodtko, Dagmar S., Britta Sofie Irslinger, & Carolin Schneider (ed.). 2008. *Nomina im indogermanischen Lexikon*. Heidelberg: Winter.

TLG   Pantelia, Maria (ed.). 1972. *Thesaurus Linguae Graecae*. University of California, Irvine. http://www.tlg.uci.edu.

References

Adams, Douglas Q. 2013. *A dictionary of Tocharian B.* Revised and greatly enlarged. Amsterdam / New York: Rodopi.

Adams, Douglas Q. 2015. *Tocharian B. A grammar of syntax and word-formation.* Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Bammesberger, Alfred. 1973. *Abstraktbildungen in den baltischen Sprachen.* Göttingen: Vandenhoeck & Ruprecht.

Beckwith, Miles C. 1998. The 'hanging of Hera' and the meaning of Greek ἄκμων. *Harvard Studies in Classical Philology* 98: 91–102.

Beekes, Robert. 2010. *Etymological dictionary of Greek.* Leiden / Boston: Brill.

Beekes, Robert S.P. 1969. *The development of the Proto-Indo-European laryngeals in Greek.* The Hague: de Gruyter.

Benveniste, Émile. 1935. *Origines de la formation des noms en indo-européen.* Paris: Maisonneuve.

Bermúdez-Otero, Ricardo. 2011. Cyclicity. In van Oostendorp, Marc & Ewen, Colin J. & Hume, Elizabeth & Rice, Keren (eds.), *The Blackwell companion to phonology*, 2019–2048. Oxford / Malden, MA: Blackwell.

Blanc, Alain. 2018. *Les adjectifs sigmatiques du grec ancien. Un cas de métamorphisme dérivationnel.* Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Bonfante, Giuliano. 1930. L'accento delle parole greche a esito spondaico. *Studi italiani di filologia classica* 8: 265–295.

Bozzone, Chiara. 2013. Initial "yod" in Greek and the etymology of Gk. ἵππος 'horse'. In Jamison, Stephanie W. & Melchert, H. Craig & Vine, Brent (eds.), *Proceedings of the 24th Annual UCLA Indo-European Conference*, 1–26. Bremen: Hempen.

Brereton, Joel P. 2004. *dhárman* in the R̥gveda. *Journal of Indian philosophy* 32: 449–489.

Brugmann, Karl. 1876. Zur Geschichte der stammabstufenden Declinationen. Erste Abhandlung: Die Nomina auf -*ar*- und -*tar*-. (*Curtius'*) *Studien zur griechischen und lateinschen Grammatik* 9: 361–406.

Brugmann, Karl. 1905–1906. Zur Wortzusammensetzung in den idg. Sprachen. *Indogermanische Forschungen* 18: 59–76.

Brugmann, Karl. 1906. *Grundriß der vergleichenden Grammatik der indogermanischen Sprachen²*. Band II: *Lehre von den Wortformen und ihrem Gebrauch*. Teil I. Strassburg: Trübner.

Buck, Carl Darling & Petersen, Walter. 1945. *A reverse index of Greek nouns and adjectives.* Chicago: University of Chicago Press.

Byrd, Andrew M. 2015. *The Indo-European syllable.* Leiden / Boston: Brill.

Byrd, Andrew M. 2018. The phonology of Proto-Indo-European. In Klein, Jared S. & Joseph, Brian D. & Fritz, Matthias (eds.), *The handbook of comparative and historical Indo-European linguistics*, 2056–2079. Berlin / New York: de Gruyter.

Chantraine, Pierre. 1933. *La formation des noms en grec ancien*. Paris: Klincksieck.

Clackson, James. 2007. *Indo-European linguistics. An introduction*. Cambridge / New York: Cambridge University Press.

de Saussure, Ferdinand. 1896. Accentuation lituanienne. *Indogermanische Forschungen* 6: 156–177.

de Vaan, Michiel. 2003. *The Avestan vowels*. Leiden / Boston: Brill.

de Vaan, Michiel. 2008. *Etymological dictionary of Latin and the other Italic languages*. Leiden / Boston: Brill.

Derksen, Rick. 1996. *Metatony in Baltic*. Amsterdam / Atlanta: Rodopi.

Derksen, Rick. 2015. *Etymological dictionary of the Baltic inherited lexicon*. Leiden / Boston: Brill.

Ernout, Alfred & Meillet, Alfred. 2001. *Dictionnaire étymologique de la langue latine. Histoire des mots*4. Paris: Klincksieck.

Fellner, Hannes & Grestenberger, Laura. 2016. Internal Affairs: Akzent-/Ablautklassen und Interne Derivation. Paper presented at Sanskrit und die Sprachrevolution—200 Jahre Indogermanistik, Berlin, 17–20 May 2016.

Fortson, Benjamin W. 2010. *Indo-European language and culture*[2]. Oxford / Malden, MA: Wiley-Blackwell.

Fortson, Benjamin W. 2020. Towards an assessment of decasuative derivation in Indo-European. *Indo-European linguistics* 8: 46–109.

Fraenkel, Ernst. 1952. Zur griechischen Wortbildung. *Glotta* 32(1/2): 16–33.

Frisk, Hjalmar. 1960. *Griechisches etymologisches wörterbuch*. Heidelberg: Winter.

Gaisford, Thomas (ed.). 1814. *Poetae minores graeci*, vol. 1. Oxford: Clarendon Press.

Garnier, Romain & Sagot, Benoît. 2017. A shared substrate between Greek and Italic. *Indogermanische Forschungen* 122: 29–60.

Garrett, Andrew. 2011. Verner's Law nominal doublets: Bidirectional leveling or accent shift. Paper presented at the 30th Annual East Coast Indo-European Conference, Cambridge, MA, 9 June 2011.

Gertz, Janet E. 1982. *The nominative-accusative neuter plural in Anatolian*. Dissertation, Yale University.

Gotō, Toshifumi. 2013. *Old Indo-Aryan morphology and its Indo-Iranian background*. Vienna: Österreichischen Akademie der Wissenschaften.

Gunkel, Dieter. 2014a. Accentuation. In *Encyclopedia of Ancient Greek language and linguistics*, Leiden: Brill.

Gunkel, Dieter. 2014b. Law of Limitation. In *Encyclopedia of Ancient Greek language and linguistics*, Leiden: Brill.

Harðarson, Jón Axel. 1987a. Das uridg. Wort für 'Frau'. *Münchener Studien zur Sprachwissenschaft* 48: 115–138.

Harðarson, Jón Axel. 1987b. Zum urindogermanischen Kollektivum. *Münchener Studien zur Sprachwissenschaft* 48: 71–113.

Haspelmath, Martin. 1995. The growth of affixes in morphological reanalysis. In Booij, Geert & van Marle, Jaap (eds.), *Yearbook of Morphology 1994*, 1–29. Dordrecht: Kluwer.

Hirt, Hermann. 1929. *Indogermanische Grammatik*. Teil V: *Der Akzent*. Heidelberg: Winter.

Höfler, Stefan. 2015. Denominale Sekundärderivation im Indogermanischen. Eine Ochsentour. *Münchener Studien zur Sprachwissenschaft* 69(2): 219–244.

Höfler, Stefan. 2017a. Observations on the *palma* rule. *Pallas* 103: 15–23.

Höfler, Stefan. 2017b. Der Stier, der Stärke hat. *Possessive Adjektive und ihre Substantivierung im Indogermanischen*. Dissertation, University of Vienna.

Illič-Svityč, Vladislav M. 1979. *Nominal accentuation in Balto-Slavic* (Translation by Richard L. Leed and Ronald F. Feinstein of Illič-Svityč 1963, *Imennaja akcentuacija v baltijskom i slavjanskom*). Moskva: Nauka.

Jamison, Stephanie W. & Brereton, Joel P. 2014. *The Rigveda. The earliest religious poetry of India*. Oxford / New York: Oxford University Press.

Jasanoff, Jay H. 1989. Old irish *bé* 'woman'. *Ériu* 40: 135–141.

Jasanoff, Jay H. 2002. The nom. sg. of Germanic *n*-stems. In Wedel, Alfred R. & Busch, Hans-Jörg (eds.), *Verba et litterae. Explorations in Germanic languages and German literature. Essays in honor of Albert L. Lloyd*, 31–46. Newark, DE: Linguatext.

Jasanoff, Jay H. 2003. *Hittite and the Indo-European verb*. Oxford / New York: Oxford University Press.

Jasanoff, Jay H. 2008. **-bhi*, **-bhis*, **-ōis*: following the trail of the PIE instrumental plural. In Rasmussen, Jens E. & Olander, Thomas (eds.), *Internal reconstruction in Indo-European: Results, methods, and problems. Section papers from the XVI International Conference on Historical Linguistics, University of Copenhagen, 11–15 August 2003*, 137–150. Copenhagen: Museum Tusculanum.

Jasanoff, Jay H. 2017. *The prehistory of the Balto-Slavic accent*. Leiden / New York: Brill.

Jasanoff, Jay H. 2018. What happened to the perfect in Hittite? A contribution to the theory of the h_2e-conjugation. In Rieken, Elisabeth (ed.), *100 Jahre Entzifferung des Hethitischen: Morphosyntaktische Kategorien in Sprachgeschichte und Forschung. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 21. bis 23. September 2015 in Marburg,* 137–156. Wiesbaden: Reichert.

Keydana, Götz. 2013. Accent in thematic nouns. *Indo-European linguistics* 1: 107–130.

Kim, Ronald I. 2018. The phonology of Balto-Slavic. In Klein, Jared S. & Joseph, Brian D. & Fritz, Matthias (eds.), *The handbook of comparative and historical Indo-European linguistics*, 1974–1985. Berlin / New York: de Gruyter.

Kim, Ronald I. 2019a. Review of J. Jasanoff (2017), *The prehistory of the Balto-Slavic accent. Scando-Slavica* 65(1). 110–123.

Kim, Ronald I. 2019b. The Slavic *n*-stem neuter ending—in Indo-European perspective. Paper presented at the 14th Annual Meeting of the Slavic Linguistics Society, Potsdam, 13 September 2019.

Kiparsky, Paul. 2010. Compositional vs. paradigmatic approaches to accent and ablaut. In Jamison, Stephanie W. & Melchert, H. Craig & Vine, Brent (eds.), *Proceedings of the 21st Annual UCLA Indo-European Conference*, 137–181. Bremen: Hempen.

Kiparsky, Paul. 2015a. New perspectives in historical linguistics. In Bowern, Claire & Evans, Bethwyn (eds.), *The Routledge handbook of historical linguistics*, 64–102. London / New York: Routledge.

Kiparsky, Paul. 2015b. Stratal OT: A synopsis and FAQ s. In Hsiao, Yuchau E. & Wee, Lian-hee (eds.), *Capturing phonological shades*, 2–44. Cambridge / New York: Cambridge University Press.

Kiparsky, Paul. 2018. Accent and ablaut: Emergent cyclicity. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 28th Annual UCLA Indo-European Conference*, 135–147. Bremen: Hempen.

Kiparsky, Paul. to appear. Accent and ablaut. In Garrett, Andrew & Weiss, Michael (eds.), *Handbook of Indo-European studies*, Oxford / New York: Oxford University Press.

Klingenschmitt, Gert. 1994. Das Tocharische in indogermanistischer Sicht. In Schlerath, Bernfried (ed.), *Tocharisch. Akten der Fachtagung der Indogermanischen Gesellschaft, Berlin, September 1990*, 310–411. Reykjavík: Málvísindastofnun Háskóla Íslands.

Kloekhorst, Alwin. 2008. *Etymological dictionary of the Hittite inherited lexicon*. Leiden / Boston: Brill.

Kortlandt, Frederik. 1983. On final syllables in Slavic. *Journal of Indo-European Studies* 11: 167–185.

Kortlandt, Frederik. 2006. Balto-Slavic accentual mobility. *Baltistica* 41(3): 349–359.

Krasukhin, Konstantin G. 2000. Archaic features of Indo-European word-formation: The Greek and Old Indic type τόμος—τομός in a PIE perspective. In Clackson, James & Olsen, Birgit A. (eds.), *Indo-European word formation. Proceedings of the conference held at the University of Copenhagen, October 20th–22nd 2000*. 119–138. Copenhagen: Museum Tusculanum.

Kroonen, Guus. 2013. *Etymological dictionary of Proto-Germanic*. Leiden / Boston: Brill.

Kuiper, Franciscus B.J. 1942. Notes on Vedic noun inflexion. *Medelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afdeling Letterkunde* 5(4): 161–256.

Lundquist, Jesse. 2015. On the accentuation of Vedic *-ti-* abstracts: Evidence for accentual change. *Indo-European linguistics* 3: 42–72.

Lundquist, Jesse. 2016. On the accentuation of compound *s*-stem adjectives in Greek and Vedic. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 27th Annual UCLA Indo-European Conference*, 97–114. Bremen: Hempen.

Lundquist, Jesse. 2017. *Archaisms and innovations in the songs of Homer*. Dissertation, University of California, Los Angeles.

Lundquist, Jesse. 2021a. Does *tvátpitāraḥ* = εὐπάτωρ? *o*-grades, amphikinetics, and compounds in Sanskrit, Greek, and Indo-European. *Indo-European linguistics* 9: 128–170.

Lundquist, Jesse. 2021b. Penelope's αἰνοπαθῆ (σ 201): Very old or very young? *Journal of Greek linguistics* 21: 193–223.

Lundquist, Jesse & Yates, Anthony D. 2018. The morphology of Proto-Indo-European. In Klein, Jared S. & Joseph, Brian D. & Fritz, Matthias (eds.), *The handbook of comparative and historical Indo-European linguistics*, 2079–2195. Berlin / New York: de Gruyter.

Macdonell, Arthur A. 1910. *Vedic grammar*. Strassburg: Trübner.

Matasović, Ranko. 2005. The centum elements in Balto-Slavic. In Meiser, Gerhard & Hackstein, Olav (eds.), *Sprachkontakt und Sprachwandel: Akten der XI. Fachtagung der indogermanischen Gesellschaft, Halle an der Saale, 17. bis 23 September 2000*, 363–374. Wiesbaden: Reichert.

Mayrhofer, Manfred. 1986. *Indogermanische Grammatik*. Band I/2: *Lautlehre*. Heidelberg: Winter.

McCone, Kim. 1995. Oir. *senchae, senchaid*, and preliminaries on agent noun formation in Celtic. *Ériu* 46: 1–10.

Meier-Brügger, Michael & Fritz, Matthias. 2021. *Indogermanische Sprachwissenschaft*[10]. Berlin / New York: de Gruyter.

Meissner, Torsten. 2005. *S-stem nouns and adjectives in Greek and Proto-Indo-European*. Oxford / New York: Oxford University Press.

Melchert, H. Craig. 1983. A 'new' PIE *men* suffix. *Die Sprache* 29(1): 1–26.

Melchert, H. Craig. 2007/8. Neuter stems with the suffix *-(e)n-* in Anatolian and Proto-Indo-European. *Die Sprache* 47(2): 182–191.

Melchert, H. Craig. 2013. Ablaut patterns in the Hittite *i*-conjugation. In Jamison, Stephanie W. & Melchert, H. Craig & Vine, Brent (eds.), *Proceedings of the 24th Annual UCLA Indo-European Conference*, 137–150. Bremen: Hempen.

Mielcke, Christian G. 1800. *Littauisch-deutsches und deutsch-littauisches Wörterbuch*. Königsberg: Hartung.

Neri, Sergio. 2005. Riflessioni sullapofonia radicale di proto-germanico *namōⁿ* 'nome'. *Historische Sprachforschung* 118: 201–250.

Neri, Sergio. 2017. *Elementi di morfologia flessiva nominale indoeuropea*. Perugia: Università degli Studi di Perugia.

Nussbaum, Alan J. 1986. *Head and horn in Indo-European*. Berlin / New York: de Gruyter.

Nussbaum, Alan J. 1997. The "Saussure effect" in Latin and Italic. In Lubotsky, Alexander (ed.), *Sound law and analogy. Papers in honor of Robert S.P. Beekes on the occasion of his 60th birthday*, 181–203. Leiden: Rodopi.

Nussbaum, Alan J. 1998. *Two studies in Greek and Homeric linguistics*. Göttingen: Vandenhoeck & Ruprecht.

Nussbaum, Alan J. 2010. PIE -*Cmn*- and Greek τρᾱνής 'clear'. In Kim, Ronald & Oettinger,

Norbert & Rieken, Elisabeth & Weiss, Michael (eds.), *Ex anatolia lux. Anatolian and Indo-European studies in honor of H. Craig Melchert on the occasion of his sixty-fifth birthday*, 269–277. Ann Arbor / New York: Beech Stave Press.

Nussbaum, Alan J. 2014a. Feminine, abstract, collective, neuter plural: some remarks on each (expanded handout). In Neri, Sergio & Schuhmann, Roland (eds.), *Studies on the collective and feminine in Indo-European from a diachronic and typological perspective*, 273–306. Leiden / Boston: Brill.

Nussbaum, Alan J. 2014b. Greek τέκμαρ 'sign' and τέκμωρ 'sign': why both? In Oettinger, Norbert & Steer, Thomas (eds.), *Das Nomen im Indogermanischen: Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*, 215–260. Wiesbaden: Reichert.

Nussbaum, Alan J. 2017. Agentive and other derivatives of "τόμος-type" nouns. In Le Feure, Claire & Petit, Daniel & Pinault, Georges-Jean (eds.), *Adjectifs verbaux et participes dans les langues indo-européennes. Proceedings of the Arbeitstagung of the Indo-European Society, Paris, 24–26 September 2014*, 232–266. Bremen: Hempen.

Oettinger, Norbert. 1982. Reste von *e*-Hochstufe im Formans hethitischer *n*-Stämme einschließlich des '*umna*' Suffixes. In Neu, Erich (ed.), *Investigationes philologicae et comparativae. Gedenkschrift für Heinz Kronasser*, 162–177. Wiesbaden: Harrassowitz.

Oettinger, Norbert. 2003. Zum Ablaut von *n*-Stämmen im Anatolischen und der Brechung *ē* > *ya*. In Tichy, Eva & Wodtko, Dagmar S. & Irslinger, Britta (eds.), *Indogermanisches Nomen: Derivation, Flexion und Ablaut. Akten der Arbeitstagung der Indogermanischen Gesellschaft, Freiburg, 19 bis. 22 September 2001*, 141–152. Bremen: Hempen.

Olander, Thomas. 2009. *Balto-Slavic accentual mobility*. Berlin / New York: de Gruyter.

Olander, Thomas. 2015. *Proto-Slavic inflectional morphology*. Leiden / Boston: Brill.

Olander, Thomas. 2018. The dark past of Balto-Slavic prosody: On Jay Jasanoff's book *The prehistory of the Balto-Slavic accent. Lingua* 207: 98–106.

Pardini, Francesco P. 2011. *I sostantivi lituani formati col suffisso *–men*. Dissertation, Università degli Studi di Firenze.

Parmentier, Léon. 1889. *Les substantifs et les adjectives in -ες- dans la langue d'Homère et d'hésiode*. Ghent: Vanderhaeghen.

Pedersen, Holger. 1926. *La cinquième déclinaison latine*. Copenhagen: A.F. Høst.

Pedersen, Holger. 1933. *Études lituaniennes*. Copenhagen: Levin & Munksgaard.

Petit, Daniel. 2010. *Untersuchungen zu den baltischen Sprachen*. Leiden / Boston: Brill.

Petit, Daniel. 2018. Accentual mobility in Lithuanian and its implications for Proto-Indo-European. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 28th Annual UCLA Indo-European Conference*, 223–258. Bremen: Hempen.

Probert, Philomen. 2003. *A new short guide to the accentuation of Ancient Greek*. London: Bristol Classical Press.

Probert, Philomen. 2006a. Accentuation in Ancient Greek deverbative *ā*-stems. In Kölligan, Daniel & Sen, Ranjan (eds.), *Oxford University working papers in linguistics, philology & phonetics 11*, 122–142. Oxford: Oxford University.

Probert, Philomen. 2006b. *Ancient Greek accentuation. Synchronic patterns, frequency effects, and prehistory*. Oxford / New York: Oxford University Press.

Probert, Philomen. 2010. Ancient Greek accentuation in generative phonology and Optimality Theory. *Language and linguistics compass* 4(1): 1–26.

Probert, Philomen. 2012. Origins of the Greek Law of Limitation. In Probert, Philomen & Willi, Andreas (eds.), *Laws and rules in Indo-European*, 163–181. Oxford / New York: Oxford University Press.

Pronk, Tijmen. 2009. The accentuation of the Slavic *n*-stems. In Olander, Thomas & Larsson, Jenny H. (eds.), *Stressing the past. Papers in Baltic and Slavic accentology*, 101–114. Leiden / Boston: Brill.

Pronk, Tijmen. 2014. Proto-Indo-European *mn*-stems in Balto-Slavic. In Oettinger, Norbert & Steer, Thomas (eds.), *Das Nomen im Indogermanischen: Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*, 318–326. Wiesbaden: Reichert.

Rasmussen, Jens E. 1989. *Studien zur Morphophonemik der indogermanischen Grundsprache*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Rasmussen, Jens E. 2001. Against the assumption of an IE *k^wetwóres* rule. In Huld, Martin E. & Jones-Bley, Karlene & Della Volpe, Angela (eds.), *Proceedings of the Twelfth Annual UCLA Indo-European Conference*, 15–28. Washington, D.C.: Institute for the Study of Man.

Rau, Jeremy. 2009. *Indo-European nominal morphology. The decads and the Caland System*. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.

Remmer, Ulla. 2002–2003. Das indogermanische Suffix *-*mon*- im Altirischen (Teil I). *Die Sprache* 43(2): 171–211.

Risch, Ernst. 1974. *Wortbildung der homerischen Sprache*[2]. Berlin: De Gruyter.

Rix, Helmut. 1976. *Historische Grammatik des Griechischen. Laut- und Formenlehre*. Darmstadt: Wissenschaftliche Buchgesellschaft.

Rix, Helmut. 1985. *sūdor* und *sīdus*. In Ölberg, Hermann M. & Schmidt, Gernot & Bothien, Heinz (eds.), *Sprachwissenschaftliche Forschungen. Festschrift für Johann Knobloch zum 65. Geburtstag am 5. Januar 1984 dargebracht von Freunden und Kollegen*, 339–350. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Rix, Helmut. 1992. *Historische Grammatik des Griechischen. Laut- und Formenlehre*[2]. Darmstadt: Wissenschaftliche Buchgesellschaft.

Roussou, Stephanie. 2018. *Pseudo-Arcadius' epitome of Herodian's de prosodia catholica*. Oxford / New York: Oxford University Press.

Sandell, Ryan. 2015. *Productivity in historical linguistics. Computational perspectives on*

word formation in Ancient Greek and Sanskrit. Dissertation, University of California, Los Angeles.

Sandell, Ryan. 2016. Ṛgvedic *śáktīvant-*. Accentuation and statistical modeling of allomorph selection in Vedic *-mant/vant-*stems. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 27th Annual UCLA Indo-European conference*, 143–162. Bremen: Hempen.

Schaffner, Stefan. 2001. *Das Vernersche Gesetz und der innerparadigmatische grammatische Wechsel des Urindogermanischen im Nominalbereich*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Schaffner, Stefan. 2004. Mittelirisch *fethid*, 'geht, macht seinen Weg', althochdeutsch *wadalōn*, *wallōn* 'umhergehen, wandern; umherwogen', altenglisch *waðuma* 'Woge, Welle', *waðōl* 'vollmond', und Verwandtes. In Poschenrieder, Thorwald (ed.), *Die Indogermanistik und ihre Anrainer*, 277–314. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Schindler, Jochem. 1967. Zu hethitisch *nekuz*. *Zeitschrift für vergleichende Sprachforschung* 81: 290–303.

Schindler, Jochem. 1969. Die idg. Wörter für 'Vogel' und 'Ei'. *Die Sprache* 13: 144–167.

Schindler, Jochem. 1972. L'apophonie des noms-racines. *Bulletin de la Société de Linguistique de Paris* 67: 31–38.

Schindler, Jochem. 1974. Fragen zum paradigmatischen Ausgleich. *Die Sprache* 20: 1–9.

Schindler, Jochem. 1975a. Armenisch *erkn*, griechisch ὀδύνη, irisch *idu*. *Historische Sprachforschung* 89: 53–65.

Schindler, Jochem. 1975b. L'apophonie des thèmes indo-européens en *-r/n-*. *Bulletin de la Société de Linguistique de Paris* 70: 1–10.

Schindler, Jochem. 1975c. Zum Ablaut der neutralen *s*-Stämme des Indogermanischen. In Rix, Helmut (ed.), *Flexion und Wortbildung. Akten der V. Fachtagung der Indogermanischen Gesellschaft, Regensburg, 9. bis. 14. September 1975*, 259–267. Wiesbaden: Reichert.

Schindler, Jochem. 1994. Alte und neue Fragen zum indogermanischen Nomen. In Rasmussen, Jens E. (ed.), *In honorem Holger Pedersen. Kolloquium der indogermanischen Gesellschaft vom 25. bis 28. März 1993*, 397–400. Wiesbaden: Reichert.

Schmidt, Johannes. 1895. *Kritik der Sonantentheorie*. Weimar: Hermann Böhlaus Nachfolger.

Schneider, Carolin. 2010. *Die maskulinen Stämme auf* -man- *und* -iman- *im Altindischen. Wortbildung, Funktion, und indogermanische Grundlagen*. Hamburg: Kovač.

Schwyzer, Eduard. 1939. *Griechische Grammatik*. Erster Band: *Allgemeiner Teil, Lautlehre, Wortbildung, Flexion*. München: Beck.

Senn, Alfred. 1966. *Handbuch der litauischen Sprache*. Band 1: *Grammatik*. Heidelberg: Winter.

Skardžius, Pranas. 1943. *Lietuvių kalbos žodžių daryba*. Vilnius: Lietuvos mokslų akademija.

Smoczyński, Wojciech. 2018. *Lithuanian etymological dictionary*. Berlin: Peter Lang.

Snoj, Marko. 1993. Zur Akzentuierung der urslawischen neutralen -*men*-Stämme. *Linguistica* 33: 227–241.

Stang, Christian S. 1966. *Vergleichende Grammatik der baltischen Sprachen*. Oslo: Universitetsforlaget.

Steriade, Donca. 1988. Greek accent. A case for preserving structure. *Linguistic inquiry* 19(2): 271–314.

Stratton, Alfred W. 1899. *History of Greek noun-formation. Suffixes with* -m-. Chicago: University of Chicago Press.

Stüber, Karin. 1998. *The historical morphology of* n-*stems in Celtic*. Maynooth: National University of Ireland.

Stüber, Karin. 2002. *Die primären* s-*Stämme des Indogermanischen*. Wiesbaden: Reichert.

Szemerényi, Oswald. 1996. *Introduction to Indo-European linguistics*[4]. Oxford: Oxford University Press.

Tichy, Eva. 2004. *Indogermanistisches Grundwissen für Studierende sprachwissenschaftlicher Disziplinen*[2]. Bremen: Hempen.

Tremblay, Xavier. 1996. Un nouveau type apophonique des noms athématiques suffixaux de l'indo-européen. *Bulletin de la Société de Linguistique de Paris* 91: 97–145.

Tucker, Elizabeth. 1990. *The creation of morphological regularity. Early Greek verbs in* -éō, -áō, -óō, -úō *and* -íō. Göttingen: Vandenhoeck & Ruprecht.

van Beek, Lucien. 2011. Vowel assimilation in Greek. The evidence reconsidered. In Krisch, Thomas & Linder, Thomas (eds.), *Indogermanistik und Linguistik im Dialog. Akten der XIII. Fachtagung der Indogermanischen Gesellschaft vom 21. bis 27. September 2008 in Salzburg*, 49–58. Wiesbaden: Reichert.

van Beek, Lucien. 2013. *The development of the Proto-Indo-European syllabic liquids in Greek*. Dissertation, Leiden University.

Vine, Brent. 1998. *Aeolic* ὄρπετον *and deverbative* -etó- *in Greek and Indo-European*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Vine, Brent. 2006. On 'Thurneysen-Havet's Law' in Latin and Italic. *Historische Sprachforschung* 119: 211–249.

Vine, Brent. 2009. A yearly problem. In Yoshida, Kazuhiko & Vine, Brent (eds.), *East and West. Papers in Indo-European studies*, 205–224. Bremen: Hempen.

Vine, Brent. 2019. Greek στωμύλος 'chatty'. An anomalous ō-grade (and some anomalous o-grades). *Indo-European linguistics* 7: 222–240.

von Wilamowitz, Ulrich. 1931. *Der Glaube der Hellenen*. Band I. Berlin: Weidmann.

Vondrák, Václav. 1905. Zu den Nasalen im Slavischen. *Beiträge zur Kunde der indogermanischen Sprachen* 29: 201–225.

Wackernagel, Jacob. 1905. *Altindische Grammatik*. Band II/1: *Einleitung zur Wortlehre, Nominalkomposition*. Göttingen: Vandenhoeck & Ruprecht.

Wackernagel, Jacob & Debrunner, Albert. 1954. *Altindische Grammatik*. Band II/2: *Die Nominalsuffixen*. Göttingen: Vandenhoeck & Ruprecht.

Watkins, Calvert. 1962. *The Indo-European origins of the Celtic verb*. I: *The sigmatic aorist*. Dublin: Dublin Institute for Advanced Studies.

Weiss, Michael. 2017. An Italo-Celtic divinity and a common Sabellic sound change. *Classical Antiquity* 36(2): 370–389.

Weiss, Michael. 2020. *Outline of the historical and comparative grammar of Latin*². Ann Arbor / New York: Beech Stave Press.

Wheeler, Benjamin I. 1885. *Der griechische Nominalaccent*. Strassburg: Trübner.

Widmer, Paul. 2004. *Das Korn des weiten Feldes. Interne Derivation, Derivationskette und Flexionsklassenhierarchie. Aspekte der nominalen Wortbildung im Urindogermanischen*. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.

Yates, Anthony D. 2015. Anatolian default accentuation and its diachronic consequences. *Indo-European linguistics* 3: 145–187.

Yates, Anthony D. 2019a. Hittite *paweni*, Greek πυρί, and their implications for Indo-European ablaut. Paper presented at the 38th Annual East Coast Indo-European Conference, Philadelphia, 20–22 June 2019 (handout available at: http://www.adyates.com/research/).

Yates, Anthony D. 2019b. Suffixal **o*-vocalism without "amphikinesis". On Proto-Indo-European **-oi*-stems and ablaut as a diagnostic for word stress. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 30th Annual UCLA Indo-European Conference*, 199–221. Bremen: Hempen.

Yates, Anthony D. 2019c. The word-prosody of Proto-Indo-European **-mon*-stems and their implications for internal derivation. Paper presented at the 31st Annual UCLA Indo-European Conference, Los Angeles, 8–9 November 2019 (handout available at: http://www.adyates.com/research/).

Yates, Anthony D. 2020a. Lexical accents are underlying foot edges. Evidence from Vedic Sanskrit. In Asatryan, Mariam & Song, Yixiao & Whitmal, Ayana (eds.), *Proceedings of the 50th Annual Meeting of the North East Linguistic Society*, vol. 3, 255–268.

Yates, Anthony D. 2020b. The phonology and morphology of Anatolian **-mon*-stems. In Goldstein, David M. & Jamison, Stephanie W. & Vine, Brent (eds.), *Proceedings of the 31st Annual UCLA Indo-European Conference*, 245–264. Tübingen: Buske.

Yates, Anthony D. & Zukoff, Sam. 2018. The phonology of Anatolian reduplication. Synchrony and diachrony. *Indo-European linguistics* 6: 201–270.