The word-prosody of Proto-Indo-European *–*mon*-stems and their implications for internal derivation

Anthony D. Yates
University of California, Los Angeles
adyates@ucla.edu

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Slides available at: `www.adyates.com/research/`

PIE *–*mon*-stems and internal derivation

- Standard view — Proto-Indo-European (PIE) had *–*mon*-stem nominals derived from neuter *–*men*-stems by INTERNAL DERIVATION (ID; Widmer 2004:69, Fortson 2010:122–3, Weiss 2011:262–3, *i.a.*).
- This derivational process is thought to account for nominal pairs like:

(1)

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

PIE *–*mon*-stems and internal derivation

- ID is standardly analyzed as involving change in templatic inflectional class — in this case: “proterokinetic” (PK) ⇒ “amphikinetic” (AK).

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- The PIE ancestor of (e.g.) Vedic *dharmán–* ‘support(er)’ would thus have been derived as in (2):

(2)

	PK	⇒	AK	>>	Vedic
NOM.SG	*[d^{h}ér-mn̥]		*[d^{h}ér-mōn]		*dhar-má*
GEN.SG	*[d^{h}r̥-mén-s]		*[d^{h}r̥-mn-ós]		*dhar-máṇ-as**

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- But this reconstruction mismatches Vedic data in two non-trivial ways:

  (i) Vedic reflects consistent full-grade of the root in this class (i.e., no zero-grade in weak stem).

  (ii) More problematic — Vedic reflects consistent suffixal stress in this class, the position that is “skipped” in the regular AK stress alternation between root and inflectional endings.

A new prosodic reconstruction

- **Proposal I:** Prosodic properties of ID *–*mon*-stems in PIE are closely reflected in Vedic — in particular, full-grade of the root and stressed **ó*-vocalism of the suffix in strong cases (cf. Kiparsky 2010:167).

  ⇒ ID **mon*-stems in PIE had strong case forms like in (3).

(3)

	PIE		VEDIC	
NOM.SG	*[d^{h}er-mṓn]	>	*dharmā́*	‘support(er)’
ACC.SG	*[d^{h}er-món-m̥]	>>	*dharmā́ṇam*	"
NOM.PL	*[d^{h}er-món-es]	>	*dharmā́ṇas*	‘support(er)s’

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NOM.PL	*[dʰer-món-es]	>	*dharmā́ṇas*	'support(er)s'

- Weak cases also had full-grade root (as in all IE languages), and likely:
  - Stressed inflectional endings and zero-grade suffix if phonotactically licit (i.e., *[-mn-ˊ] or *[-n-ˊ] with */m/-deletion; cf. Nussbaum 2010).
  - Otherwise stressed suffix (i.e, *[-món-]; cf. Kiparsky 2010; Yates 2019a).

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★ Prosodic reconstruction in (3) will require revision of traditional morphological analysis (i.e., not "PK ⇒ AK").

Roadmap

Evidence for ID *–*mon*-stems

- Two types of evidence for word stress in ID *–*mon*-stems:

  (i) DIRECT: Reflexes of *–*mon*-stems attested beside neuter *–*men*-stems which are their historical/synchronic bases or whose bases are plausibly reconstructed by comparison.

  (ii) INDIRECT: Agentive deverbal and denominal *–*mon*-stems, which are generally held to have arisen by reanalysis of ID *–*mon*-stems (cf. Melchert 1983:23, Weiss 2017:386–7).

- Prosodic properties of (ii) testify indirectly to those of (i) regardless of whether reanalysis occurred in PIE or independently in many IE languages (at least Anatolian, Tocharian, Italic, Celtic).

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★ *n.b.*: reflexes PIE *$h_2\acute{e}\hat{k}$*mon*– 'heavenly stone' — which is not (internally) derived — do not bear on the reconstruction of this type (cf. Appendix I).

A survey of ID *–*mon*-stems — Vedic

- ID pattern (primary N *–*men*– ⇒ *–*mon*–) is most robust in Vedic.
- Vedic reflexes of such ID pairs consistently show root stress in the base and suffixal stress in the derivative.
  - Transparent semantic relationship in (4a–d) — N concrete (result/instrument) noun ⇒ M agent/event noun.

(4)

	NOM/ACC.SG *[-mn̥]		⇒	ACC.SG *[-món-m̥]	
a.	*dā́ma*	‘gift’	⇒	*dāmā́nam*	‘giver; giving’
b.	*dhárma*	‘foundation’	⇒	*dharmā́*	‘supporter; supporting’
c.	*bráhma*	‘sacred formulation’	⇒	*brahmā́ṇam*	‘formulator; priest’
d.	*sádma*	‘seat’	⇒	*sadmā́nam*	‘sitter’

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  - In (5a–c) base and derivative are synonymous.
  - In (5d) relationship is obscured by lexicalization of N.

(5)

	NOM/ACC.SG *[-mn̥]		⇒	ACC.SG *[-món-m̥]	
a.	*óma**	‘aid’	⇒	*omā́nam*	‘aid’
b.	*várṣma*	‘height’	⇒	*varṣmā́ṇam*	‘height’
c.	*svā́dma*	‘sweetness’	⇒	*svādmā́nam*	‘sweetness’
d.	*bhū́ma*	‘earth’	⇒	*bhūmā́ṇam*	‘abundance’

A survey of ID *–*mon*-stems — Vedic

- Vedic reflexes of *–*mon*-stems that lack a corresponding neuter also have consistent suffixal stress.
  - Synchronically, (6a–b) appear to be primary (i.e., deradical).

(6)

ACC.SG *[-món-m̥]		⇐	BASE	
a.	*ojmā́nam*	‘strength’	:	*vaj–*	‘strong’
b.	*darmā́nam*	‘splitter’	:	*dr̥–*	‘split’

- But historically these may be formed by ID.
  - For (a) cf. N Lat. *augmen* ‘increase’ (cf. *NIL*: 328).
  - For (b) cf. N Ved. *dár-īman–* (<< **dár-man–*?; cf. *LIV*^{2}: 119–20).

A survey of ID *–*mon*-stems — Lithuanian

- Lithuanian nouns in *–muõ* continue PIE *–*mon*-stems, neuter *–*men*-stems, and at least one animate *–*men*-stem.

(7)

	LITHUANIAN						PIE
a.	*augmuõ*	‘sprout’	cf. Ved.	*ojmā́nam*	‘strength’	<	*–*mon*–
b.	*sraumuõ*	‘stream’	cf. Gk.	ῥεῦμα	‘stream’	<	*–*men*– (N)
c.	*piemuõ*	‘shepherd’	cf. Gk.	ποιμήν	‘shepherd’	<	*–*men*– (ANIM)

- Inherited stem class of individual items in *–muõ* class can be determined only on comparative grounds.
  - For N *–*men*– and animate ANIM *–*mon*-stems, determining original status is further problematized by their well-established ID relationship.
  - But inheritance of both types is necessary to explain synchronic segmental and prosodic properties of *–muõ* class.

A survey of ID *–*mon*-stems — Lithuanian

- Segmentally, Lithuanian nouns in *–muõ* exhibit NOM.SG in *–muõ* and *–men–* in other case forms — e.g., *raumuõ* 'muscle':

(8)	SINGULAR	PLURAL
NOM	*raumuõ*	*raũmenys*
GEN	*raumeñs*	*raumenų̃*
DAT	*raũmeniui*	*raumenìms*
ACC	*raũmenį*	*raũmenis*
INS	*raũmeniu*	*raumenimìs*
LOC	*raumenyjè*	*raumenysè*
VOC	*raumeniẽ*	*raũmenys*

- NOM.SG must reflect PIE *[-mōn] from *–*mon*-stems.
- Weak cases may reflect PIE *[-men-] from N *–*men*-stems (cf. Ved. DAT.SG *bráhmaṇe*, GEN.SG *bráhmaṇas*, etc.).

A survey of ID *–*mon*-stems — Lithuanian

- Prosodically, Lithuanian nouns in *–muo* are regularly mobile.
  - Specifically, they belong to accent paradigm (AP) 3, which points to inherited stem-final (= suffixal) stress (Derksen 2008:6, Jasanoff 2017:109, *i.a.*) — e.g.:

(9)

LITHUANIAN		AP	LITHUANIAN		AP
augmuõ	'sprout'	3^a	*raumuõ*	'muscle'	3^b
armuõ	'soil'	3^a	*sekmuõ*	'consequence'	3^b
juosmuõ	'girdle'	3^a	*sraumuõ*	'stream'	3^b
piemuõ	'shepherd'	3^a	*tesmuõ*	'udder'	3^b

- Two exceptions in Old Lithuanian:
  - Stems to **C(R)eH*-roots (e.g., *sėmuõ* 'linseed' < **seh$_1$–*) are typically immobile (AP 1) due to HIRT'S LAW (Hirt 1929; cf. Olander 2009:149–50, Jasanoff 2017:106–8).
  - *akmuõ* 'stone' — not an inherited **–mon*-stem (per above; cf. Appendix I) — is typically immobile (AP 1).

A survey of ID *–*mon*-stems — Lithuanian

- Three possible explanations for prehistoric stem-final stress:

  (i) Due to influence of ID “hysterokinetic (HK) collective” plural in N *–*men*-stems (NOM/ACC.PL *[-mḗn]; cf. Jasanoff 2017:167–8).

  (ii) Due to influence of HK animate *–*men*-stems (NOM.SG *[-mḗn], ACC.SG *[-mén-m̥], etc.)

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  - No independent evidence for HK "collectives" in N *–*men*-stems (Nussbaum 1986:128) or elsewhere (only *[ˊ-mōn]; see below).
  - See now Kim (2019) for Slavic N.NOM/ACC.SG –*(m)ę* by leveling of *–*(m)en*– from oblique (cf. Vondrák 1905:215; Rasmussen *apud* Olander 2015:85).

  (ii) Due to influence of HK animate *–*men*-stems (NOM.SG *[-mḗn], ACC.SG *[-mén-m̥], etc.)

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  (ii) Due to influence of HK animate *–*men*-stems (NOM.SG *[-mḗn], ACC.SG *[-mén-m̥], etc.)

  - *–*mon*– or N *–*men*-stems are far more common!
  - If **both** other historical sources of *–muõ* class had initial/root stress, rarer animate *–*men*-stems would hardly constitute a plausible basis for analogical extension of final stress to entire class against this pattern.

  (iii) Due to influence of *–*mon*-stems with stem-final stress (NOM.SG *[-mṓn], ACC.SG *[-món-m̥], etc.).

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  - Common *–*mon*-stems **and** rarer animate *–*men*-stems with stem-final stress would provide a robust basis for generalization of this pattern.
  - Segmentism (i.e., NOM.SG *–muõ*) provides independent support that *–*mon*-stems had a crucial role in determining phonological properties of the class.

A survey of ID *–*mon*-stems — Greek

- Reflexes of *–*mon*-stems in Greek show a prosodic split:
  - Nouns — mixture of suffixal stress and root stress.
  - Adjectives — consistent “recessive accentuation” (i.e., stress on leftmost syllable within stress window at word’s right edge).

A survey of ID *–*mon*-stems — Greek

- A handful of attested noun pairs may continue ID *–*mon*-stem nouns beside their primary neuter *–*men*-stem bases.
- These paired *–*mon*-stem nouns exhibit an even mixture of root and suffixal stress — i.e., (10a–c) vs. (10d–f).
  - Synchronically, root stress = recessive accentuation in this type.

(10)

	NOM.SG *[-mn̥]			⇒	NOM.SG *[-mōn]	
a.	Gk.	τέρμα	‘end, boundary’	:	τέρμων	‘boundary’
b.	Gk.	στημῖα	‘stamen’	:	στήμων	‘warp’
c.	Gk.	γνῶμα	‘judgment’	:	γνώμων	‘judge’
d.	Gk.	θῆμα	‘tomb’	:	θημών	‘heap’
e.	Gk.	χεῖμα	‘cold, frost’	:	χειμών	‘winter (storm)’
f.	Gk.	κεῦθμα	‘hiding place’	:	κευθμών	‘hiding place’

A survey of ID *–*mon*-stems — Greek

- Greek has a set of non-compound adjectives that may directly continue ID *–*mon*-stems — these are also consistently recessive.
  - Some are attested beside primary(-looking) neuter *–*men*-stem bases — e.g., (12a–c), where recessive accentuation always yields root stress.
  - Others are attested beside non-primary neuter *–*men*-stem — e.g., (12d–f), where recessive accentuation yields pre-suffixal (≠ root) stress.

(12)

	NOM.SG *[-mn̥]			⇒	NOM.SG *[-mōn]	
a.	Gk.	μνῆμα	‘remembrance’	:	μνήμων	‘mindful’
b.	Gk.	αἷμα	‘blood’	:	αἵμων	‘bloody’
c.	Gk.	πῆμα	‘misery’	:	πήμων	‘baneful’
d.	Gk.	νόημα	‘thought’	:	νοήμων	‘understanding’
e.	Gk.	δήλημα	‘bane’	:	δηλήμων	‘baneful’
f.	Gk.	πένθημα	‘mourning’	:	πενθήμων	‘mournful’

A survey of ID *–*mon*-stems — Greek

- Greek has a set of non-compound adjectives that may directly continue ID *–*mon*-stems — these are also consistently recessive.
  - Another group lacks corresponding neuter *–*men*-stems and thus may be synchronically deverbal or denominal — e.g., (13).
  - Recessive accentuation yields root stress if base is monosyllabic, otherwise pre-suffixal (≠ root) stress.

(13)

	BASE			⇒	NOM.SG *[-mōn]	
a.	Gk.	τλῆναι	‘endure’	:	τλήμων	‘enduring’
b.	Gk.	ἰδεῖν	‘know’	:	ἴδμων	‘knowing’
c.	Gk.	δαῆναι	‘learn’	:	δαήμων	‘experienced’
d.	Gk.	ἀλᾶσθαι	‘wander’	:	ἀλήμων	‘wandering’
e.	Gk.	μάχη	‘battle’	:	μαχήμων	‘warlike’

A survey of ID *–*mon*-stems — Greek

- Non-primary *–*mon*-stem nouns in Greek regularly show suffixal stress as in (15).
  - Deverbal — e.g., (15a–c).
  - Denominal — e.g., (15d–e).

(15)

	BASE			⇒	NOM.SG *[-mōn]	
a.	Gk.	ἡγέεσθαι	‘lead’	:	ἡγεμών	‘leader’
b.	Gk.	κήδεσθαι	‘care for’	:	κηδεμών	‘attendant’
c.	Gk.	αγρεῖν	‘seize’	:	ἀγρεμών	‘hunter’
d.	Gk.	δαιτύς	‘meal’	:	δαιτυμών	‘diner’
e.	Gk.	ἀκρός	‘extreme’	:	ἀκρεμών	‘branch’

A survey of ID *–*mon*-stems — Anatolian

- At least one animate deverbal *–*mon*-stem occurs in Anatolian: Hitt. *išḫiman–* ‘bond’ (⇐ *išḫ(a)i–* ‘bind’; Melchert 1983:9–10, 17).
- It is attested in Old Script texts with clear suffixal stress (marked by plene spelling) in its strong case forms:

(16) *išḫimāš* ‘bond’ (ANIM.NOM.SG) << *[-mṓn]
išḫimāneš ‘bonds’ (ANIM.NOM.PL) < *[-món-es]

- On hapax NS *išḫimenan* (KBo 52.159 RC 7) see Melchert (2003:131 n. 3); the form is more likely analogical to “ethnica” in *–ūmen–* (on which type see Oettinger 2003:146–7, Yates 2016:166–9, 174–5) than indicative of an erstwhile *–*men*-stem paradigm (*pace* Oettinger 2003:146).

A survey of ID *–*mon*-stems — summary

- IE evidence for word stress in ID *–*mon*-stems is summarized in (17).
- Three IE branches clearly support only suffixal stress in this class:

(17)	ROOT	SUFFIXAL
VEDIC		✓
LITHUANIAN		✓
GREEK	✓	✓
HITTITE		✓

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⇒ **ID *–*mon*-stems had suffixal stress in strong cases in PIE.**

- On the diachrony of *–*mon*-stems in Greek see Appendix II.

Reconstructing ID *–*mon*-stems — a challenge?

- Thus likeliest that ID *–*mon*-stems had suffixal stress in strong cases in PIE — i.e., (3) (repeated from above):

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ACC.SG	*[d^{h}er-món-m̥]	>>	*dharmā́ṇam*	"
NOM.PL	*[d^{h}er-món-es]	>	*dharmā́ṇas*	‘support(er)s’

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NOM.PL	*[dʰer-món-es]	>	*dharmā́ṇas*	'support(er)s'

- **Objection:** Consistent full-grade root is phonologically unexpected in pretonic position.
  - Whereas root full-grade in strong cases is expected under traditional AK reconstruction (whence leveling to weak, by assumption).

Pretonic mid vowel deletion in (P)IE

- Abundant IE evidence that PIE mid vowels (*/e, o/) were regularly subject to deletion in pretonic syllables.
  - Root */e/ in (e.g.) (18–20) — stressed in (a) vs. deleted in (b).

(18) a. */gʷhen-ti/ → *[gʷhén-ti] > Ved. *hánti*, Hitt. *kuēnzi* 'kills'
b. */gʷhen-énti/ → *[gʷhn-énti] > Ved. *ghnánti*, Hitt. *kunanzi* 'kill'

(19) a. */h₁es-ti/ → *[h₁és-ti] > Ved. *ásti*, Hitt. *ēšzi* 'is'
b. */h₁es-énti/ → *[h₁s-énti] > Ved. *sánti*, Osc. **sent** 'are'

(20) a. */dyew-m̥/ → *[dyḗm] > Ved. *dyā́m* 'sky', Gk. Ζῆν 'Zeus'
b. */dyew-ós/ → *[diw-ós] > Ved. *divás*, Gk. διός 'of "'

Pretonic mid vowel deletion in (P)IE

- Abundant IE evidence that PIE mid vowels (*/e, o/) were regularly subject to deletion in pretonic syllables.
  - Stem-final */e/ in (e.g.) (21–23) — stressed in (a) vs. deleted in (b).

(21) a. */ph$_2$tér-m/ → *[pəh$_2$térm̥] > Ved. *pitáram*, Gk. πατέρα ‘father’
b. */ph$_2$tér-éi/ → *[pəh$_2$tr-éi] > Ved. *pitré* (cf. Gk. πατρί) ‘to/for "’

(22) a. */h$_2$uksén-es/ → *[h$_2$uksén-es] > Ved. *ukṣáṇas* ‘oxen’
b. */h$_2$uksén-ós/ → *[h$_2$uksn-ós] > Ved. *ukṣṇás* ‘of the ox’

(23) a. */yu-né-g-ti/ → *[yu-né-k-ti] > Ved. *yunákti* ‘yokes’
b. */yu-né-g-énti/ → *[yu-n-g-énti] > Ved. *yuñjánti* ‘yoke’

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  - Stem-final */o/ in (e.g.) (24–25) — surfaces in (a) vs. deleted in (b).

(24) a. */pentoh$_2$-es/ → *[péntoh$_2$-as] >> Ved. *pánthās* 'paths'

b. */pentoh$_2$-ós/ → *[pn̥th$_2$-ós] > Ved. *pathás* 'of the path'

OAv. *paθō* 'id.'

(25) a. */d^{h}eĝ^{h}om-s/ → *[d^{h}éĝ^{h}ōm] > Hitt. *tēkan* 'earth'

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⇒ Phonological objection is well-supported — proposed root full-grade in ID *–*mon*-stems requires an explanation.

A new morphological reconstruction

- **Claim:** *–*mon*-stems were derived from N *–*men*-stems by the same process as type Gk. τόμος ⇒ τομός (cf. Kiparsky 2010:167, Keydana 2013:126) — schematically (NOM.SG), e.g., (26a) = (26b):

(26) a. PIE *[dʰér-mn̥] > Ved. *dhárma* 'foundation' (N.NOM/ACC.SG)
⇒ *[dʰer-mṓn] > Ved. *dharmā́* 'support(er)' (M.NOM.SG)

b. PIE *[tómh₁-o-s] > Gk. *tómos* 'slice' (M.NOM.SG)
⇒ *[tomh₁-ó-s] > Gk. *tomós* 'cutting' (ADJ.M.NOM.SG)

- Descriptively, three similarities between these derivations:
  - (i) Derivative shows rightward stress shift (1σ) vis-à-vis base.
  - (ii) Derivative shows same root vocalism as base rather than phonologically expected zero-grade.
  - (iii) Semantically, base is action/result noun and derivative is agent noun/agentival adjective.

A new morphological reconstruction

- **Proposal II:** PIE had an ID process whereby:

  (i) Accent of the stem was shifted to the stem-final syllable.

  (ii) Base root vocalism was inherited by (i.e., transferred to) the derivative.

A new morphological reconstruction

- **Proposal II:** PIE had an ID process whereby:
  - (i) Accent of the stem was shifted to the stem-final syllable.
  - (ii) Base root vocalism was inherited by (i.e., transferred to) the derivative.
- Formal implementation:
  - Kiparsky (2010) and Keydana (2013) provide two possible analyses of stress shift.
  - Base-derivative transfer effects are well-established cross-linguistically — e.g., "synchronic analogy" (Kiparsky 2015:3), "output-output correspondence" (Benua 1997, *et seq.*) — and admit a range of possible analyses (see, e.g., Rolle 2018:158–61 for discussion).

Analyzing ID: thematic pairs

- **Proposal II:** PIE had an ID process whereby:

  (i) Accent of the stem was shifted to the stem-final syllable.

  (ii) Base root vocalism was inherited by (i.e., transferred to) the derivative.

- These two properties can be observed in thematic ID pairs like (27):

(27)	a.	PIE	*[tómh$_1$-o-s]	>	Gk. τόμος	'slice' (M.NOM.SG)
		⇒	*[tomh$_1$-ó-s]	>	Gk. τομός	'cutting' (ADJ.M.NOM.SG)
	b.	PIE	*[g^{wh}ón-o-s]	>	Gk. φόνος	'slaughter' (M.NOM.SG)
		⇒	*[g^{wh}on-ó-s]	>	Ved. *ghanás*	'slayer' (M.NOM.SG)

- In base, root vocalism is phonologically regular **because it is stressed**.
- In derivative, root vowel resists pretonic mid vowel deletion (i.e., zero-grade) **because it is transferred from base.**

Analyzing ID: thematic pairs

- Thematic nominal pairs (synchronically) derived by this ID process are found across IE, esp. in Greek and Indo-Iranian — e.g., (28):

(28)

a.	Gk.	τόμος	'slice'	:	Gk.	τομός	'cutting$_{ADJ}$'
b.	Gk.	φόρος	'tribute'	:	Gk.	φορός	'bearing$_{ADJ}$'
c.	Gk.	τρόχος	'course'	:	Gk.	τροχός	'running$_{ADJ}$; wheel'
d.	Ved.	*códa–*	'whip'	:	Ved.	*codá–*	'impelling$_{ADJ}$; driver'
e.	Ved.	*vára–*	'choice'	:	Ved.	*vará–*	'suitor'
f.	Ved.	*śóka–*	'flame'	:	Ved.	*śoká–*	'burning$_{ADJ}$'
g.	Sp.	*cueva*	'cave'	:	Lat.	*cavus*	'hollow$_{ADJ}$'
h.	Hitt.	*āra*	'proper'	:	Hitt.	*arā–*	'companion'

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⇒ This ID process is securely reconstructible for PIE (e.g., Fortson 2010:122; cf. Nussbaum 2017) — and can also account for PIE ID **–mon*-stems.

N PIE *–*men*– ⇒ *–*mon*– — toward an analysis

- Accounting for PIE *–*mon*-stems by same ID process is complicated by apparent mismatch in suffixal vocalism between base and derivative.
  - N *–*men*-stems have three suffixal allomorphs, but no *[-mon-]:

(29)

*[-mn̥]	>	NOM/ACC.SG	Ved. *dhā́ma* 'domain', Gk. θῆμα 'tomb'
			Gk. τέρμα, Lat. *termen* 'border'
*[-men-]	>	LOC.SG	Ved. *ájman* 'to/for the race'
		DAT.SG	Lat. *agminī* 'to battle-line'
*[-mōn]	>	NOM/ACC.PL	OHG *sāmo* 'seed' (SG)
			Hitt. *šarāma* [srá:ma] 'ration-breads'
			OAv. *haxᵊmąm* 'retinues'
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- Where then does (e.g.) ACC.SG *[-món-m̥] in *–*mon*-stems come from?

A solution — post-tonic /o/-deletion in PIE

- N *–*men*-stems had underlying */-mon-/ in strong stem (Yates 2019b).
  - PIE had the phonological process in (30):

(30) POST-TONIC */o/-DELETION (PoD):
$/\breve{o}/ \rightarrow \varnothing$ / $\acute{V}C_0$___$RC_0]_\sigma$

"Short non-thematic */o/ was deleted in a post-tonic syllable before a tautosyllabic sonorant consonant."

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  - In inflectionally zero-marked NOM/ACC.SG (*/-∅/) in (31a), */o/ was deleted by PoD.
  - */o/ surfaced (modulo lengthening) in NOM/ACC.PL in (31b), where PoD was bled by SZEMERÉNYI'S LAW (Szemerényi 1962; Nussbaum 1986:129–30).

(31)

	PIE				VEDIC
a.	*/⟦d^{h}éh$_1$-mon⟧-∅/	→	*[d^{h}éh$_1$.mn̥]	>	*dhā́ma*
b.	*/⟦d^{h}éh$_1$-mon⟧-ˊh$_2$/	→	*[d^{h}éh$_1$.mōn]	>>	*dhā́māni*

Analyzing ID: N PIE *–*men*– ⇒ *–*mon*–

- **Proposal III:** PIE ID *–*mon*-stems were derived **from the strong stem** of N *–*men*-stems by same process as thematic ID pairs.

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- Consider the schematic derivations from (26):

(26) a. PIE *[d^{h}ér-mn̥] > Ved. *dhárma* 'foundation' (N.NOM/ACC.SG)

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- Full derivations given in (32) — (i) accent shifts to stem-final syllable and (ii) derivative inherits root vocalism of the base.

(32) a. */⟦d^hér-mon-⟧/$_N$ ⇒ */⟦d^her-món⟧$_{N/ADJ}$-s/$_{ANIM}$ → *[d^her-mṓn]

b. */⟦tómh$_1$-o-⟧/$_{ANIM}$ ⇒ */⟦tomh$_1$-ó⟧$_{N/ADJ}$-s/$_{ANIM}$ → *[tomh$_1$-ó-s]

Analyzing ID: N PIE *–*men*– ⇒ *–*mon*–

- **Objection:** (Internal) derivation is usually thought to proceed from the weak stem (i.e., */-men-/; Widmer 2004:62, Nussbaum 2017:252, *i.a.*).

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- But there are frequently cited examples of ID in which the strong stem is the base — e.g., (33a).

(33) a. PIE */⟦$h_2$óy-u-⟧/$_N$ ⇒ PIE */⟦$h_2$oy-ú⟧$_{ADJ}$-s/$_{ANIM}$

> Ved. *ā́yu* 'life' Ved. *āyús* 'living'

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- And similar phenomena are found in "external" non-primary derivation — e.g., the strong stem is the base in (33b).

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b. PIE */⟦h$_2$émĝ$^{\text{h}}$-os-⟧/$_{\text{N}}$ ⇒ PIE */⟦h$_2$émĝ$^{\text{h}}$-os-to⟧$_{\text{ADJ}}$-s/$_{\text{ANIM}}$

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(cf. OCS *–ostĭ–*, Hitt. *–ašti–*)

⇒ (Internal) derivation may take weak or strong stem as input.

Reconstructing ID *–*mon*-stems — summary

- PIE had *–*mon*-stems internally derived from the strong stem of N *–*men*-stems (*/-mon-/) — e.g., (34):

(34) a. PIE */⟦d^{h}ér-mon-⟧/$_{N}$ ⇒ PIE */⟦d^{h}er-món⟧$_{N/ADJ}$-s/$_{ANIM}$

> Ved. *dhárma* ‘support’ Ved. *dharmā́* ‘supporter’

a. PIE */⟦d^{h}éh$_1$-mon-⟧/$_{N}$ ⇒ PIE */⟦d^{h}eh$_1$-món⟧$_{N/ADJ}$-s/$_{ANIM}$

> Gk. θῆμα ‘tomb’ Gk. θημών ‘heap’

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- This ID process involved:
  - (i) Shift of stem accent to stem-final syllable.
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- This ID process involved:
  - (i) Shift of stem accent to stem-final syllable.
  - (ii) Inheritance of base root vocalism by derivative.

⇒ This ID process **did not involve** a change between inflectional classes (i.e., PK ⇒ AK) as generally assumed.

Reconstructing ID *–*mon*-stems — summary

- Advantages of the proposed analysis:
  - (i) Correctly predicts formal properties of PIE ID *–*mon*-stems — i.e., full-grade root vocalism and suffixal stress in strong cases as in (3).
  - (ii) Derivational mechanism is independently necessary in the grammar.

(3)

	PIE		VEDIC	
NOM.SG	*[dʰer-mṓn]	>	*dharmā́*	‘support(er)’
ACC.SG	*[dʰer-món-m̥]	>>	*dharmā́ṇam*	"
NOM.PL	*[dʰer-món-es]	>	*dharmā́ṇas*	‘support(er)s’

- Traditional AK reconstruction of *–*mon*-stems wrongly predicts root stress (and zero-grade root in weak cases).

Reconstructing ID *–*mon*-stems — analytic comparison

- Advantages of the proposed analysis:
  - (i) Correctly predicts formal properties of PIE ID *–*mon*-stems — i.e., full-grade root vocalism and suffixal stress in strong cases as in (3).
  - (ii) Derivational mechanism is independently necessary in the grammar — viz., to account for thematic ID pairs like (35).

(35)

a.	PIE	*/⟦tómh$_1$-o-⟧/$_{\text{ANIM}}$	⇒	PIE	*/⟦tomh$_1$-ó⟧$_{\text{N/ADJ}}$-s/$_{\text{ANIM}}$
>	Gk.	τόμος ‘slice’		Gk.	τομός ‘cutting’
a.	PIE	*/⟦g$^{\text{wh}}$ón-o-⟧/$_{\text{ANIM}}$	⇒	PIE	*/⟦g$^{\text{wh}}$on-ó⟧$_{\text{N/ADJ}}$-s/$_{\text{ANIM}}$
>	Gk.	φόνος ‘slaughter’		Ved.	*ghanás* ‘slayer’

- Reconstruction of PK ⇒ AK class shift is less secure.
  - e.g., “collective” NOM/ACC.PL of primary neuters is likely better explained without ID at all (Yates 2019a,b).

Implications for internal derivation in PIE

- A broader question arises from this analysis:
  - **To what extent can other traditional examples of ID be accounted for by the same process as *–*mon*-stems (viz., without appeal to change in inflectional class)?**

⇒ Further research on this issue is needed.

Thank you!

- Special thanks to the members of the:
  - Indo-European & Modern Linguistic Theory research group
  - UCLA Phonology Seminar
  - UCLA Indo-European Studies Graduate Seminar
  - UCLA American Indian Linguistics Seminar

- As well as to Craig Melchert, Brent Vine, and Stephanie Jamison.

Synopsis

- Three proposals:
  - **Proposal I:** PIE ID **–mon*-stems were characterized by full-grade of the root and stressed **ó*-vocalism of the suffix in strong cases.
  - **Proposal II:** PIE had an ID process whereby:
    (i) Accent of the stem was shifted to the stem-final syllable.
    (ii) Base root vocalism was inherited by the derivative.
  - **Proposal III:** PIE ID **–mon*-stems were derived from strong stem of N **–men*-stems (*/-mon-/) by ID process above, which also underlies ID thematic pairs of Gk. τόμος : τομός type.
- A question for future research:
  - To what extent can other traditional examples of ID be accounted for by the same process as **–mon*-stems (viz., without appeal to change in inflectional class)?

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On the membership of ID *–*mon*-stems

- PIE **h₂éĥkmon–* ‘heavenly stone’ in (33) is standardly taken as evidence for the reconstruction of prosodic properties of ID *–*mon*-stems — specifically, that they were AK.
- At least three problems with this claim:

  (i) Morphologically, it is not an ID *–*mon*-stem.

  - Cannot be formed by ID, since no corresponding N *–*men*-stem is attested in any IE language.
  - Lack of a N *–*men*-stem likely non-accidental:
    - N *–*men*-stems are derived primarily from verbal roots.
    - But only PIE root that is formally compatible with **h₂éĥkmon–* is **h₂eĥ–* ‘sharp’ (> OLith. *ašras* ‘sharp’, Gk. ἀχρός ‘extreme, point’; cf. *NIL*: 287–300), which lacks securely reconstructible verbal forms (cf. *LIV*^{2}: 261).
    - And it is not even clear that this is actually the right root, given the semantic divergence (cf. *NIL*: 290–1).

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- At least three problems with this claim:

  (i) Morphologically, it is not an ID **–mon*-stem.

  (ii) Prosodically, it is distinct from ID **–mon*-stems in all IE languages.

  - Vedic: fixed root stress vs. suffixal stress in all ID **–mon*-stems.
  - Greek: fixed root stress vs. suffixal stress in most ID(-based) **–mon*-stem nouns.
  - Old Lithuanian: fixed stress (AP 1) vs. mobility (AP 3) in *–muõ*-class.

(36)
a. Ved. ACC.SG *áśmānam*, GEN.SG *áśnas* / *áśmanas* 'stone'
b. Gk. ACC.SG ἄκμονα, GEN.SG ἄκμονος 'anvil'
c. OLith. NOM.SG *ãkmuo* 'stone'

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- At least three problems with this claim:

  (i) Morphologically, it is not an ID **–mon*-stem.

  (ii) Prosodically, it is distinct from ID **–mon*-stems in all IE languages.

  (iii) No positive evidence for AK stress mobility.

  - All IE daughter languages show fixed root stress (per above).
  - Only putative evidence for mobility is suffixal vowel deletion in Ved. *áśnas* (= YAv. *ašnō*).
  - But suffixal vowel deletion does not require mobility in Indo-Iranian (e.g., ACC.SG Ved. *hó-tār-am* vs. DAT.SG *hó-tr-e*) and so too likely in Proto-Nuclear-Indo-European (Yates 2019a).

Greek compound *–*mon*-stem adjectives

- Greek *–*mon*-stem adjectives are overwhelmingly exocentric compounds (Debrunner 1917:72, 77; Buck 1945:217–20, *i.a.*).
  - Most are attested beside cognate N *–*men*-stems.
  - All are recessive — e.g. (11).

(11)

	NOM.SG *[-mōn]		cf. NOM.SG *[-mn̥]	
a.	ἀν-αίμων	‘bloodless’	αἷμα	‘blood’
b.	ἀ-πήμων	‘unharmed; harmless’	πῆμα	‘misery’
c.	πολυ-κτήμων	‘very rich’	κτῆμα	‘possession’
d.	κακο-είμων	‘ill-clad’	εἷμα	‘garment’

Greek compound *–*mon*-stem adjectives

- But compounds like (11) are uninformative with respect to reconstruction of stress in ID *–*mon*-stems.
  - Historically, exocentric (= *bahuvrīhi*) compounds regularly had first member (1M) stress as in Vedic (cf. Wackernagel 1905:291).
  - Recessive accent in (11) — only superficially root stress (e.g., VOC.SG εὔδαιμον '(O) fortunate one') — is the normal Greek reflex of 1M stress (cf. Wheeler 1885:43, Lundquist 2016).

(11)	NOM.SG *[-mōn]		cf.	NOM.SG *[-mn̥]	
a.	ἀν-αίμων	'bloodless'		αἷμα	'blood'
b.	ἀ-πήμων	'unharmed; harmless'		πῆμα	'misery'
c.	πολυ-κτήμων	'very rich'		κτῆμα	'possession'
d.	κακο-είμων	'ill-clad'		εἷμα	'garment'

ID *–*mon*-stems from PIE to Greek

- Most Greek nouns that continue this category maintain suffixal stress.
  - Some paired ID *–*mon*-stems (e.g., θημών ‘heap’).
  - Deverbal and denominal *–*mon*-stems (e.g., ἡγεμών ‘leader’).

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  - Deverbal and denominal *–*mon*-stems (e.g., ἡγεμών ‘leader’).
- Two likely causes of recessive accentuation (esp. in adjectives):

(i) General diachronic tendency for default stress (= recessive accent in Greek) to emerge diachronically.
  - Observed in Greek in thematic nouns/adjectives (Probert 2006) and prehistorically in *–*ti*-stems (Lundquist 2015).
  - Parallel developments are found in Vedic (Sandell 2015) and Anatolian (Yates 2015).

(ii) Generalization of recessive accent from common compound *–*mon*-stem adjectives to rarer non-compound adjectives.

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(i) General diachronic tendency for default stress (= recessive accent in Greek) to emerge diachronically.

(ii) Generalization of recessive accent from common compound *–*mon*-stem adjectives to rarer non-compound adjectives.

- Non-compounds frequently attested (much) later than corresponding compound, e.g.: ἀ-πήμων (Hom.+) vs. πήμων (*Hymn. Orph.*).

⇒ Non-compounds may be “decompositional,” i.e., back-formed from — and with stress based on — corresponding compounds (cf. Meissner 2005:206–10 on Greek *s*-stem adjectives).

- See also Nussbaum (2014:254) for possibility that some apparent ID *–*mon*-stem nouns ultimately reflect *–h_2-marked neuters with root stress (e.g., Gk. τέρμων ‘boundary’ < ***tér-mon-h*$_2$), not ID *–*mon*-stems.