

The origin of stress mobility in Indo-European **-r/n-stems*



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Prosodic mismatches in Indo-European $*-r/n$ -stems

(1) “Acrostatic” (AS) inflection of PIE simple $*-r/n$ -stems:

		NOM/ACC.SG	OBL.SG	
a.	PIE	$*h_1\acute{e}sh_2-r$	$*h_1\acute{e}sh_2-n-$	‘blood’
b.	PIE	$*h_1y\acute{e}k^w-r$	$*h_1y\acute{e}k^w-n-$	‘liver’
c.	PIE	$*w\acute{o}d-r$	$*w\acute{e}d-n-$	‘water’

- ▶ Erlangen Model (EM) reconstructs “acrostatic” SG inflection for PIE simple $*-r/n$ -stems (Schindler 1975; cf. Weiss 2020:227, i.a.) — e.g.:
 - ▶ AS I ($*\acute{e}/\acute{e}$) for (1a–b).
 - ▶ AS II ($*\acute{o}/\acute{e}$) for (1c).

Prosodic mismatches in Indo-European $*-r/n$ -stems

(2) NIE reflexes of $*-r/n$ -stems with “acrostatic” (AS) inflection:

- a. INS.SG Ved. *asn-á* ‘with blood’ ✘ INS.SG $*h_1ésh_2-n-eh_1$
b. ABL.SG Ved. *yakn-ás* ‘from the liver’ ✘ ABL.SG $*h_1yék^{w-}n-s$
c. GEN.SG Ved. *udn-ás* ‘of water’ ✘ GEN.SG $*wéd-n-s$

- ▶ But Nuclear-Indo-European (NIE) oblique reflexes of simple neuter $*-r/n$ -stems often show stress/ablaut patterns that mismatch the AS reconstruction — e.g.:

- ▶ (2a–b) continue AS I ($*é/é$) but show **stressed endings**.
- ▶ (2c) continues AS II ($*ó/é$) but shows zero-grade root and **stressed endings**.

Prosodic mismatches in Indo-European $*-r/n$ -stems

(3) Hittite reflexes of $*-r/n$ -stems with “acrostatic” (AS) inflection:

- a. DAT/LOC.SG Hitt. *išhanī* ‘for/in blood’ ✗ DAT.SG $*h_1ésh_2-n-ei$
[iʃχ:n-í:]
- b. GEN.SG Hitt. *uttanāš* ‘of the word’ ✗ GEN.SG $*wéth_2-n-s$
[ut:n-á:s]
- c. DAT/LOC.SG Hitt. *haršanī* ‘on the head’ ✗ DAT.SG $*h_3érs-n-ei$
[χars:-n-í:]

- ▶ Likewise, Hittite reflexes of simple $*-r/n$ -stems predominantly show stressed inflectional endings (Yates 2021b) — e.g.:
- ▶ (3a) continues AS I but shows **stressed endings** and zero-grade root.
 - ▶ (3b–c) should continue AS (I/II[?]) but show **stressed endings** (and (3b) also zero-grade root).

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[ut:n-á:s]
- c. DAT/LOC.SG Hitt. *haršanī* ‘on the head’ ✗ DAT.SG $*h_3érs-n-ei$
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- ▶ Likewise, Hittite reflexes of simple $*-r/n$ -stems predominantly show stressed inflectional endings (Yates 2021b) — e.g.:
 - ▶ (3a) continues AS I but shows **stressed endings** and zero-grade root.
 - ▶ (3b–c) should continue AS (I/II[?]) but show **stressed endings** (and (3b) also zero-grade root).
- ▶ On phonological interpretation of Hittite oblique $*-r/n$ -stems forms like (3) see Appendix I.
- ▶ On root zero-grade in (3b) see Appendix II.

Origin of stress mobility in IE simple $*-r/n$ -stems

(4) Stress mobility in IE $*-r/n$ -stems:

		NOM/ACC.SG	OBL.SG	
a.	Ved.	—	<i>udn-ás</i>	‘of water’
b.	Ved.	<i>yákr̥t</i>	<i>yakn-ás</i>	‘(from the) liver’
c.	Ved.	<i>ásrk̥</i>	<i>asn-á̆</i>	‘(with) blood’
d.	Hitt.	<i>ēšhar</i> [é:sχ:-ar]	<i>išhanī</i> [isχ:-n-í̄]	‘(for/in) blood’

► Principal question for today:

- **How did IE simple $*-r/n$ -stems develop stressed inflectional endings?**

- ▶ Introduction
- ▶ Traditional solution (Schindler 1975):
 - ▶ Replacement of oblique SG by ending-stressed “collective” forms
 - ▶ IE status of SG-marked oblique “collective” forms
- ▶ Proposal (building on Schindler 1972):
 - ▶ EMERGENT MOBILITY as an IE phenomenon
 - ▶ EMERGENT MOBILITY in IE **-r/n*-stems
 - ▶ Motivating EMERGENT MOBILITY
- ▶ Conclusions and discussion

Explaining prosodic mismatches in IE $*-r/n$ -stems

(5) IE reflexes of $*-r/n$ -stems with “amphikinetic” (AK) inflection:

- | | | | |
|---------------|---------------------|------------------|---|
| a. GEN.SG | Ved. <i>udn-ás</i> | ‘of water’ | < GEN.COLL <i>*ud-n-élós</i> |
| b. ABL.SG | Ved. <i>yakn-ás</i> | ‘from the liver’ | < ABL.COLL <i>*h₁ik^w-n-élós</i> |
| c. INS.SG | Ved. <i>asn-á</i> | ‘with blood’ | < INS.COLL <i>*h₁(e)sh₂-n-eh₁</i> |
| d. DAT/LOC.SG | Hitt. <i>išhanī</i> | ‘for/in blood’ | < DAT.COLL <i>*h₁(e)sh₂-n-éi</i>
[isχ:n-í] |

► Widely accepted solution of Schindler (1975):

- PL forms of $*-r/n$ -stems supplied by an internally derived, grammatically singular “collective,” which was characterized by AK inflection and:
 - $*-h_2$ -ending in the NOM/ACC.
 - **SG endings** in its oblique cases.
- Oblique case forms of this AK “collective” replaced the inherited oblique singular forms with AS inflection.

Evidential basis for the AK “collective”

(6) IE reflexes of oblique forms with AK inflection:

- a. DAT.COLL *R(∅)-s-*éi* > SG *R(∅)-s-*éi* > —
>> PL *R(∅)-s-(*bhy*)*ós* > —
(cf. PL *R(*é*)-es-(*bhy*)*os* > e.g., Ved. *rákṣobhyas*)
- b. GEN.COLL *R(∅)-*mn-élós* > SG *R(∅)-*mn-élós* > —
>> PL *R(∅)-*mn-óh*_{1/3}*om* > —
(cf. PL *R(*é*)-*men-oh*_{1/3}*om* > e.g., Ved. *bráhmanām*)
- c. INS.COLL *R(∅)-*n-éh*₁ > SG *R(∅)-*n-éh*₁ > e.g., Ved. *udnás*

- ▶ But evidence for SG-marked oblique of AK “collective” is very limited.
 - ▶ No trace of AK stress/ablaut in (reanalyzed) SG or (recharacterized) PL forms of neuter *-*es*-stems like (6a) or *-*men*-stems like (6b).
 - ▶ SG-marked oblique forms of AK “collective” are thus at best supported by a few ending-stressed *-*r/n*-stem forms like (6c) (cf. (2–4) above).

- ▶ Melchert (2011, 2014) has challenged the idea that neuter “collectives” (i.e., **h₂*-marked NOM/ACC forms) were grammatically singular at any historical stage (cf. Yates 2019a):

“As per Melchert 2011, singular verb agreement with inanimate “collective” plural subjects is *not* sufficient evidence for assuming that these collectives were once singulars! All other evidence argues that **these nouns were plurals from the very beginning and that they remained so in PIE.**”

(Melchert 2014:258)

- ▶ Support for Melchert’s position (i.a.):
 - ▶ Thematic “collectives” continued in Hittite as neuter plurale tantum (e.g., NOM/ACC.PL *warpa* ‘enclosure’ < **-eh₂*), with unambiguously PL-marked oblique forms (DAT/LOC.PL *warpaš* < **-os*).

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- ▶ Broad take-aways:
 - ▶ Weak evidential basis for SG-marked oblique forms of (AK) “collective.”
 - ▶ Reasons to doubt “collective” was ever SG and thus had such forms.

A new account of prosodic mismatches in IE **-r/n-*stems

(7) IE reflexes of **-r/n-*stems with “acrostatic” (AS) inflection:

- | | | | | | |
|---------------|---------------------|------------------|----|--------|---|
| a. INS.SG | Ved. <i>asn-á</i> | ‘with blood’ | << | INS.SG | <i>*h₁ésh₂-n-eh₁</i> |
| b. ABL.SG | Ved. <i>yakn-ás</i> | ‘from the liver’ | << | ABL.SG | <i>*h₁yék^w-n-s</i> |
| c. GEN.SG | Ved. <i>udn-ás</i> | ‘of water’ | << | GEN.SG | <i>*wéd-n-s</i> |
| d. DAT/LOC.SG | Hitt. <i>išhanī</i> | ‘for/in blood’ | << | DAT.SG | <i>*h₁ésh₂-n-ei</i> |
- [isχ:n-í:]

► Two general claims concerning (7) advanced here:

- (i) **Ending stress** can be explained without reference to SG-marked oblique forms of AK “collective,” which are not independently necessary.
- (ii) **Ending stress** develops from AS oblique stem by known processes of morphological renewal and morphophonological analogy.

Diachrony of AS root nouns in IE — ‘house’

(8) Development of AS ‘house’ in IE:

ACC.SG **dóm* > Arm. *town* ‘house’

GEN.SG **dém-s* > OAv. *dāng* (*paiti-*), Gk. *δεσ*(*πότης*) ‘(master) of the house’

∨

GEN.SG **dm-é/ós* > YAv. *nəmō*, Arm. *tan* ‘of the house’

► Schindler (1972:32–6) observed diachronic tendency in AS root nouns:

- (i) GEN.SG **-s* was renewed by productive **-e/os*.
- (ii) In oblique cases stress shifted from root to inflectional endings.
- (iii) In oblique cases unstressed root full-grade replaced by zero-grade.

Diachrony of AS root nouns in IE — ‘clan’

(9) Development of AS ‘clan’ in IE:

ACC.SG	*wóik-ṃ	>?	Gk. οἶκα(δε) ‘home(ward)’
GEN.SG	*wéik-s	>>?	Lith. <i>viėš(pats)</i> ‘lord’
	∨		
GEN.SG	*wíik-é/ós	>	Ved. <i>viśás</i> ‘of the clan’

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	∇		
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GEN.SG	* <i>wík-élós</i>	>	Ved. <i>visás</i> ‘of the clan’

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 - (iii) In oblique cases unstressed root full-grade replaced by zero-grade.
 - (iv) Leveling of root vocalism from oblique to direct cases.

Diachrony of AS root nouns in IE — ‘foot’

(10) Development of AS ‘foot’ in IE:

ACC.SG **pód-m̥* > Ved. *pádám*, Gk. *πόδα*, Arm. *otn* ‘foot’

GEN.SG **péd-s* > —

∨
∨

GEN.SG **ped-élós* >(>) Ved. *padás*; Gk. *ποδός* ‘of the foot’

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- (i) GEN.SG **-s* was renewed by productive **-e/os*.
- (ii) In oblique cases stress shifted from root to inflectional endings.
- (iii) In oblique cases unstressed root full-grade replaced by zero-grade. ✕
 - ▶ Likely due to phonotactic blocking (^x[#pd-] / ^x[#bd-]).

Summary — diachrony of AS root nouns in IE

(11)

	PRE-PIE		PIE		IE 'foot'
ACC.SG	** <i>pód-m̥</i>	>	* <i>pód-m̥</i>	>	Ved. <i>pádām</i> , Gk. πόδα
GEN.SG	** <i>péd-s</i>	>>	* <i>ped-élós</i>	>(>)	Ved. <i>padás</i> ; Gk. ποδός
GEN.PL	** <i>péd-oh_{1/3}om</i>	>>	* <i>ped-óh_{1/3}om</i>	>(>)	Ved. <i>padām</i> ; Gk. ποδῶν, Hitt. <i>patān</i> ([pat-á:n])

- ▶ Interim take-away — “acrostatic” root nouns strongly tend to develop **mobile stress**, to some extent likely already in PIE (e.g., in (11) above).
 - ▶ For further possible exx. see Schindler (1972:33–6), Weiss (2020:278–9).

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GEN.PL	** <i>péd-oh_{1/3}om</i>	>>	* <i>ped-óh_{1/3}om</i>	>(>)	Ved. <i>padām</i> ; Gk. ποδῶν, Hitt. <i>patān</i> ([pat-á:n])

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- ▶ Schindler (1972) suggested that other AS categories may have been subject to same development (e.g., animate **-t*-stems), although without conclusive evidence.

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GEN.PL	** <i>péd-oh_{1/3}om</i>	>>	* <i>ped-óh_{1/3}om</i>	>(>)	Ved. <i>padām</i> ; Gk. ποδῶν, Hitt. <i>patān</i> ([pat-á:n])

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- ▶ Schindler (1972) suggested that other AS categories may have been subject to same development (e.g., animate **-t*-stems), although without conclusive evidence.
- ▶ More recent research has borne out his suggestion (also Narten 1968).

Diachrony of AS *-s-stems — ‘mouth’

(12) Development of AS ‘mouth’ in IE:

ACC.SG **h*₁*óh*₁-s > Hitt. *āiš* ([á:is]), CLuw. *āš* ([á:s]), Lat. *ōs* ‘mouth’

OBL.SG **h*₁*éh*₁-s- > —

∨
∨

INS.SG **h*₁*eh*₁-s-*éh*₁ > Ved. *āsá* ‘with the mouth’

DAT.SG **h*₁*eh*₁-s-*éi* >(>) Hitt. *iššī* ([is:í:]) ‘in the mouth’

- ▶ Melchert (2010) implicates Schindler’s tendency in development of mobile stress in AS II *-s-stem in (12):

(ii) In oblique cases stress shifted from root to inflectional endings.

(iii) In oblique cases unstressed root full-grade replaced by zero-grade. ✗

- ▶ Likely due to phonotactic blocking (^X[#h₁h₁(s)-]).

Diachrony of AS inflection in $*h_2e$ -conjugation

(13) Preserved AS inflection in Hittite radical *hi*-verbs (NPST.ACT):

- a. 3SG $*g^h rób^h -ei$ > Hitt. *karāpi* ([krá:p-i]) ‘devours’
3PL $*g^h réb^h -nti$ > Hitt. *karepanzi* ([kré:p-ant̪si]) ‘devour’
- b. 3SG $*srób^h -ei$ > Hitt. *šarāpi* ([srá:p-i]) ‘sips’
3PL $*sréb^h -nti$ > Hitt. *šarepanzi* ([sré:p-ant̪si]) ‘sip’
- c. 3SG $*h_2 mǫng^h -ei$ > Hitt. *hamanki* ([χmá:ŋk-i]) ‘binds’
3PL $*h_2 ménġ^h -nti$ > Hitt. *haminkanzi* ([χmé:ŋk-ant̪si]) ‘bind’

- ▶ Jasanoff (1979, 2003: 71, 151, et seq.) reconstructs $*h_2e$ -conjugation root presents and aorists with $*ó/é$ -root ablaut like AS II nominals.
- ▶ This pattern is directly continued in a few Hittite radical *hi*-verbs, including (13) (see Melchert 2013, 2015).

Diachrony of AS inflection in **h₂e*-conjugation

(14) Stress mobility in Hittite radical *hi*-verbs (NPST.ACT):

		SG	PL	
a.	Hitt.	<i>dāhhi</i> [tá:-χ:i]	<i>tumēni</i> [to-mé:ni]	'I/we take'
b.	Hitt.	<i>ārti</i> [á:r-t:i]	<i>artēni</i> [ar-t:é:ni]	'you arrive'
c.	Hitt.	<i>kānki</i> [ká:ŋk-i]	<i>kankanzi</i> [kaŋk-ántsi]	'hang(s)'
d.	Hitt.	<i>h_uwappi</i> [χ ^w á:p:-i]	<i>h_uppan[zi]</i> [χ ^w op:-ántsi]	'hurl(s)'

- ▶ But in Hittite radical *hi*-verbs overwhelmingly show mobile stress — e.g., (14) (cf. Yates 2017:121–4).
 - ▶ (14a,d) also clearly reflect root zero-grade in PL.

Diachrony of AS inflection in $*h_2e$ -conjugation

(15) Development of AS ‘hurl’ in IE (PRS.ACT):

3SG $*h_2wóp-ei$ >> Hitt. *huwappi* ([χ^w á:p:-i]) ‘hurls’

3PL $*h_2wép-nti$ >> Ved. *vápanti* ‘strew’

∨

3PL $*h_2up-énti$ > Hitt. *huppan[zi]* ([χ^w op:-ántsi]) ‘they hurl’

- ▶ Both Jasanoff (2003:73–4) and Melchert (2013) implicate Schindler’s tendency in development of stress mobility and (“morphological”) zero-grade of root in Hittite *hi*-conjugation:

(ii) In PRS.PL stress shifted from root to inflectional endings.

(iii) In PRS.PL unstressed root full-grade replaced by zero-grade.

Diachrony of AS inflection in **h₂e*-conjugation

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∇

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 - (ii) In PRS.PL stress shifted from root to inflectional endings.
 - (iii) In PRS.PL unstressed root full-grade replaced by zero-grade.
- ▶ Same development occurred separately in prehistory of NIE perfect (R(*ó)- ~ R(∅)-), supposing its origin as **h₂e*-aorist (Jasanoff 2018).

Emergent mobility as an IE phenomenon

(16)

EMERGENT MOBILITY:

IE athematic categories with fixed root stress tend to develop stressed “weak” inflectional endings, resulting in newly mobile paradigms.

- ▶ Thus robust IE evidence for (16) as a general diachronic phenomenon.

(16)

EMERGENT MOBILITY:

IE athematic categories with fixed root stress tend to develop stressed “weak” inflectional endings, resulting in newly mobile paradigms.

- ▶ Thus robust IE evidence for (16) as a general diachronic phenomenon.
- ▶ **Proposal:** Ending stress in IE **-r/n*-stems is also due to (16).
 - ▶ In ‘blood’ as parallel inner-Anatolian and -NIE innovations.
 - ▶ In ‘water’ and ‘liver’ as inner-NIE innovations.

Diachrony of AS $*-r/n$ -stems — ‘blood’

(17) Development of AS blood in Anatolian:

ACC.SG	PIE	$*h_1\acute{e}sh_2-r$	>	—
ACC.SG	PA	$h_1\acute{e}sh_2-r$	>	Hitt. $\acute{e}\check{s}har$ ([$\acute{e}:s\chi:-ar$])
			>	KLuw. $\acute{a}\check{s}har(=ša)$ ([$\acute{a}:s\chi:-ar$])
GEN.SG	PIE/PA	$*h_1\acute{e}sh_2-n-s$	>	—

- ▶ Inheritance of AS oblique stem into Anatolian supported by:
 - ▶ Reflexes of stressed full-grade in NOM/ACC.SG, via leveling from oblique.
 - ▶ Pal. $\acute{e}\check{s}ha$ ‘blood’ (< NOM/ACC.PL $*h_1\acute{e}sh_2-\bar{o}r$).
 - ▶ Mobile stress in oblique correlates systematically with suffixal stress ($*-\acute{o}r$) in NOM/ACC.PL in Anatolian (Yates 2021b), perhaps also PIE (Yates 2021a).
 - ▶ Possibly (!) also GEN.SG Hitt. $\langle e-e\check{s}(-ša)-na-a\check{s}\rangle$ (< $*h_1\acute{e}sh_2-n-e/os^2$).

Diachrony of AS $*-r/n$ -stems — ‘blood’

(17) Development of AS blood in Anatolian:

ACC.SG	PIE	$*h_1ésh_2-r$	>	—
∇				
ACC.SG	PA	$h_1ésh_2-r$	>	Hitt. $ēšhar$ ([$é:sχ:-ar$]) > KLuw. $āšhar(=ša)$ ([$á:sχ:-ar$])
GEN.SG	PIE/PA	$*h_1ésh_2-n-s$	>	—
∇				
GEN.SG	pre-Hitt.	$*h_1esh_2-n-élós$	>	Hitt. $išhanāš$ ([$isχ:-n-á:s$])

► In post-PA ‘blood’ was subject to EMERGENT MOBILITY:

- (i) GEN.SG $*-s$ was renewed by productive $*-e/os$.
- (ii) In oblique cases stress shifted from root to inflectional endings.
- (iii) In oblique cases unstressed root full-grade replaced by zero-grade. **X**
 - Due to phonotactic blocking ($^X[\#h_1sh_2n-]$) or late date of stress shift.

Diachrony of AS **-r/n-stems* — ‘blood’

(18) Development of AS blood in NIE:

ACC.SG	P/NIE	<i>*h₁ésh₂-r</i>	>	Gk. ῥᾱρ (Hesych.)
		∨		
ACC.SG	post-PNIE	<i>h₁ésh₂-r</i>	>>	Gk. ῥᾱρ; Ved. <i>ásrk</i>
ABL.SG	P/NIE	<i>*h₁ésh₂-n-s</i>	>	—

- ▶ Inheritance of AS oblique stem into NIE supported by reflexes of stressed full-grade in NOM/ACC.SG, via leveling from oblique.
- ▶ Leveling of full-grade could be either:
 - ▶ A shared development in prehistory of Greek and Indo-Iranian; Gk. ῥᾱρ preserved (extraparadigmatically) as an archaism.
 - ▶ Parallel developments in Greek and Indo-Iranian.

Diachrony of AS **-r/n*-stems — ‘blood’

(18) Development of AS blood in NIE:

ACC.SG	P/NIE	<i>*h₁ésh₂-r</i>	>	Gk. ῥῆαϱ (Hesych.)
		∇		
ACC.SG	post-PNIE	<i>h₁ésh₂-r</i>	>>	Gk. ῥῆαϱ; Ved. <i>ásrk</i>
ABL.SG	P/NIE	<i>*h₁ésh₂-n-s</i>	>	—
		∇		
ABL.SG	PIIr.?	<i>*h₁esh₂-n-<u>élós</u></i>	>	Ved. <i>asnás</i>

- ▶ Post-leveling but pre-Indic, ‘blood’ underwent EMERGENT MOBILITY:
 - (i) ABL/GEN.SG **-s* was renewed by productive **-e/ós*.
 - (ii) In oblique cases stress shifted from root to inflectional endings.
 - (iii) In oblique cases unstressed root full-grade replaced by zero-grade. ✗
 - ▶ Due to phonotactic blocking (^x[#h₁sh₂n-]) or late date of stress shift.

Diachrony of AS **-r/n*-stems — ‘water’

(19) Development of AS ‘water’ in IE:

ACC.SG	PIE	<i>*wód-r</i>	>	Hitt. <i>wātar</i> ([wá:t-ar]) ‘water’
GEN.SG	PIE	<i>*wéd-n-s</i>	>>	Hitt. <i>widenaš</i> ([wit-é:n-as]) ‘of water’

- ▶ AS oblique stem was inherited into Anatolian.
 - ▶ Root full-grade necessary to account for Hittite oblique forms with *e/i*-root vocalism (see Yates 2021a, contra Kloekhorst 2014b:155–6, Kloekhorst 2019; cf. Melchert apud Ringe 2017:58).
 - ▶ On the development of suffixal stress in oblique and NOM/ACC.PL of ‘water’ in Hittite see Yates (2021a,b) (cf. Schindler 1975:7).

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		∨		
		∨		
GEN.SG	PNIE?	<i>*ud-n-<u>élós</u></i>	>	Ved. <i>udnás</i> ‘of water’

- ▶ AS oblique stem was inherited into Anatolian.
- ▶ In post-PIE ‘water’ underwent EMERGENT MOBILITY:
 - (i) GEN.SG **-s* was renewed by productive **-e/os*.
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 - (ii) In oblique cases stress shifted from root to inflectional endings.
 - (iii) In oblique cases unstressed root full-grade replaced by zero-grade.
- ▶ If post-PIE NOM/ACC.PL **udór* (> Ved. *udā*, Gk. ὕδωρ, Umb. **utur**) developed via same change (Yates 2021a), it would point to early, perhaps PNIE date for stress shift.

Diachrony of AS **-r/n-*stems — ‘liver’

(20) Development of AS ‘liver’ in IE:

ACC.SG	P/NIE	<i>*h₁yék^w-r</i>	>	Gk. ἥπαρ, YAv. <i>yākarə</i> [?] ‘liver’
		↓		
ACC.SG	post-PNIE	<i>*h₁yék^w-r</i>	>	Ved. <i>yákr̥t</i> , YAv. <i>yakarə</i> , Lat. <i>iecur</i> ‘’
ABL.SG	P/NIE	<i>*h₁yék^w-n-s</i>	>	—

- ▶ Inherited AS oblique stem supported by reflexes of stressed full-grade in NOM/ACC.SG, via leveling from oblique.
 - ▶ Preserved AS NOM/ACC.SG in Greek (possibly also Avestan; but cf. de Vaan 2003:49) suggests independent levelings in Italic and IIr.

Diachrony of AS **-r/n-stems* — ‘liver’

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ABL.SG	P/NIE	<i>*h₁yék^w-n-s</i>	>	—
		↓		
ABL.SG	PInd.?	<i>*h₁yek^w-n-élós</i>	>	Ved. <i>yaknás</i> ‘from the liver’

► Post-leveling but pre-Indic, ‘liver’ underwent EMERGENT MOBILITY:

- (i) ABL/GEN.SG **-s* was renewed by productive **-e/os*.
- (ii) In oblique cases stress shifted from root to inflectional endings.
- (iii) In oblique cases unstressed root full-grade replaced by zero-grade. ✕
 - Due to late date of stress shift or avoidance of *samprasāraṇa*-ablaut.

Summary — emergent mobility in IE $*-r/n$ -stems

(16)

EMERGENT MOBILITY:

IE athematic categories with fixed root stress tend to develop stressed “weak” inflectional endings, resulting in newly mobile paradigms.

- ▶ Prosodic mismatches between AS PIE $*-r/n$ -stems and their attested reflexes can thus be accounted for via repeated occurrence of (16) in prehistory of IE languages.

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 - **But why does this change recur across AS categories?**

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- ▶ Prosodic mismatches between AS PIE $*-r/n$ -stems and their attested reflexes can thus be accounted for via repeated occurrence of (16) in prehistory of IE languages.
 - **But why does this change recur across AS categories?**
- ▶ Key observation — mobility is “latent” in IE prosodic system:
 - ▶ “A corollary of the organization of the IE accent system [is] that when any stem loses its inherent accent, it becomes movable.”

(Kiparsky 2021)

Analyzing inflectional stress in PIE

(21) PIE oblique case forms of mobile ‘foot’ and fixed ‘cow’:

a. */ped-óh_{1/3}om/ → *ped-óh_{1/3}om > Ved. *padām*, Gk. ποδῶν ‘of the feet’
> Hitt. *patān* ([pat-á:n]) ‘of the feet’

b. */g^wéw-óh_{1/3}om/ → *g^wéw-oh_{1/3}om > Ved. *gávan̄* ‘of the cows’

- ▶ PIE contrast between mobile and fixed root nouns can be derived from interaction of lexical contrast in root accentedness and BAP in (22):

(22) **BASIC ACCENTUATION PRINCIPLE (BAP; Kiparsky and Halle 1977):**

If a word has more than one accented vowel, word stress is assigned to the leftmost. If a word has no accented vowel, word stress is assigned to the leftmost syllable.

Learning PIE inflectional stress

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> Hitt. *patān* ([pat-á:n]) 'of the feet'
- b. */g^wéw-óh_{1/3}om/ → *g^wéw-oh_{1/3}om > Ved. *gávam̄* 'of the cows'

► Contrast in (21) crucially informs learners that:

- Oblique endings are accented, as they attract non-initial stress in (21a).
- 'cow' root is accented, since it wins over accented ending in (21b).

Learning PIE inflectional stress

(23) PIE direct case forms of mobile 'foot' and fixed 'cow':

- a. */pod-es/ → **pód-es* > Gk. πόδες 'feet' (cf. ACC.SG Ved. *pādam*)
- b. */g^wów-es/ → **g^wów-es* > Ved. *gāvas* 'cows'

▶ Yet there is no stress contrast in direct case forms like (23):

- ▶ In (23a) 'foot' root receives default leftmost stress.
- ▶ In (23b) 'cow' root attracts stress because it is accented.

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- ▶ In (23a) 'foot' root receives default leftmost stress.
- ▶ In (23b) 'cow' root attracts stress because it is accented.

▶ These surface forms are thus ambiguous, compatible with (23) or (synchronously) incorrect derivations in (24):

(24) Incorrect derivation of direct case forms of PIE 'foot' and 'cow':

- a. ^x*/pód-es/ → **pód-es* > Gk. πόδες 'feet' (cf. ACC.SG Ved. *pādam*)
- b. ^x*/g^wów-es/ → **g^wów-es* > Ved. *gāvas* 'cows'

Motivating emergent mobility

- ▶ **Proposal:** Two factors drive EMERGENT MOBILITY in AS categories:
 - (i) Preference for uniform exponents of accented endings.
 - ▶ i.e., (non-proportional) interparadigmatic analogy.
 - ▶ Learners may extend stressed realization of oblique endings (in ‘foot’, “hystero-” and “amphikinetic” nominals, etc.) into new contexts.

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 - (ii) Ambiguous direct cases allow “under-learning” of root accentedness.
 - ▶ Learners may fail to correct on basis of informative oblique forms.

Motivating emergent mobility — in AS root nouns

- ▶ **Proposal:** Two factors drive EMERGENT MOBILITY in AS categories:
 - (i) Preference for uniform exponence of accented endings.
 - (ii) Ambiguous direct cases allow “under-learning” of root accentedness.
- ▶ Crucial innovation in (25) is **loss of root accentedness**, which is enabled by (ii) and allows (i) to be satisfied.

(25) Pre-PIE to PIE prosodic change in ‘foot’:

a.	**/pód-es/	→	** <i>pód-es</i>	>	Ved. <i>pādas</i> *, Gk. πόδες
b.	**/péd-´s/	→	** <i>péd-s</i>	>	—
c.	**/péd-óh _{1/3} om/	→	** <i>péd-oh_{1/3}om</i>	>	—
			∨		
a’.	*/ pod -es/	→	* <i>pód-es</i>	>	Ved. <i>pādas</i> *, Gk. πόδες
b’.	*/ ped -é/ós/	→	* <i>ped-élós</i>	>(>)	Ved. <i>padás</i> ; Gk. ποδός
c’.	*/ ped -óh _{1/3} om/	→	* <i>ped-óh_{1/3}om</i>	>	Ved. <i>padām</i> ; Gk. ποδῶν, Hitt. <i>patān</i> ([pat-á:n])

Motivating emergent mobility — in AS $*-r/n$ -stems

- ▶ **Proposal:** Two factors drive EMERGENT MOBILITY in AS categories:
 - (i) Preference for uniform exponents of accented endings.
 - (ii) Ambiguous direct cases allow “under-learning” of root accentedness.
- ▶ Same basic story goes for AS $*-r/n$ -stems — e.g., ‘blood’ in (26):

(26) PIE to post-PIE prosodic change in ‘blood’:

- | | | | | | |
|-----|---|---------------|--|-----|-----------------------------------|
| a. | $*/h_1\acute{e}sh_2\text{-or-}\emptyset/$ | \rightarrow | $*h_1\acute{e}sh_2\text{-}r$ | $>$ | Gk. ἤαρ (Hesych.) |
| b. | $*/h_1\acute{e}sh_2\text{-en-}'s/$ | \rightarrow | $*h_1\acute{e}sh_2\text{-}n\text{-}s$ | $>$ | — |
| c. | $*/h_1\acute{e}sh_2\text{-en-}éi/$ | \rightarrow | $*h_1\acute{e}sh_2\text{-}n\text{-}ei$ | $>$ | — |
| | | | ∨
∨ | | |
| a'. | $*/h_1\bar{e}sh_2\text{-or-}\emptyset/$ | \rightarrow | $*h_1\acute{e}sh_2\text{-}r$ | $>$ | Gk. ἤαρ (Hesych.) |
| b'. | $*/h_1\bar{e}sh_2\text{-en-}é/ós/$ | \rightarrow | $*h_1esh_2\text{-}n\text{-}é/ós$ | $>$ | Ved. <i>asnás</i> |
| c'. | $*/h_1\bar{e}sh_2\text{-en-}éi/$ | \rightarrow | $*h_1esh_2\text{-}n\text{-}éi$ | $>$ | Hitt. <i>išhanī</i> ([iʃχi:n-í:]) |

- ▶ On phonological processes in (26) see Kiparsky 2018 and Yates 2019b, 2021a.

(16)

EMERGENT MOBILITY:

IE athematic categories with fixed root stress tend to develop stressed “weak” inflectional endings, resulting in newly mobile paradigms.

- ▶ Principal claims:
 - ▶ IE ending-stressed SG oblique forms of $*-r/n$ -stems continue corresponding oblique SG forms with original AS inflection.
 - ▶ Emergence of innovative ending stress in these forms is due to (16).
 - ▶ (16) is motivated by the structure of PIE stress system and thus occurs:
 - ▶ Already in PIE itself (e.g., ‘foot’).
 - ▶ Repeatedly in the (pre)histories of the IE languages in which the general principles of this system are preserved intact (e.g., ‘blood’).

(16)

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► Implications:

- IE ending-stressed SG oblique forms of $*-r/n$ -stems can be explained without reference to AK “collective” reconstructed by Schindler (1975).
- There is no support in the IE languages for the SG-marked oblique case forms of this AK “collective” (cf. Yates 2019a on ‘fire’).
- Traditional hypothesis that $*-r/n$ -stems and other neuter nominal classes had PL supplied by singular AK “collective” rests on evidence of $*-h_2$ -marked NOM/ACC alone.

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 - LMU Forschungskolloquium
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Suffixal *-a-* in Hittite *-r/n-*stems with ending stress

- (A1) a. Hitt. *uddanāš* [ut:-n-á:s] or [ut:-an-á:s] ‘of the word’
b. Hitt. *haršanī* [χars:-n-í:] or [χars:-an-í:] ‘at the head’
c. Hitt. *išhanāš* [isχ:-n-á:s] or [isχ:-an-á:s] ‘of blood’

- The phonological reality of presuffixal *-a-* in Hittite **-r/n-*stems like (A1) is uncertain (and disputed).

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- ▶ The phonological reality of presuffixal *-a-* in Hittite **-r/n-*stems like (A1) is uncertain (and disputed).
- ▶ In support of a purely orthographic analysis:
 - ▶ A suffixal vowel is phonologically unexpected in pretonic position.
 - ▶ (A1b) attests an alternate spelling ⟨*ha-ra-aš-ni*⟩ (KUB 8.2 rev. 13; OH/NS) without *a*-vowel.
 - ▶ Other *-r/n-*stems with same stress pattern (‘shit’, ‘wild animal’) are consistently spelled without *a*-vowel (e.g., ⟨*ša-ak-na-aš*⟩ ‘of shit’; KUB 7.5 i 9, MH/NS).

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c. Hitt. *išhanāš* [isχʰ:-n-á:s] or [isχʰ:-an-á:s] ‘of blood’

- ▶ Kloekhorst (2008, 2014a) argues that *a*-vowel is real ([a(:)]), a reflex of inherited “proterodynamic” mobility.
- ▶ In support of the vocalic analysis:
 - ▶ (A1a) and (A1c) each spelled once with apparent plene of suffixal *a*-vowel: ⟨*ud-da-a-na-az*⟩ (KUB 14.8 rev. 38; NH/NS); ⟨*iš-ḫa-a-na-aš*⟩ (KUB 17.18 ii 29; NS).
 - ▶ Hapaxes — perhaps just scribal errors.
 - ▶ But both ‘word’ in (A1a) and *pattar/n-* ‘basket’ attest multiple DAT/LOC.SG forms with apparent plene spelling of suffixal *a*-vowel.

Suffixal *-a-* in Hittite *-r/n-*stems with ending stress

- ▶ Per Melchert (1994:126) suffixal *ā*-spellings observed in DAT/LOC.SG of ‘word’ and ‘basket’ reflect inherited endingless locatives recharacterized with productive ending *-i* — i.e.:

(A4) PIE *R-*én* > pre-Hitt. *R-*án* + **-i* > Hitt. R-*āni* (e.g., *paddāni*)

- ▶ Aberrant double plene in *uddānī* likely reflects compromise between:
 - ▶ *uddāni** formed as in (A4).
 - ▶ Productively derived *uddanī* with regular ending stress.

Suffixal *-a-* in Hittite *-r/n-*stems with ending stress

- ▶ Pre-Hittite endingless locative with final stress is phonologically expected if segmentally null ending is pre-accenting (**/-ø/*).
 - ▶ Thus, e.g., the congenitor of *paddāni* is derived as in (A5a).
 - ▶ For the pre-accenting property of inflectional ending compare (A5b).

- (A5) a. **/pat:-an-´ø/* → **[pət:-án]* ‘in the basket’ (basket-N-LOC.SG)
>> Hitt. *paddāni*
- b. **/deĝom-´ø/* → **[dəĝ-ó:m]* ‘in the earth’ (basket-N-LOC.SG)
>> Hitt. *takān*

Reassessing oblique suffixal *-a-* in Hittite *-r/n-*stems

- ▶ Thus in Hittite ‘basket’, ‘word’, and perhaps other **-r/n-*stems with ending stress in oblique probably had two licit DAT/LOC.SG forms:

(A6) DAT/LOC.SG [-á:ni] ~ [-n-í]

- ▶ Possible that (some) Hittite speakers leveled suffixal [-an-] from DAT/LOC.SG through paradigm, whence, e.g.:

(A7) DAT/LOC.SG [-á:ni] ~ [-an-í]
GEN.SG [-an-á:s]
DAT/LOC.PL [-an-á:s]

- ▶ But with potential exception of ‘word’ the evidence is not very compelling:
 - ▶ Little positive evidence for real [a]-vowel outside DAT/LOC.SG, plausibly just scribal errors.
 - ▶ Clear cases in which it was not leveled, e.g., *harašni* ([-s-n-í:]).

Reassessing oblique suffixal *-a-* in Hittite *-r/n-*stems

- ▶ Thus traces of suffixal [a] do not support erstwhile “proterodynamic” mobility (contra Kloekhorst 2008, 2014a), which fails to explain:
 - ▶ Positive evidence for suffixal [a]-vocalism virtually confined to DAT/LOC.SG.
 - ▶ Existence of [a]-less suffix allomorphs.
 - ▶ Robust evidence for ending stress in this class.
- ▶ These facts are naturally explained if [a]-ful DAT/LOC.SG allomorphs reflect recharacterized endingless locatives (cf. Melchert 1994:126).

Diachronic development of Hitt. *uddar/n-*

(A8) Pre-PIE to PIE prosodic change in Hitt. *uddar/n-* ‘word; matter’:

- a. $** /wóth_2\text{-or-}\emptyset / \rightarrow **wóth_2\text{-}r \quad > \quad \text{—}$
b. $** /wéth_2\text{-en-}'s / \rightarrow **wéth_2\text{-}n\text{-}s \quad > \quad \text{—}$
c. $** /wóth_2\text{-or-}h_2 / \rightarrow **wóth_2\text{-}\bar{o}r \quad > \quad \text{—}$
- ∨
∨
- a'. $* /woth_2\text{-or-}\emptyset / \rightarrow *woth_2\text{-}r \quad >> \quad \text{Hitt. } uttar \text{ ([út:-ar])}$
b'. $* /weth_2\text{-en-é/ós / \rightarrow *uth_2\text{-}n\text{-}é/ós \quad > \quad \text{Hitt. } uddanāš \text{ ([ut:-n-á:s])}$
c'. $* /woth_2\text{-or-}h_2 / \rightarrow *uth_2\text{-}\bar{ó}r \quad > \quad \text{Hitt. } uttār \text{ ([ut:-á:r])}$

- ▶ Hitt. *uddar/n-* underwent EMERGENT MOBILITY prior to PIE (like ‘foot’).
 - ▶ Early stress shift accounts for **innovative root zero-grade** in oblique stem (and NOM/ACC), which was later avoided in Hittite (cf. ‘water’).
- ▶ Prior to Hittite zero-grade of oblique was leveled to NOM/ACC.SG (>> ***úth₂-r**).
- ▶ Prior to Luwian zero-grade oblique stem led to creation of neo-full-grade in NOM/ACC.SG — i.e., ***éut(h₂)-r** > KLuw. *utar*=(š*a*) (cf. Rieken 1999:299–302).

Evidential basis for the AK “collective” (NOM/ACC)

(A9) IE reflexes of N.NOM/ACC forms with AK(-like) inflection:

- a. **mén-ōs* > PL Ved. *mánāṃsi*, OAv. *manā̃* ‘thoughts’
- b. **d^héh₁-mōn* > PL Ved. *dhāmāni* ‘domains’, YAV. *dāmąm* ‘creatures’
- c. **séh₁-mōn* > SG OHG *sāmo* ‘seed’ (M)
- d. **ph₂-wōr* >(>) SG TB *puwar*; Goth. *fon* ‘fire’
- e. **wód-ōr* >> PL Hitt. *witār* ([wit-ár]) ‘waters’
>(>) SG OS *watar*, Goth. *wato*; Gk. ὕδωρ, Umb. **utur** ‘water’

- ▶ Robust evidence across athematic neuter categories for N.NOM/ACC.PL or (via reanalysis) SG IE forms that reflect **-ōC* (< ***-oC-h₂*) of NOM/ACC of AK “collective” — e.g., (A9).
- ▶ But (A9d–e) are not descriptively AK (see Yates 2019a, 2021a,b).
- ▶ See Yates (2019b) for derivation of (A9) from same stem as NOM/ACC.SG (/oC-/).