



# The ablaut of Hittite *hi*-verbs in $-(\check{a})i-$ and a new sound law

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# Roadmap

- ▶ Introduction
- ▶ Previous accounts of Hittite  $-(\check{a})i$ -ablauting *hi*-verbs
- ▶ A new analysis of Hittite  $-(\check{a})i$ -ablauting *hi*-verbs
- ▶ Conclusions & implications



# Inflection of Hittite $-(\check{a})i$ -ablauting $hi$ -verbs

(1) Inflection of H  $p(\check{a})i$ - ‘give’:

|      |   | SG                    | PL                   |
|------|---|-----------------------|----------------------|
| NPST | 1 | <i>pē-<b>h</b>he</i>  | <i>pī-weni</i>       |
|      | 2 | <i>pai-tti</i>        | <i>pi-šteni</i>      |
|      | 3 | <i>pāi</i>            | <i>pi-anzi</i>       |
| PST  | 1 | <i>pē-<b>h</b>hun</i> | <i>pī-wen</i>        |
|      | 2 | <i>pai-tta</i>        | ( <i>[p]ī-šten</i> ) |
|      | 3 | <i>pai-š</i>          | <i>piy-er</i>        |

(2) Inflection of H  $d(\check{a})i$ - ‘place’:

|      |   | SG                    | PL              |
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|      | 3 | <i>dai-š</i>          | <i>day-er</i>   |

- Two main ablaut patterns are observed in Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs.<sup>1</sup>
  - Oldest attested inflection of (1)  $p(\check{a})i$ - ‘give’ and (2)  $d(\check{a})i$ - ‘place’ exemplifies these patterns.
  - But most verbs — including  $p(\check{a})i$ - and  $d(\check{a})i$ - — attest a mixture of both patterns in Hittite.

<sup>1</sup>Old Script forms emboldened; parentheses indicate substitution of syncretic 2PL.IMP for 2PL.PST.



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• In the “ $p(\check{a})i$ -type” pattern in (1):

- Stem has **same basic shape** ( $-\check{a}i-$  or via regular monophthongization  $-\check{e}-$ ) in the SG.
- Stem has a **different shape** ( $-\check{i}-$ ) in the PL.



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• In the “ $d(\check{a})i$ -type” pattern in (2):

- Stem has **same basic shape** ( $-\check{a}i-$  or via regular monophthongization  $-\check{e}-$ ) in SG and PST.PL.
- Stem has a **different shape** ( $-\check{i}-$ ) in the PL.NPST.



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- The “ $d(\check{a})i$ -type” pattern in (2) aligns with many radical ( $-ḫi$ - and)  $-mi$ -verbs, e.g., (3):
  - Stem has same basic shape ( $-\check{e}-$ ) in SG and PST.PL
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<sup>1</sup>Thus, e.g., Jasanoff (2003: 99) and Kloekhorst (2006: 113–8), who view PL.NPST as inherited; but also, e.g., Melchert (2022: 111–20), who views it as a Hittite innovation.



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  - Ending stress supported by plene in 2PL.NPST.ACT *zi-šten*[i] ‘you cross’ (KUB 26.87: 11; OH/NS).



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(4) Inflection of H  $k(a)r\check{a}p/k(a)rep$ - ‘devour’:

|      |   | SG                                | PL                   |
|------|---|-----------------------------------|----------------------|
| NPST | 1 |                                   |                      |
|      | 2 |                                   |                      |
|      | 3 | <i>karāp-i</i>                    | <i>karep-anzi</i>    |
| PST  | 1 |                                   |                      |
|      | 2 |                                   | ( <i>karep-ten</i> ) |
|      | 3 | <i>ka&lt;&lt;ri&gt;&gt;rap-aš</i> | <i>karēp-er</i>      |

- The “ $p(\check{a})i$ -type” pattern in (1) is rare, though paralleled by the oldest inflection of (4):<sup>1</sup>
  - Root has same basic shape ( $-\check{a}-$ ) in SG.
  - Root has a different shape ( $-\check{e}-$ ) in the PL.

<sup>1</sup>And a few other  $hi$ -verbs, with a subsequent limited spread from this locus (Melchert 2013).



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- What is the source of the “ $p(\check{a})i$ -type” pattern?



# The puzzle

(5) Archaic plural forms of  $-(\check{a})i$ -ablauting *hi*-verbs in Hittite:

- |    |                    |           |                |                                       |
|----|--------------------|-----------|----------------|---------------------------------------|
| a. | $[p]i\check{s}ten$ | ‘give!’   | (2PL.IMP.ACT)  | (IBoT 3.135 rev. 10; OS) <sup>1</sup> |
| b. | $pi\check{w}eni$   | ‘we give’ | (1PL.NPST.ACT) | (e.g., KUB 40.76: 7; OH/MS)           |
| c. | $piwen$            | ‘we gave’ | (1PL.PST.ACT)  | (KUB 23.77: 31; MH/MS)                |
| d. | $pari\check{w}ani$ | ‘we blow’ | (1PL.NPST.ACT) | (KBo 20.37 rev. 6; OS)                |

- Old(er) Hittite forms in (5) illustrate the crux of the problem.
- No existing historical analysis of Hittite fully explains their prosodic properties — i.e., both (i) the shape of the stem  $-(i\check{w}-)$ ; and (ii) convergent evidence for root stress:
  - Plene-spelled stem-final  $i\check{w}$  ( $\Rightarrow$  long/stressed  $[-i:]$ )
  - Reduced  $\check{w}ani$  ending in (5d).

<sup>1</sup>Reading with Neu (1980: 22), recently verified by Melchert (2022: 113 n. 21) contra Kloekhorst (2014a: 418).



## A new proposal

(6) Proposed development of plural forms of  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- a.  $*péh_1-i-sten$  > H  $pī-šten$  ([pí:-st:en]) 'give!'
- b.  $*péh_1-i-weni$  >> H  $pī-weni$  ([pí:-weni]) 'we give'
- c.  $*péh_1-i-wen$  > H  $pī-wen$  ([pí:-wen]) 'we gave'
- d.  $*préh_1-i-weni$  > H  $parī-wani$  ([prí:-wani]) 'we blow'

★ **Proposal:** problematic forms in (6) arise (principally) via regular sound change:

- From inherited forms with stressed  $*é$ -vocalism of the root.
- Via a (partially) new Hittite sound law.





# Roadmap

- ▶ Introduction
- ▶ Previous accounts of Hittite  $-(\check{a})i$ -ablauting *hi*-verbs
  - Kloekhorst's (2006, 2008, 2014) account
  - Kimball's (1998) account
  - Melchert's (2022) account
- ▶ A new analysis of Hittite  $-(\check{a})i$ -ablauting *hi*-verbs
- ▶ Conclusions & implications



## Kloekhorst's account

(7) Development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Kloekhorst:

a.  $*h_1p-i-stén$   $\not\rightarrow$  H  $p\bar{i}-šten$  ([pí:-st:en]) 'give!'

b.  $*h_1p-i-wéni$   $\not\rightarrow$  H  $p\bar{i}-weni$  ([pí:-weni]) 'we give'

c.  $*h_1p-i-wén$   $\not\rightarrow$  H  $p\bar{i}-wen$  ([pí:-wen]) 'we gave'

d.  $*p_rh_1-i-weni$   $\not\rightarrow$  H  $par\bar{i}-wani$  ([prí:-wani]) 'we blow'

• Kloekhorst argues all  $hi$ -verbs in  $-(\check{a})i-$  are historically derived with an ablauting suffix, stressed  $*-ói-$  in SG vs. pretonic  $*-i-$  in PL.<sup>1</sup>

✓ Generates basic stem shape (i.e., non-diphthongal  $-\check{i}-$ ) in (7) via pretonic deletion.

✗ Fails to explain plene spelling of stem-final  $-\bar{i}-$  in (7) or reduced  $-wani$  ending in (7d).

<sup>1</sup>See Kloekhorst 2006, 2008: 148–9, 540–1, 2014: 106–7.



## Kloekhorst's account

(8) Revised development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Kloekhorst:

- a.  $*h_1p-i-stén$  >>  $*h_1p-í-sten$   $\not\rightarrow$  H  $p\bar{i}-šten$  ([pí:-st:en]) 'give!'
- b.  $*h_1p-i-wéni$  >>  $*h_1p-í-weni$  > H  $p\bar{i}-weni$  ([pí:-weni]) 'we give'
- c.  $*h_1p-i-wén$  >>  $*h_1p-í-wen$  > H  $p\bar{i}-wen$  ([pí:-wen]) 'we gave'
- d.  $*p_rh_1-í-weni$  >>  $*p_rh_1-í-weni$  > H  $par\bar{i}-wani$  ([prí:-wani]) 'we blow'

• Kloekhorst (2014a: 106) thus posits that stress was “retracted...by analogy to the singular.”<sup>1</sup>

- ✓ Phonologically, accounts for plene of stem-final  $-\bar{i}$ - in (8b–d) and reduced  $-wani$  in (8d).
- ✗ Still fails to account for plene of stem-final  $-\bar{i}$ - in (8a), since stressed  $*í$  does not lengthen in closed syllables (Melchert 1994: 131–2, Kloekhorst 2014a: 441).

<sup>1</sup>In this specific set of verb forms; for the critique here see already Melchert 2022: 113–4.



## Kloekhorst's account

(8) Revised development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Kloekhorst:

- a.  $*h_1p-i-stén$   $\gg$   $*h_1p-í-sten$   $\not\rightarrow$  H  $p\bar{i}-šten$  ([pí:-st:en]) 'give!'
- b.  $*h_1p-i-wéni$   $\gg$   $*h_1p-í-weni$   $\gg$  H  $p\bar{i}-weni$  ([pí:-weni]) 'we give'
- c.  $*h_1p-i-wén$   $\gg$   $*h_1p-í-wen$   $\gg$  H  $p\bar{i}-wen$  ([pí:-wen]) 'we gave'
- d.  $*p_rh_1-í-weni$   $\gg$   $*p_rh_1-í-weni$   $\gg$  H  $par\bar{i}-wani$  ([prí:-wani]) 'we blow'

- Kloekhorst (2014a: 106) thus posits that stress was “retracted...by analogy to the singular.”<sup>1</sup>
  - ✓ Phonologically, accounts for plene of stem-final  $-\bar{i}$ - in (8b–d) and reduced  $-wani$  in (8d).
  - ✗ Still fails to account for plene of stem-final  $-\bar{i}$ - in (8a), since stressed  $*í$  does not lengthen in closed syllables (Melchert 1994: 131–2, Kloekhorst 2014a: 441).
  - ✗ Does not plausibly explain stem shape

<sup>1</sup>In this specific set of verb forms; for the critique here see already Melchert 2022: 113–4.



## Kloekhorst's account

(9) Diachronic remodeling of  $p(\check{a})i$ - 'give':

| OLD HITTITE                        |    | MIDDLE HITTITE                            |     |  | MIDDLE HITTITE          |
|------------------------------------|----|---|-----|--|-------------------------|
| $[p]i\text{-}\check{s}ten$ 'give!' | >> | $pa\check{i}\text{-}\check{s}ten$ 'give!' | cf. |  | $p\check{a}i$ 'gives'   |
| (IBoT 3.135 rev. 10; OS)           |    | (KUB 23.77: 31; MH/MS)                    |     |  | (e.g., KBo 6.2 i 3; OS) |

- Kloekhorst (2014a: 106) thus posits that stress was “retracted...by analogy to the singular.”
  - ✓ Phonologically, accounts for plene of stem-final  $-i-$  in (7b–d) and reduced  $-wani$  in (7d).
  - ✗ Still fails to account for plene of stem-final  $-i-$  in (8a), since stressed  $*i$  does not lengthen in closed syllables (Melchert 1994: 131–2, Kloekhorst 2014a: 441).
  - ✗ Does not plausibly explain stem shape ( $-i\check{a}$ ), since analogical remodeling after SG otherwise always results in introduction of diphthongal  $-a\check{i}$  — e.g., (9).



## Kimball's account

(10) Development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Kimball:

- a.  $*péh_1-i-sten > *pé-i-sten \not\rightarrow H p\bar{i}-šten$  ([pí:-st:en]) 'give!'
- b.  $*péh_1-i-weni > *pé-i-sten \not\rightarrow H p\bar{i}-weni$  ([pí:-weni]) 'we give'
- c.  $*péh_1-i-wen > *pé-i-wen \not\rightarrow H p\bar{i}-wen$  ([pí:-wen]) 'we gave'
- d.  $*préh_1-i-weni > *pré-i-weni \not\rightarrow H par\bar{i}-wani$  ([prí:-wani]) 'we blow'

- Kimball (1998) proposes  $hi$ -verbs in  $-(\check{a})i$ - reflect inherited root-internal ablaut, stressed  $*ó$  in the SG vs. stressed  $*é$  in PL.

- ✓ Accounts for reduced  $-wani$  ending in (10d), since stem is stressed.

- ✗ But root  $-\bar{i}-$  is problematic — no independent evidence that a sequence  $*-éh_1i-$  developed differently from  $*-éi-$ , which yielded [é:] rather than  $^x[i:]$  (Melchert 2022: 116; cf. 1994: 145).



## Melchert's account

(11) Development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Melchert:

a.  $*péh_1-i-sten$   $\gg$   $*ph_1-i-stén$   $>$   $*pih_1-stén$   $>$  H  $pī-šten$  ([pi:-st:én]) 'give!'

b.  $*péh_1-i-weni$   $\gg$   $*ph_1-i-wéni$   $>$   $*pih_1-wéni$   $>$  H  $pī-weni$  ([pi:-wéni]) 'we give'

c.  $*péh_1-i-wen$   $\gg$   $*ph_1-i-wén$   $>$   $*pih_1-wén$   $>$  H  $pī-wen$  ([pi:-wén]) 'we gave'

d.  $*préh_1i-weni$   $\gg$   $*prh_1i-wéni$   $\gg$   $*prih_1-wéni$   $\not>$  H  $parī-wani$  ([prí:-wani]) 'we blow'

- Melchert (2022) likewise posits inherited root-internal ablaut in (11) and most other  $hi$ -verbs in  $-(\check{a})i-$ , stressed  $*ó$  in the SG vs. stressed  $*é$  in PL, with a subsequent stress shift in the plural from stem to inflectional endings.<sup>1</sup>

✓ Phonologically, generates basic stem shape (i.e., non-diphthongal  $-i-$ ) in (11).

<sup>1</sup>Melchert (2022) also allows for a minority suffixal type with the same ablaut (i.e.,  $*ói \sim *éi$ ), on which see the discussion of (20) below.



## Melchert's account

(11) Development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Melchert:

a.  $*péh_1-i-sten$  >>  $*ph_1-i-stén$  >  $*pih_1-stén$  > H  $pī-šten$  ([pi:-st:én]) 'give!'

b.  $*péh_1-i-weni$  >>  $*ph_1-i-wéni$  >  $*pih_1-wéni$  > H  $pī-weni$  ([pi:-wéni]) 'we give'

c.  $*péh_1-i-wen$  >>  $*ph_1-i-wén$  >  $*pih_1-wén$  > H  $pī-wen$  ([pi:-wén]) 'we gave'

d.  $*préh_1i-weni$  >>  $*pṛh_1i-wéni$  >>  $*prih_1-wéni$   $\not>$  H  $parī-wani$  ([prí:-wani]) 'we blow'

- Melchert (2022) likewise posits inherited root-internal ablaut in (11) and most other  $hi$ -verbs in  $-(\check{a})i-$ , stressed  $*ó$  in the SG vs. stressed  $*é$  in PL, with a subsequent stress shift in the plural from stem to inflectional endings.

✓ Phonologically, generates basic stem shape (i.e., non-diphthongal  $-i-$ ) in (11).

✓ May account for plene of stem-final  $-i-$  in (11) via "laryngeal metathesis" and compensatory lengthening.<sup>1</sup>

<sup>1</sup>It is questionable whether compensatory lengthening (or monophthongization) yielded long vowels in unstressed syllables in Hittite (see Yates 2017: 89–90).





## Melchert's account

(11) Development of PL  $-(\check{a})i$ -ablauting  $hi$ -verbs per Melchert:

a.  $*péh_1-i-sten$  >>  $*ph_1-i-stén$  >  $*pih_1-stén$  > H  $pī-šten$  ([pi:-st:én]) 'give!'

b.  $*péh_1-i-weni$  >>  $*ph_1-i-wéni$  >  $*pih_1-wéni$  > H  $pī-weni$  ([pi:-wéni]) 'we give'

c.  $*péh_1-i-wen$  >>  $*ph_1-i-wén$  >  $*pih_1-wén$  > H  $pī-wen$  ([pi:-wén]) 'we gave'

d.  $*préh_1i-weni$  >>  $*prh_1i-wéni$  >>  $*prih_1-wéni$   $\not\rightarrow$  H  $parī-wani$  ([prí:-wani]) 'we blow'

- Melchert (2022) likewise posits inherited root-internal ablaut in (11) and most other  $hi$ -verbs in  $-(\check{a})i-$ , stressed  $*ó$  in the SG vs. stressed  $*é$  in PL, with a subsequent stress shift in the plural from stem to inflectional endings.

✗ Fails to accounts for reduced  $-wani$  ending in (11d), since ending is stressed.

✗ Basic stem shape in (11a) and (11c) ( $-\check{i}-$ ) is problematic, since there is no viable analogical model for stress shift to inflectional endings in PL.PST.



## Melchert's account

| (12) |        | 1PL.PST                          | 2PL.PST                 | 2PL.IMP                  | 3PL.PST                 | cf. | PL.NPST          |
|------|--------|----------------------------------|-------------------------|--------------------------|-------------------------|-----|------------------|
| a.   | 'take' | $\bar{e}pp$ -uen                 | $\bar{e}p$ -ten         | $\bar{e}p$ -ten          | $\bar{e}pp$ -er         |     | <i>app-anzi</i>  |
| b.   | 'be'   | $\bar{e}\check{s}\check{s}$ -uen | $\bar{e}\check{s}$ -ten | $\bar{e}\check{s}$ -ten  | $e\check{s}$ -er        |     | <i>aš-anzi</i>   |
| c.   | 'eat'  | <i>ed-uwen</i>                   |                         | $\bar{e}z$ -ten          | <i>et-er</i>            |     | [a]zzaš-tē[ni]   |
| d.   | 'take' | $d\bar{a}$ -wen                  | $d\bar{a}$ -tten        | $d\bar{a}$ -tten         | $d\bar{a}$ -er          |     | <i>da-ttēni</i>  |
| e.   | 'die'  |                                  | $\bar{a}k$ -ten         |                          | $ak$ -er                |     | <i>akk-anzi</i>  |
| f.   | 'open' | $h\bar{e}\check{s}$ -uen         |                         | $h\bar{e}\check{s}$ -ten | $h\bar{e}\check{s}$ -er |     | <i>hašš-anzi</i> |

- Hittite ablauting verbs are (otherwise) **exceptionlessly** stressed on the stem in the PST.PL.
  - *mi*-verbs like (12a–c).
  - *hi*-verbs like (12d–f).



## Melchert's account

| (12) |        | 1PL.PST                          | 2PL.PST                 | 2PL.IMP                        | 3PL.PST                       | cf. | PL.NPST          |
|------|--------|----------------------------------|-------------------------|--------------------------------|-------------------------------|-----|------------------|
| a.   | 'take' | $\bar{e}pp$ -uen                 | $\bar{e}p$ -ten         | $\bar{e}p$ -ten                | $\bar{e}pp$ -er               |     | <i>app-anzi</i>  |
| b.   | 'be'   | $\bar{e}\check{s}\check{s}$ -uen | $\bar{e}\check{s}$ -ten | $\bar{e}\check{s}$ -ten        | $\bar{e}\check{s}$ -er        |     | <i>aš-anzi</i>   |
| c.   | 'eat'  | $\bar{e}d$ -uwen                 |                         | $\bar{e}z$ -ten                | $\bar{e}t$ -er                |     | [a]zzaš-tē[ni]   |
| d.   | 'take' | $\bar{d}\bar{a}$ -wen            | $\bar{d}\bar{a}$ -tten  | $\bar{d}\bar{a}$ -tten         | $\bar{d}\bar{a}$ -er          |     | <i>da-ttēni</i>  |
| e.   | 'die'  |                                  | $\bar{a}k$ -ten         |                                | $\bar{a}k$ -er                |     | <i>akk-anzi</i>  |
| f.   | 'open' | $\bar{h}\bar{e}\check{s}$ -uen   |                         | $\bar{h}\bar{e}\check{s}$ -ten | $\bar{h}\bar{e}\check{s}$ -er |     | <i>hašš-anzi</i> |

- Hittite ablauting verbs are (otherwise) **exceptionlessly** stressed on the stem in the PST.PL.
  - *mi*-verbs like (12a–c).
  - *hi*-verbs like (12d–f).

⇒ Analogical stress shift to inflectional endings in PL.PST of *hi*-verbs in  $-(\check{a})i$ - would be **irregularizing** — i.e., introduce a novel ablaut pattern in Hittite.



# Roadmap

- ▶ Introduction
- ▶ Previous accounts of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
- ▶ A new analysis of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
  - Historical morphology and phonology of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
  - Revitalizing a Hittite sound law
  - The diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
- ▶ Conclusions & implications



## A new analysis and a new(-ish) sound law

(13) Proposed development of plural forms of  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- a. *\*péh<sub>1</sub>-i-sten*
- b. *\*péh<sub>1</sub>-i-weni*
- c. *\*péh<sub>1</sub>-i-wen*
- d. *\*préh<sub>1</sub>-i-weni*

• **Proposal:** two ingredients for a new analysis of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (i) Inherited root ablaut in (13), stressed *\*ó* in SG vs. *\*é* in PL (like Kimball 1998, Melchert 2022).



## A new analysis and a new(-ish) sound law

(14) RESTRICTED  $*i$ -UMLAUT:

$*é > *í / \_\_\_\_\_\_ [-\text{syll}, +\text{cont}] i$

“Stressed  $*é$  is raised to  $*í$  when it precedes a single  $[+\text{continuant}]$  consonant followed by  $*i$ .”

• **Proposal:** two ingredients for a new analysis of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (i) Inherited root ablaut in (13), stressed  $*ó$  in SG vs.  $*é$  in PL (like Kimball 1998, Melchert 2022).
- (ii) The new(-ish) Hittite sound change in (24).



## A new analysis and a new(-ish) sound law

(13) Proposed development of plural forms of  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- a. \* $p\acute{e}h_1-i-sten$  >  $p\acute{i}h_1-i-sten$  > H  $p\bar{i}-\acute{s}ten$  ([pí:-st:en]) 'give!'
- b. \* $p\acute{e}h_1-i-weni$  >  $p\acute{i}h_1-i-weni$  >> H  $p\bar{i}-weni$  ([pí:-weni]) 'we give'
- c. \* $p\acute{e}h_1-i-wen$  >  $p\acute{i}h_1-i-wen$  > H  $p\bar{i}-wen$  ([pí:-wen]) 'we gave'
- d. \* $pr\acute{e}h_1-i-weni$  >  $pr\acute{i}h_1-i-weni$  > H  $par\bar{i}-wani$  ([prí:-wani]) 'we blow'

• **Proposal:** two ingredients for a new analysis of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (i) Inherited root ablaut in (13), stressed \* $\acute{o}$  in SG vs. \* $\acute{e}$  in PL (like Kimball 1998, Melchert 2022).
- (ii) The new(-ish) Hittite sound change in (24).

⇒ Attested Hittite forms (13) develop almost entirely via regular sound change.



## Revitalizing a Hittite sound law

(14) RESTRICTED  $*i$ -UMLAUT:

$*\acute{e} > *i / \_\_\_\_\_\_ [-\text{syll}, +\text{cont}] i$

“Stressed  $*\acute{e}$  is raised to  $*i$  when it precedes a single  $[+\text{continuant}]$  consonant followed by  $*i$ .”

- (14) is a more restricted form of an “ $i$ -umlaut” process proposed by Eichner whereby any  $*e$  was raised to  $*i$  by  $*i$  in a following syllable:<sup>1</sup>
  - Only applies to stressed  $*\acute{e}$
  - Only applies to  $*\acute{e}$  in an open syllable
  - Only applies to  $*\acute{e}$  when the consonant preceding the trigger is  $[+\text{continuant}]$  (viz., blocked by nasal and oral stops).

<sup>1</sup>See Eichner (1973: 76, 84 n. 5, 97 n. 70, 1980: 144 n. 65) and the discussions of Melchert (1994: 140–1) and Kloekhorst (2008: 581).





## Revitalizing a Hittite sound law

(14) RESTRICTED  $*i$ -UMLAUT:

$*\acute{e} > *i / \_\_\_\_\_\_ [-\text{syll}, +\text{cont}] i$

“Stressed  $*\acute{e}$  is raised to  $*i$  when it precedes a single  $[+\text{continuant}]$  consonant followed by  $*i$ .”

• Restrictions in (14) are typologically plausible:

- Only stressed vowels undergo height harmony in Servigliano and other Italian dialects (Canalis 2009, i.a.).
- Geminate consonants block, e.g., vowel height harmony in Logoori (Odden 2019).
- Low sonority consonants ( $[-\text{approx}]$ ) block vowel harmony in Sant’Oreste and other Italian dialects (Walker 2016, i.a.).



## Revitalizing a Hittite sound law

(15) Underapplication of Eichner's " $*i$ -umlaut" rule:

- a.  $*m\acute{e}gh_2-i$  > H *mekki* 'much' (e.g., KBo 6.2 iv 42; OS)
- b.  $*h_1\acute{e}lt-ih_1$  > H *ēlzi* 'scale' (KUB 30.10 rev. 13; MH/MS)
- c.  $*h_1\acute{e}s-mi$  > H *ēšmi* 'I am' (e.g., KBo 3.55 rev. 11; OH/NS)
- d.  $*h_1\acute{e}p-ti$  > H *ēpzi* 'takes' (e.g., KBo 6.2 i 48; OS)

- These restrictions eliminate virtually all exceptions to Eichner's rule:
  - No umlaut in (15) because  $*\acute{e}$  is in a **closed syllable**.



## Revitalizing a Hittite sound law

(16) Underapplication of Eichner's " $*i$ -umlaut" rule:

- |    |                       |                                |                          |
|----|-----------------------|--------------------------------|--------------------------|
| a. | $*mén-ih_1$           | > H $mēni(=mmet)$ '(my) face'  | (KBo 3.22 obv. 52; OS)   |
| b. | $*mé-mih_{1/3}-stēni$ | > H $memišteni$ 'you speak'    | (KUB 23.77: 28; MH/MS)   |
| c. | $*h_1u-wēni$          | > H $u-mēni$ 'we see'          | (KBo 30.39 iii 5; OH/MS) |
| d. | $*dh_3-tēni$          | > H $da-ttēni$ 'you take'      | (KUB 36.106 obv. 8; OS)  |
| e. | $*pēd-i$              | > H $pēd-i$ 'in place'         | (e.g., KBo 6.2 i 17; OS) |
| f. | $*sēp-it$             | > H $šēppit$ '(type of grain)' | (KUB 34.89 obv. 5; MS)   |

• These restrictions eliminate virtually all exceptions to Eichner's rule:<sup>1</sup>

- No umlaut in (15) because  $*é$  is in a closed syllable.
- No umlaut in (16) because a (a–d) nasal or (e–f) oral stop intervenes.

<sup>1</sup>Direct cases of 'pasture', e.g., ACC.SG H  $wēši-n$  (<  $*wēs-i-m$ ) are analogical to oblique, e.g., NOM.PL  $wesaeš$  (<  $*wēs-ey-es$ ) as per Kimball (1983: 11–3).



## Revitalizing a Hittite sound law

(17) RESTRICTED  $*i$ -UMLAUT in ‘honey’ vs. non-application ‘grain’:

- a.  $*m\acute{e}l-it$  >  $*m\acute{i}l-it$  > H *milit* ‘honey’ (e.g., KUB 30.36 ii 1; MH/NS)  
 $*m\acute{e}l-id-os$  >  $*m\acute{i}l-id-os$  >> H *milittaš* ‘of honey’ (KBo 48.14 obv. 14; NS)
- b.  $*s\acute{e}p-it$  >  $*s\acute{e}p-it$  > H *šepit* ‘(type of grain)’ (KUB 34.89 obv. 5; MS)  
 $*s\acute{e}p-id-os$  >  $*s\acute{e}p-id-os$  > H *šepidaš* ‘of (type of grain)’ (e.g., KBo 17.36 iv 5; OS)

- Restricted formulation still captures the *Paradebeispiel* of Eichner’s rule:<sup>1</sup>

- ✓ Predicts **regular application** ( $*l = [+cont]$ ) of **RESTRICTED  $*i$ -UMLAUT** in ‘honey’ in (17a).<sup>2</sup>
- ✓ Correctly predicts **non-application** ( $*p = [-cont]$ ) in structurally identical ‘grain’ in (17b).

<sup>1</sup>Previous researchers have been willing to (or tempted to) accept Eichner’s rule on the strength of ‘honey’ alone (Kloekhorst 2008: 581; cf. Melchert 1994: 140–1).

<sup>2</sup>With geminate  $-tt-$  by analogy to adjective *m(a)litu-* ‘sweet’ per Melchert (1994: 140) and Kimball (1999: 276).

Diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs

- (18) a.  $*pr\acute{o}h_1-y-ei$  > ... > H  $par\bar{a}i$  'blows'  
 b.  $*pr\acute{e}h_1-i-weni$  >  $*pr\bar{i}h_1-i-weni$  > H  $par\bar{i}-wani$  'we blow'
- (19) a.  $*p\acute{o}h_1-i-th_2e$  > ... > H  $pai-tta$  'you gave'  
 b.  $*p\acute{e}h_1-i-sten$  >  $*p\bar{i}h_1-i-sten$  > H  $[p]\bar{i}-\acute{s}ten$  'give!'

(1) Inflection of H  $p(\check{a})i-$  'give':

|      |   | SG                      | PL                          |
|------|---|-------------------------|-----------------------------|
| NPST | 1 | $p\bar{e}-h\acute{h}e$  | $p\bar{i}-weni$             |
|      | 2 | $pai-tti$               | $pi-\acute{s}teni$          |
|      | 3 | $p\bar{a}i$             | $pi-anzi$                   |
| PST  | 1 | $p\bar{e}-h\acute{h}un$ | $p\bar{i}-wen$              |
|      | 2 | $pai-tta$               | $([p]\bar{i}-\acute{s}ten)$ |
|      | 3 | $pai-\acute{s}$         | $piy-er$                    |

• A stepwise diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (i) Inherited into Hittite with root ablaut — or rarely, suffixal ablaut — stressed  $*\acute{o}$  in SG vs. stressed  $*\acute{e}$  in PL.
- (ii) Core of the class — i.e., root-ablauting verbs with root-final  $*h_1$  like (18–19) — underwent RESTRICTED  $*i$ -UMLAUT in PL, yielding the “ $p(\check{a})i$ -type” ablaut pattern in (1).



## Diachrony of Hittite $-(\check{a})i$ -ablauting $hi$ -verbs

- (20) a.  $*h_2lt\text{-}\acute{o}y\text{-}ei$  > ... >> H  $h\acute{a}lz\bar{a}i$  'calls'  
 b.  $*h_2lt\text{-}\acute{e}i\text{-}weni$  >>  $*h_2lt\text{-}\acute{i}\text{-}weni$  > H  $h\acute{a}lzi\text{-}wani$  'we call'  
 c.  $*h_2lt\text{-}\acute{o}y\text{-}th_2e$  > ... >> H  $h\acute{a}lz\bar{a}i\text{-}tta$  'you called'  
 d.  $*h_2lt\text{-}\acute{e}y\text{-}sten$  >>  $*h_2lt\text{-}\acute{i}\text{-}sten$  > H  $h\acute{a}lzi\text{-}\acute{s}ten$  'call!'

- A step-wise diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

(iii) In pre-Hittite the few verbs with suffixal ablaut — e.g., (20) — were analogically remodeled after “ $p(\check{a})i$ -type” pattern (i.e., with  $-\acute{i}-$  <  $*-ih_1i-$  <  $*-\acute{e}h_1i-$ ).<sup>1</sup>

<sup>1</sup>Lexicalized  $L\acute{U}p\acute{i}tteyant-$  ‘fugitive’ would have escaped this renewal and may thus preserve a trace of inherited suffixal  $*-ei-$  (Melchert 2022: 118–9).



## Diachrony of Hittite $-(\check{a})i$ -ablauting $hi$ -verbs

- (21) a.  $*póh_1-y-ei$  > ... >  $pāi$  'gives'  
 b.  $*péh_1-y-enti$  >>  $*píh_1-y-enti$  > H  $pīy-anzi$  'they give' >>  $pianzi$  'id.'<sup>1</sup>  
 c.  $*póh_1-i-th_2e$  > ... > H  $pai-tta$  'you gave'  
 d.  $*péh_1-i-sten$  >  $*píh_1-i-sten$  > H  $[p]ī-šten$  'give!' >>  $pai-šten$  'id.'

• A step-wise diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (iv) Within Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs were (variably) assimilated to the predominant (stress/)ablaut pattern in ablauting radical verbs, yielding the " $d(\check{a})i$ -type" pattern.

<sup>1</sup>Ending-stressed  $pianzi$  likely exists as a variant already in OH; cf.  $\text{P}TC\text{P } p\acute{y}\bar{a}n$  (e.g., KBo 6.2 ii 27; OS).

Diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs(2) Inflection of H  $d(\check{a})i$ - ‘place’:

|      |   | SG             | PL              |
|------|---|----------------|-----------------|
| NPST | 1 | <i>tē-ḫḫe</i>  |                 |
|      | 2 | <i>dai-tti</i> |                 |
|      | 3 | <i>dāi</i>     | <i>ti-anzi</i>  |
| PST  | 1 | <i>te-ḫḫun</i> | <i>dai-wen</i>  |
|      | 2 | <i>dai-tta</i> | <i>dai-šten</i> |
|      | 3 | <i>dai-š</i>   | <i>day-er</i>   |

(3) Inflection of H  $\check{e}pp/app$ - ‘take’:

|      |   | SG            | PL              |
|------|---|---------------|-----------------|
| NPST | 1 | <i>ēp-mi</i>  | <i>app-ueni</i> |
|      | 2 | <i>ēp-ši</i>  | <i>ap-teni</i>  |
|      | 3 | <i>ēp-zi</i>  | <i>app-anzi</i> |
| PST  | 1 | <i>ēpp-un</i> | <i>ēpp-uen</i>  |
|      | 2 | <i>ēpta</i>   | <i>ēp-ten</i>   |
|      | 3 | <i>ēpta</i>   | <i>ēpp-er</i>   |

- A step-wise diachrony of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

- (iv) Within Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs were (variably) assimilated to the predominant (stress/)ablaut pattern in ablauting radical verbs, yielding the “ $d(\check{a})i$ -type” pattern.

- i.e., rebuilt as in (2) on the model of, e.g., (3).





# Roadmap

- ▶ Introduction
- ▶ Previous accounts of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
- ▶ A new analysis of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs
- ▶ Conclusions & implications



## Conclusions

(14) RESTRICTED *\*i*-UMLAUT:

$*é > *í / \_\_\_\_\_\_ [-\text{syll}, +\text{cont}] i$

“Stressed *\*é* is raised to *\*í* when it precedes a single [+continuant] consonant followed by *\*i*.”

★ Hittite underwent the sound change in (14), which applied in at least:<sup>1</sup>

- Core subset of  $-(\check{a})i$ -ablauting *hi*-verbs
- Inherited word for ‘honey’

<sup>1</sup>Revising and refining Eichner (1973: 76, 84 n. 5, 97 n. 70, 1980: 144 n. 65).



# Conclusions

(19) Historical development of H  $p(\check{a})i-$  ‘give’:

- $*póh_1-y-ei$  > ... >  $pāi$  ‘gives’
- $*péh_1-i-weni$  >>  $*píh_1-i-weni$  >> H  $pī-weni$  ‘we give’
- $*póh_1-i-th_2e$  > ... > H  $pai-tta$  ‘you gave’
- $*péh_1-i-sten$  >  $*píh_1-i-sten$  > H  $[p]ī-šten$  ‘give!’

★ Hittite underwent the sound change in (14).

★  $-(\check{a})i$ -ablauting  $hi$ -verbs like (19) reflect inherited ablaut,  $*ó$  in SG vs.  $*é$  in PL, which thus:

- Provide more evidence for  $*ó \sim *é$  ablaut in the Proto-Indo-European (PIE)  $*h_2e$ -conjugation.<sup>1</sup>

<sup>1</sup>Thus Jasanoff (1979, 2003: 71, 89, et seq.), Kimball (1998), Melchert (2013, 2015, 2022), Rothstein-Dowden (2022: 136–7), contra Kloekhorst (2012, 2014b), Willi (2018: 255–7), i.a.



# Conclusions

(19) Historical development of H  $p(\check{a})i-$  ‘give’:

- a.  $*p\acute{o}h_1-y-ei$  > ... >  $p\bar{a}i$  ‘gives’
- b.  $*p\acute{e}h_1-i-weni$  >>  $*p\acute{i}h_1-i-weni$  >> H  $p\bar{i}-weni$  ‘we give’
- c.  $*p\acute{o}h_1-i-th_2e$  > ... > H  $pai-tta$  ‘you gave’
- d.  $*p\acute{e}h_1-i-sten$  >  $*p\acute{i}h_1-i-sten$  > H  $[p]\bar{i}-\acute{s}ten$  ‘give!’

★ Hittite underwent the sound change in (14).

★  $-(\check{a})i$ -ablauting  $hi$ -verbs like (19) reflect inherited ablaut,  $*\acute{o}$  in SG vs.  $*\acute{e}$  in PL, which thus:

- Provide more evidence for  $*\acute{o} \sim *\acute{e}$  ablaut in the Proto-Indo-European (PIE)  $*h_2e$ -conjugation.
- Provide more evidence  $*\acute{o} \sim *\acute{e}$  ablaut in PIE  $*i$ -Presents specifically.<sup>1</sup>

<sup>1</sup>Thus Kimball (1998), Melchert (2022), contra Jasanoff (1979: 88–9, 2003: 101–3, 2021: 168–9).



# Conclusions

(19) Historical development of H  $p(\check{a})i-$  ‘give’:

- a.  $*p\acute{o}h_1-y-ei$  > ... >  $p\bar{a}i$  ‘gives’
- b.  $*p\acute{e}h_1-i-weni$  >>  $*p\acute{i}h_1-i-weni$  >> H  $p\bar{i}-weni$  ‘we give’
- c.  $*p\acute{o}h_1-i-th_2e$  > ... > H  $pai-tta$  ‘you gave’
- d.  $*p\acute{e}h_1-i-sten$  >  $*p\acute{i}h_1-i-sten$  > H  $[p]\bar{i}-\acute{s}ten$  ‘give!’

★ Hittite underwent the sound change in (14).

★  $-(\check{a})i$ -ablauting  $hi$ -verbs like (19) reflect inherited ablaut,  $*\acute{o}$  in SG vs.  $*\acute{e}$  in PL, which thus:

- Provide more evidence for  $*\acute{o} \sim *\acute{e}$  ablaut in the Proto-Indo-European (PIE)  $*h_2e$ -conjugation.
- Provide more evidence  $*\acute{o} \sim *\acute{e}$  ablaut in PIE  $*i$ -Presents specifically.
- May provide evidence for symmetrical  $*\acute{o} \sim *\acute{e}$  ablaut, SG vs. PL, in PIE  $*h_2e$ -conjugation Presents vs. predominant  $*\acute{o}$  in Aorists.<sup>1</sup>

<sup>1</sup>See Jasanoff (2013: 108, 2019: 44 n. 63) and Melchert (2013: 142–3, 2015) for “5:1” ablaut in  $*h_2e$ -conjugation (cf. Jasanoff 2003: 153); Aorists would thus be source of productive Hittite ablaut pattern in  $*h_2e$ -conjugation just as in the  $*-mi$ -conjugation.



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# Roadmap

## ► Appendices

- On the historical membership of  $-(\check{a})i$ -ablauting  $hi$ -verbs
- On the ablaut of the  $*h_2e$ -conjugation
- An alternative reformulation of “ $i$ -umlaut”





## Historical membership of $-(\check{a})i$ -ablauting $hi$ -verbs

(21) Historical sources of Hittite  $-(\check{a})i$ -ablauting  $hi$ -verbs:

| ROOT-ABLAUTING              |                     | SUFFIX-ABLAUTING             | OTHER              |
|-----------------------------|---------------------|------------------------------|--------------------|
| REGULAR                     | IRREGULAR           |                              |                    |
| $i\check{s}p(\check{a})i-$  | $m(\check{a})i-$    | $h\check{a}lz(\check{a})i-$  | $app(\check{a})i-$ |
| $par(\check{a})i-$          | $z(\check{a})i-$    | $i\check{s}ham(\check{a})i-$ | $ar(\check{a})i-?$ |
| $\check{s}(\check{a})i-$    | $tar(\check{a})i-?$ | $pidd(\check{a})i-?$         |                    |
| $h\check{u}w(\check{a})i-?$ |                     | $i\check{s}h(\check{a})i-?$  |                    |
| $p(\check{a})i-?$           |                     |                              |                    |
| $d(\check{a})i-?$           |                     |                              |                    |

- Small numbers and high uncertainty, but among  $-(\check{a})i$ -ablauting  $hi$ -verbs whose historical source can be determined fairly securely the type with root-internal ablaut predominates.
- Majority of these are built to  $*h_1$ -final roots where NON-FINAL  $*i$ -UMLAUT would have applied **regularly**.



## Historical membership of $-(\check{a})i$ -ablauting *hi*-verbs

(22) Development of H *išp(ā)i-* and its cognates:

- a. *\*spóh<sub>1</sub>-i/y-* > H *išpāi* ‘becomes satiated’ (Bo 4491: 5; OH<sup>2</sup>/NS)  
 >> Ved. *sphāyate* ‘grows fat’  
 >> OE *spōwan*, OHG *spuoen* ‘thrive’
- b. *\*spéh<sub>1</sub>-i/y-* > H *išpišten* ‘get satiated!’ (KUB 12.18: 6; NS)  
 >> Lith. *spéju* ‘have time to spare’, OCS *spějǫ* ‘be successful’

- Developments in (22) are parallel to Jasanoff’s (2003: 64–72) “*molō*-presents.”

Ablaut of  $*h_2e$ -Presents vs. Aorists

- (23) a.  $*h_1ór-h_2e$  >>  $*h_1ór-h_2m̥$  > H *ārḫḫun* ‘I arrived’ (e.g., HKM 10 rev. 35; MH/MS)
- b.  $*h_1ór-th_2e$  > ... > H *ārta\** ‘you arrived’
- c.  $*h_1ór-s$  > ... > H *ārša* ‘arrived’ (e.g., KBo 22.2 rev. 7; OS)
- d.  $*h_1ór-me$  >>  $*h_1ór-we$  > H *aruen* ‘we arrived’ (KBo 16.61 obv. 4; MS<sup>2</sup>)
- e.  $*h_1ór-s$  >>  $*h_1ór-te$  > H (*ārten* ‘arrive!’) (KUB 23.72 rev. 28; MH/MS)
- f.  $*h_1ér-ēr$  >>  $*h_1ór-er$  > H *arer* ‘they arrived’ (KBo 22.2 obv. 8; OS)

- $*h_2e$ -conjugation root Aorists are reconstructible with 5:1  $*ó \sim *é$  ablaut, with subsequent generalization of  $*ó$  to 3PL in Hittite.<sup>1</sup>

<sup>1</sup>Endings in (23) reconstructed after Melchert 2015.



## Revitalizing a Hittite sound law — take 2

(24) NON-FINAL *\*i*-UMLAUT:

$*é > *í / \_\_\_\_\_\_ [-\text{syll}, -\text{long}] i \sigma$

“Stressed *\*é* is raised to *\*í* when it precedes a single non-geminate consonant followed by *\*i* in a non-final syllable.”

- (24) is a more restricted form of an “*i*-umlaut” process proposed by Eichner whereby any *\*e* was raised to *\*i* by *\*i* in a following syllable:
  - Only applies to stressed *\*é*
  - Only applies to *\*é* in an open syllable
  - Only applies to *\*é* when the trigger is not in a word-final syllable.





## Revitalizing a Hittite sound law — take 2

(25) Underapplication of Eichner's “*i*-umlaut” rule:

- a. \**wés-i-m* > H *weši-n* ‘pasture:ACC.SG.C’ (KUB 29.29: 8; OS)
- b. \**mén-ih<sub>1</sub>* > H *mēni(=mmet)* ‘(my) face’ (KBo 3.22 obv. 52; OS)
- c. \**péd-i* > H *pēd-i* ‘in place’ (e.g., KBo 6.2 i 17; OS)
- d. \**h<sub>1</sub>u-wéni* > H *u-mēni* ‘we see’ (KBo 30.39 iii 5; OH/MS)
- e. \**dh<sub>3</sub>-téni* > H *da-ttēni* ‘you take’ (KUB 36.106 obv. 8; OS)

- These restrictions eliminate virtually all exceptions to Eichner's rule:<sup>1</sup>
  - No umlaut in (25) because the trigger is in a final syllable.

<sup>1</sup>H *memišteni* ‘you speak’ (<< \**mé-mih<sub>1/3</sub>-stent*) is analogical to 3SG *mēmai* (< \**mé-moh<sub>1/3</sub>-ei*); likewise, *memi(ya)n-* ‘word; matter’.



## Revitalizing a Hittite sound law — take 2

(26) Underapplication of Eichner's “\*i-umlaut” rule:

- a. *\*mégh<sub>2</sub>-i* > H *mekki* ‘much’ (e.g., KBo 6.2 iv 42; OS)
- b. *\*h<sub>1</sub>élt-ih<sub>1</sub>* > H *ēlzi* ‘scale’ (KUB 30.10 rev. 13; MH/MS)
- c. *\*h<sub>1</sub>és-mi* > H *ēšmi* ‘I am’ (e.g., KBo 3.55 rev. 11; OH/NS)
- d. *\*h<sub>1</sub>ép-ti* > H *ēpzi* ‘takes’ (e.g., KBo 6.2 i 48; OS)

- These restrictions eliminate virtually all exceptions to Eichner's rule:
  - No umlaut in (25) because the trigger is in a final syllable.
  - No umlaut in (26) because \*é is in a closed syllable or because the trigger is in a final syllable.



## Revitalizing a Hittite sound law — take 2

(27) Underapplication of Eichner's “\*i-umlaut” rule:

a. \**sép-it* > H *šepit* ‘(type of grain)’ (KUB 34.89 obv. 5; MS)

b. \**sép-id-os* > H *šepidaš* ‘of (type of grain)’ (e.g., KBo 17.36 iv 5; OS)

- These restrictions eliminate virtually all exceptions to Eichner's rule:
  - No umlaut in (27a) because the trigger is in a final syllable.
  - No umlaut in (27b) because \**é* is in a closed syllable (viz., post-STURTEVANT'S LAW).



## Revitalizing a Hittite sound law — take 2

(28) Application of NON-FINAL *\*i*-UMLAUT in ‘honey’:

a. *\*mél-it* > *mél-it* >> H *milit* ‘honey’ (e.g., KUB 30.36 ii 1; MH/NS)

b. *\*mél-id-os* > *\*míl-id-os* >> H *milittaš* ‘of honey’ (KBo 48.14 obv. 14; NS)

- But this restricted formulation still captures the *Paradebeispiel* of Eichner’s rule:
  - Regular application of NON-FINAL *\*i*-UMLAUT in oblique cases of ‘honey’, e.g., (28b).
  - Spread of initial *i*-vocalism to direct cases of ‘honey’ via paradigm leveling, i.e., (28a).