Spelling and phonology of the Cuneiform Luwian ABL/INS ending

Oscar Billing

8. Indogermanistisches Forschungskolloquium

17/06-2024

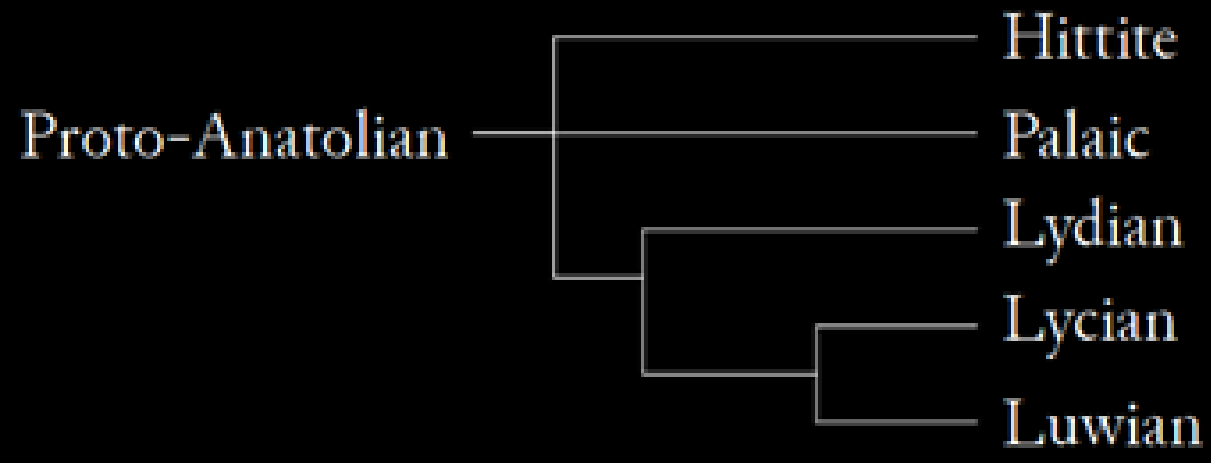
UPPSALA UNIVERSITET

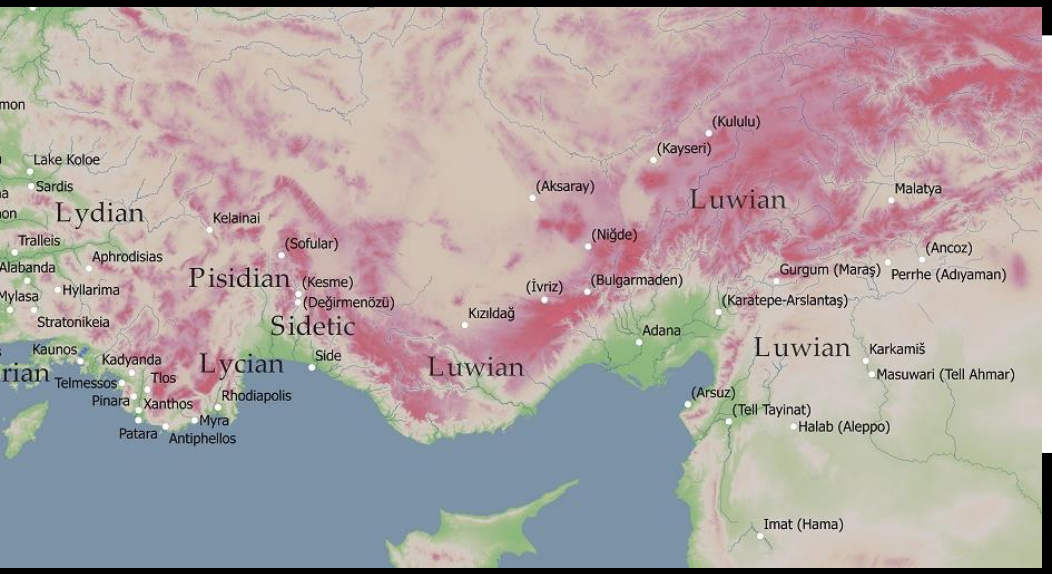
The Luwian language

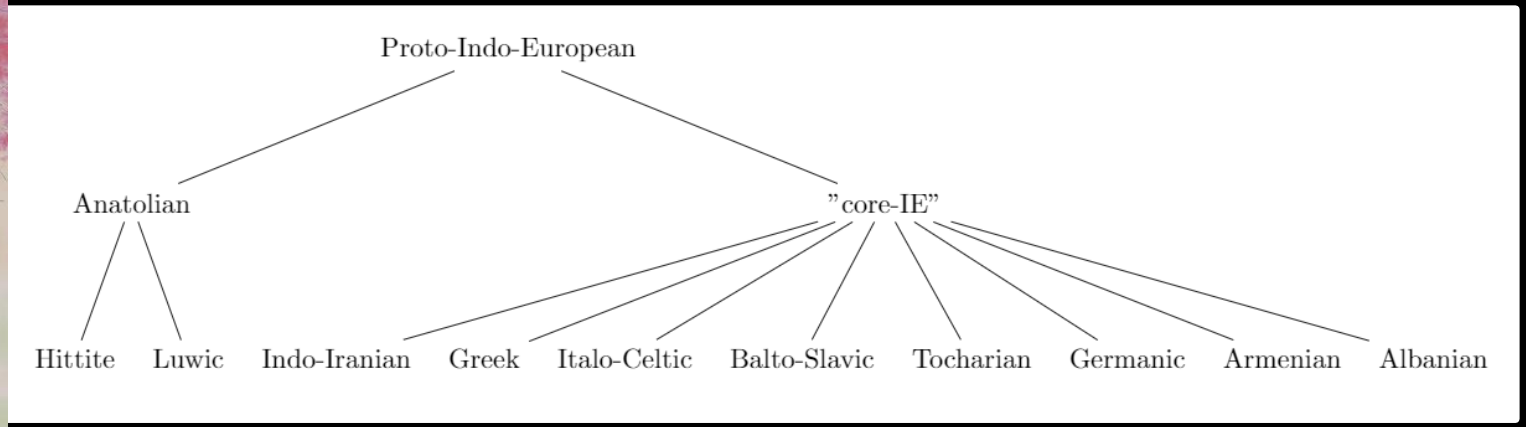
Luwic, Anatolian, Indo-European

ca. 1500-1200 BCE (cuneiform)

ca. 1300-700 BCE (hieroglyphic)





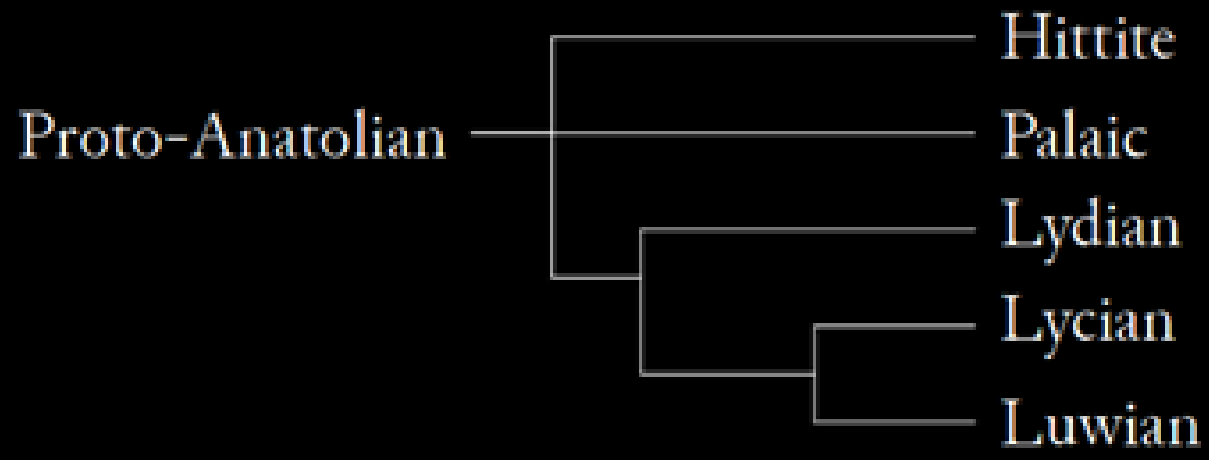


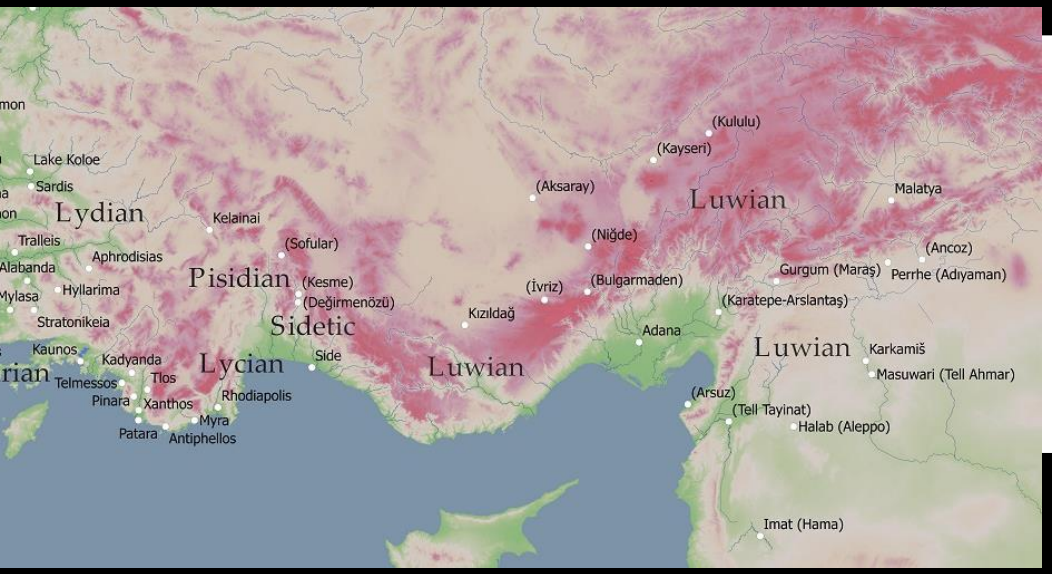
The Luwian language

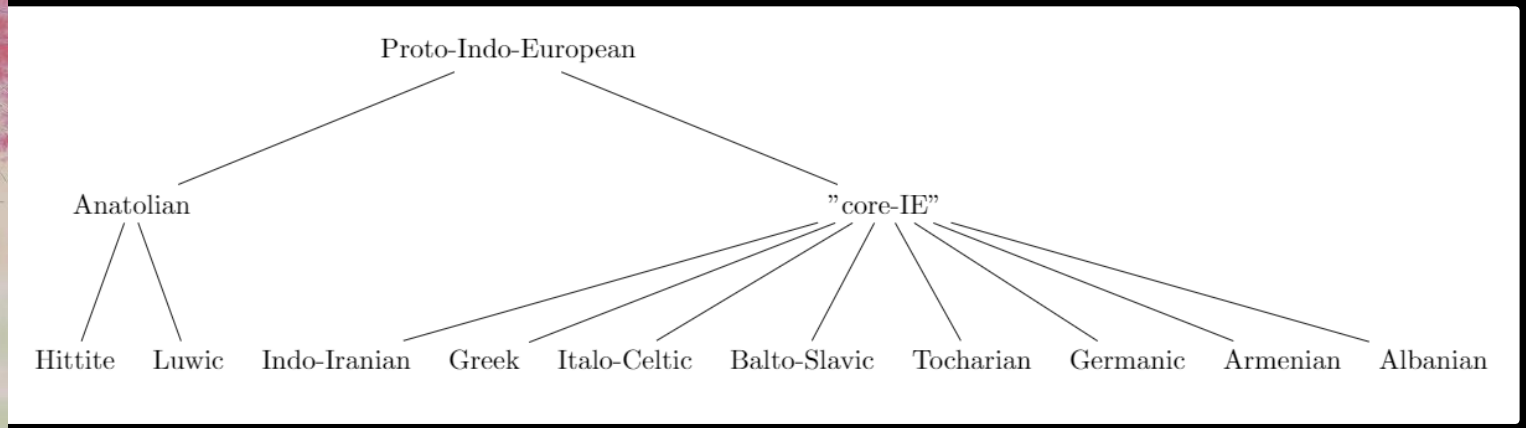
Luwic, Anatolian, Indo-European

ca. 1500-1200 BCE (cuneiform)

ca. 1300-700 BCE (hieroglyphic)







Luwian cuneiform philology

Cuneiform = syllabary + logograms

Phonetic signs: V (e.g. A, E, I) CV (e.g. TA, ŠU) VC (e.g. AP, IŠ) CVC (e.g. PÁR, MIŠ)

Logograms: **Sumerian** (or Akkadian) words, **sumerograms/akkadograms**

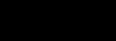
e.g. ŠU  'hand' LUGAL  'king' (capitalized in transliteration)

Luwian cuneiform philology

Cuneiform = syllabary + logograms

Phonetic signs: V (e.g. A, E, I) CV (e.g. TA, ŠU) VC (e.g. AP, IŠ) CVC (e.g. PÁR, MIŠ)

Logograms: **Sumerian** (or Akkadian) words, **sumerograms/akkadograms**

e.g. ŠU  'hand' LUGAL  'king' (capitalized in transliteration)

Phonetic complement = phonetic sign added to logogram for grammar

e.g.  <LUGAL-uš> = Hitt. /χasːus/ 'king' NOM.SG

 <LUGAL-i> = Hitt. /χasːui/ 'for the king' DAT/LOC.SG

Plene spelling in Anatolian cuneiform

Plene spelling = addition of an ”extra” vowel sign, e.g.

<e-eš-du> <ma-a-an> <a-aš-šu-u>

Greatly **debated topic** – what is the phonetic correlate? (cf. Rieken 2017: 19f. Kloekhorst 2014: 13-18)

Plene spelling in Anatolian cuneiform

Plene spelling = addition of an ”extra” vowel sign, e.g.

<**e**-eš-du> <m**a**-**a**-a**n**> <**a**-aš-š**u**-**u**>

Greatly **debated topic** – what is the phonetic correlate? (cf. Rieken 2017: 19f. Kloekhorst 2014: 13-18)

Current consensus: denotes **vocalic length** in most positions

thus e.g. <m**a**-**a**-a**n**> = [m**aː**n]

Plene spelling in Anatolian cuneiform

Plene spelling = addition of an ”extra” vowel sign, e.g.

<**e**-eš-du> <ma-**a**-an> <**a**-aš-šu-**u**>

Greatly **debated topic** – what is the phonetic correlate? (cf. Rieken 2017: 19f. Kloekhorst 2014: 13-18)

Current consensus: denotes **vocalic length** in most positions

thus e.g. <ma-**a**-an> = [ma**ː**n]

Basically optional (at least in Luwian)! Is sometimes omitted

If **plene** = probably long

if **not** plene (and few attestations) = **not** necessarily short

Plene spelling in Anatolian cuneiform

Vowel length **correlated with accent** due to lengthening laws in Hittite

e.g.	Hitt.	<ki-i>	/kíː/ 'this'	< **ḱí*
		<wa-a-tar>	/uáːtr/ 'water'	< **uódr*

Plene spelling in Anatolian cuneiform

Vowel length **correlated with accent** due to lengthening laws in Hittite

e.g.	Hitt.	<ki-i>	/kíː/ 'this'	< **ḱí*
		<wa-a-tar>	/uáːtr/ 'water'	< **uódr*

Good reasons to believe that Luwian **also lengthened** some accented vowels

(cf. Melchert 1994: 261-265)

e.g.	<na-**a**-wa> 'not'	< **né-ue*
	<za-a-aš> 'this'	< **ḱós*

Lengthening of **ó* is beyond doubt, both Luw. and Hitt.!

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca**-**ti**> or <-**Ca**-**a**-**ti**>

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca**-**ti**> or <-**Ca**-**a**-**ti**>

Reconstructed *-(*o*)*ti* cf. Hitt. ABL. -(*a*)*z*, perhaps also Gr. *proti*, Skt. *prati* 'to(wards)'

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca-ti**> or <-**Ca-a-ti**>

Reconstructed *-(*o*)*ti* cf. Hitt. ABL. -(*a*)*z*, perhaps also Gr. *proti*, Skt. *prati* 'to(wards)'

So, if **plene spelling** = **length**

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca-ti**> or <-**Ca-a-ti**>

Reconstructed *-(*o*)*ti* cf. Hitt. ABL. -(*a*)*z*, perhaps also Gr. *proti*, Skt. *prati* 'to(wards)'

So, if **plene spelling** = **length**

and **length** < **accented** vowels

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca-ti**> or <-**Ca-a-ti**>

Reconstructed *-(*o*)*ti* cf. Hitt. ABL. -(*a*)*z*, perhaps also Gr. *proti*, Skt. *prati* 'to(wards)'

So, if **plene spelling** = **length**

and **length** < **accented** vowels

then, <-C**a-a**-ti> = **accented** ending? (< *-*óti*)

Research question

The Luw. ablative/instrumental (ABL/INS) case:

<-**Ca-ti**> or <-**Ca-a-ti**>

Reconstructed *-(*o*)*ti* cf. Hitt. ABL. -(*a*)*z*, perhaps also Gr. *protí*, Skt. *práti* 'to(wards)'

So, if **plene spelling** = **length**

and **length** < **accented** vowels

then, <-Ca-a-ti> = **accented** ending? (< *-*óti*)

(would entail accentual mobility in some stems)

(e.g. Kloekhorst 2014: 554f.; Vertegaal 2018: 180f.)

The data set

Necessity = a thorough look at **all ABL/INS forms**

Data taken from Craig Melchert's *Dictionary of Cuneiform Luwian* (forthc.)

Concordance with grammatical analysis and places of attestation

ḫammši- 'grandchild' (KL/LL, LL)

AbIn *ḫa-am-ša-a-ti*: *KUB* 32.81+32.10+35.19 Ro 14*; *KBo* 9.143 ii! 13. *ḫa-am-ša-ti*: *KBo* 29.6(+)*KUB* 35.70 i 29.

All attestations double checked in the *Konkordanz der hethitischen Keilschrifttafeln*

Online concordance with photographs of tablets (Košak 2002-2022)

The data set (2)

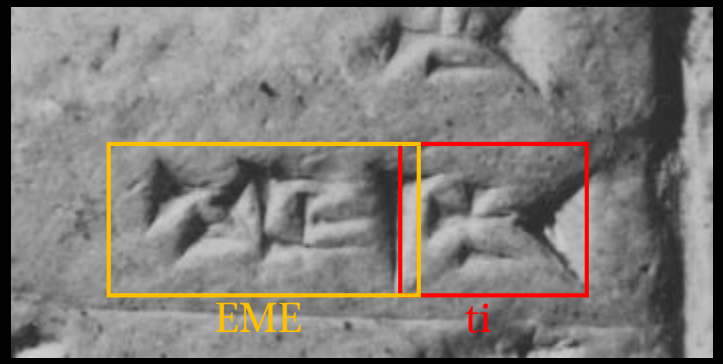
Not all forms are probative

Sumerograms + phonetic complement, broken forms = non-probative

<u>Sumerogram example</u>:

 <EME-ti> ’with the tongue’

e.g. KUB 35.75 l.col. 2′



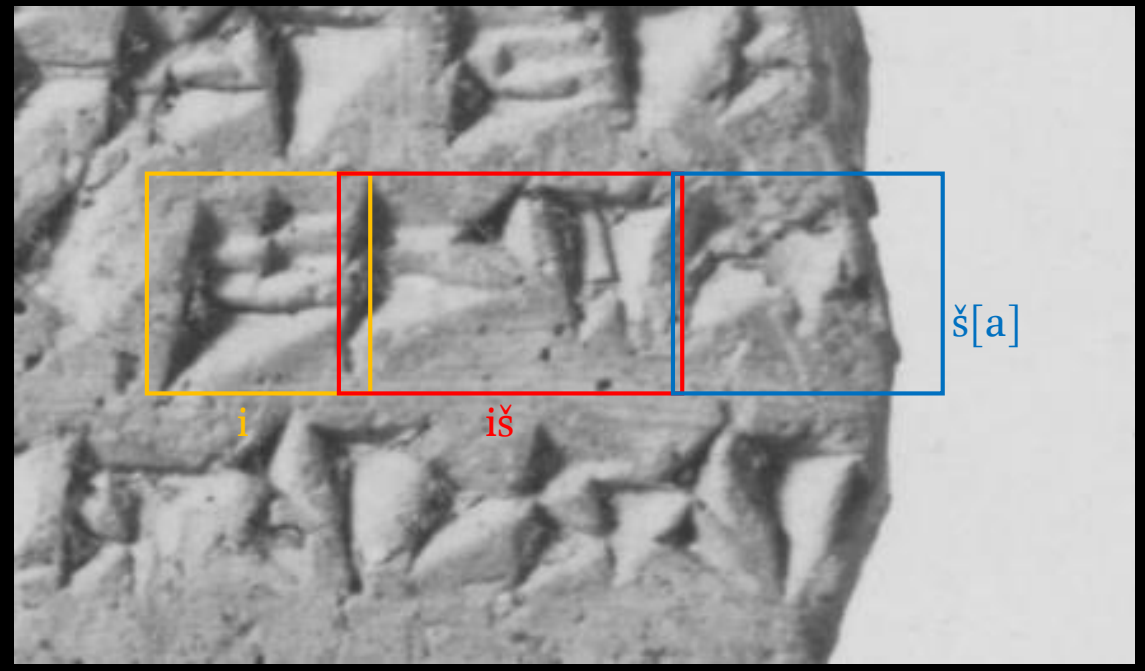
No phonological information = not a token!

The data set (3)

<u>Broken form example:</u>

KUB 32.9 rev. 9´

<i-iš-š[a-ra-(a?)-ti]>
’with the hand(s)’



ŠA 

If we cannot ascertain the spelling = not a token!

1	Form	Place	Date (I	Corpu	plene or n	stem	DCL meaning	other	comments
2	[an-na-r]u-um-ma-ḫi-<ta>-ti	*KUB* 35.16 i 11′	NS	CL		n_C		?	
3	a-an-na-ru-um-ma-ḫi-<ta> -ti:	*KBo* 29.3+*KUB* 35.45 ii 8	MS?	CL		n_C		x	
4	[an-na-r]u-um-ma-ḫi-ta-(ti)	*KBo 29.6(+)KUB 35.70* i 4′	NS	CL		n_C		?	
5	an-na-ru-um-ma-ḫi-ta-ti	*KBo* 29.55(+)*KUB* 35.43(+)35.56 ii 38.	NS	CL		n_C		n	
6	[(a)-an-na-ru-um-ma]-(a)-ḫi-<ta>-ti	KBo 29.9 Ro 1	NS	CL		n_C		x	
7	a-a-la-la-at-ta-ti	KUB 35.24+35.20(+)32.12(+)35.22(+)35.25 obv 8′	MS	CL		i_noun	?	x	
8	a-a-la-a-ti	KUB 35.54 iii 18	MS		plene	i_adj	distant, far	x	
9	a-a-la-ti	KUB 35.102(+)103(+)KBo 39.179 iii 11	MS			i_adj		x	
10	a-la-ti:	*KBo* 4.11 obv. 24	NS	CL		i_adj		n	difficult to verify, on edge
11	a-la-ti	*KBo* 4.11 rev. 46.	NS	CL		i_adj		n	
12	a-(la)-a-ti	*KUB* 25.37+51.9+35.131+132 ii 36′	NS	CL	plene	i_adj		n	
13	[a]n-ni-ia-ti	*KUB* 35.92+Kbo 9.146+39.258 obv. 29	NS	HT		i_adj	maternal	n	
14	[ap-pa-r]a-an-ta-ti	*KBo* 9.143 iii 14′	MS	CL		i_adj	future	?	
15	[a-a]p-ra-an-da-ti	*KUB* 32.8(+)5 iv 15′	NS	CL		i_adj		?	
16	EGIR-(pa-ra)-an-ta-t[i]	*KUB* 35.21+32.9+32.11 rev. 13′	MS	CL		i_adj		n	
17	[a-ar-r]a-ia-ti	*KUB* 32.8(+)5 iv 33′	NS	CL		i_adj	long	?	
18	a-ar-ra-ia-ti	KUB 35.21+32.9+32.11 rev. 13′	MS	CL		i_adj		x	
19	a-ar-ra-ia-ti	KUB 35.24+35.20(+)32.12(+)35.22(+)35.25 obv. 35′	MS	CL		i_adj		x	
20	(a)-ar-ra-(ia-ti)	*KBo* 29.55(+)*KUB* 35.43(+)35.56 ii 40.	NS	CL		i_adj		x	hard to read, but non-plene v
21	a-<ar>-ra-ia-a-ti	*KUB* 35.16 i 11′	NS		plene	i_adj		x	
22	(a)[-ar-r]a-a-(ia)-t[i]	KUB 35.44 ii 10′	NS	CL		i_adj		x	
23	a-a-ra-ti	*KBo* 9.143 iii 14′	MS	CL		i_noun	time	x	
24	(a-ra)-a-ti	*KUB* 35.16 i 12′	NS		plene	i_noun		x	
25	[a-](a)-ra-a-ti	*KBo* 29.55(+)*KUB* 35.43(+)35.56 ii 39	NS	CL	plene	i_noun		?	
26	[ar-pu-w]a-na-ti	*KUB* 35.33(+)*KBo* 29.20 iii 7′	NS	CL		n_C	forehead (of	?	
27	[ar-pu-w]a-na-a-ti	*KUB* 35.42:2′	NS	CL	plene	n_C		?	
28	ar-pu-wa-na-a-ti	*KBo* 29.55(+)*KUB* 35.43(+)35.56 ii 13	NS	CL	plene	n_C		n	
29	[ar-pu-w]a-na-a-ti	*KBo* 34.247+*KUB* 34.62+32.14 iii 8′	NS	CL	plene	n_C		?	
30	S]I$^{?}$-na-ti	Kbo 29.36 LC 4′	MS	CL		n_C		sum	
31	a-ru-ta-ti	*KBo* 12.100 obv. 9	LNS	HT		i_noun	wing	n	i-mut from HL aruti- 'basket'
32	a-ru-ta-ti	*KBo* 12.100 rev. 5′	LNS	HT		i_noun		n	
33	(a-ru-ú-da)-ti	*KBo* 12.100 rev. 1′	LNS	HT?		i_noun		x	
34	[a?-a]d-du-wa-la-ti	KUB 35.21+32.9(+)32.11 rev. 32′	MS	CL		i_adj	evil (adj)	?	space ambiguous if initial a-
35	[a?-ad-]du-wa-la-ti	KUB 35.21+32.9(+)32.11 rev. 32′	MS	CL		i_adj		?	space ambiguous if initial a-
36	ad-du-wa-la-ti	KUB 35.21+32.9+32.11 obv. 17′	MS	CL		i_adj		n	
37	[a?-ad-d]u-wa-la-ti	KUB 35.26 LC 10′	NS	CL		i_adj		?	

Basic stats

Total attestations:	233
Total plene endings:	66
Percentage of plene endings:	~28%

Test 1: Chronology

Texts from Hattusa can be **dated** with some degree of accuracy on the basis of sign forms

OS (Old Script) > Middle Script (MS) > New Script (NS) > Late NS (LNS)

Plene spelling in Hittite known to decrease through time (Kimball 1999: 55)

Important to not skew analysis with diachronic differences!

Test 1: Chronology (2)

Chi-Square test of independence

Following the datings of the *Konkordanz*

Only one OS attestation: <wa-a-ar-ḫu-wa-aš-ša-a-ti> (KUB 35.93+ obv.! 7′)

	MS	NS	LNS	
Plene ending	22	35	5	62
Non-plene ending	51	91	10	152
	73	126	15	214

Test 1: Chronology (2)

Chi-Square test of independence

Following the datings of the *Konkordanz*

Only one OS attestation: <wa-a-ar-ḫu-wa-aš-ša-a-ti> (KUB 35.93+ obv.! 7′)

	MS	NS	LNS	
Plene ending	22	35	5	62
Non-plene ending	51	91	10	152
	73	126	15	214

X^2 (2, N = 214) = 0.3 p = 0.860708 > 0.05 not significant!

Test 2: Stem type

Different PA **stems** had different accentuation patterns

Perhaps **stem type** can condition lengthening the ABL/INS?

Test 2: Stem type

Different PA **stems** had different accentuation patterns

Perhaps **stem type** can condition lengthening the ABL/INS?

However, **first note**: virtually **all stem classes** have at least **one** ABL/INS form with a plene spelled ending!

- *i*-mutated nominal stems: <ḫar-ma-ḫa-a-ti> 'head' (KUB 35.25(+) rev. 7′)
- *i*-mutated adjectives: <tu-ú-l[i-ya-aš-ša]-a-ti> 'of the assembly' (KBo 29.3+KUB 35.45 iii 8′)
- *a*-stems: <^{GIŠ}ḫa-at-ta-ra-a-ti> 'warren hoe' (KUB 35.54 ii 33′)
- neuter consonantal stems: <[ḫ]a-ap-pí-ša-a-ti> 'limb' (KUB 35.51 iii 11′)

Test 2: Stem type (2)

But it may still be worth to see if one category is overrepresented

-> let's do another Chi-Square… (only stems with discernible stem type included)

	C-stem (n.)	*i*-adj.	*i*-noun (c.)	*a*-noun (c.)	
Plene ending	18	10	18	4	50
Non-plene ending	34	69	15	10	128
	52	79	33	14	178

Test 2: Stem type (2)

But it may still be worth to see if one category is overrepresented

-> let's do another Chi-Square… (only stems with discernible stem type included)

	C-stem (n.)	*i*-adj.	*i*-noun (c.)	*a*-noun (c.)	
Plene ending	18	10	18	4	50
Non-plene ending	34	69	15	10	128
	52	79	33	14	178

$X^2\ (3, N = 178) = 21.85$ $p = 0.00007 < 0.05$ significance!

What's the deal with *i*-mutated nouns?

Overrepresentation comes mainly in *i*-mutated nouns!

Observed ratio: 18 : 15

Null-ratio: 9 : 24

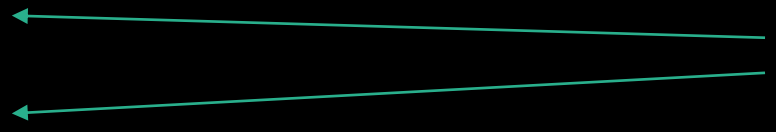
What's the deal with *i*-mutated nouns?

Overrepresentation comes mainly in *i*-mutated nouns!

Observed ratio: 18 : 15 Null-ratio: 9 : 24

Class is actually result of **merger** of several PA stem classes: (Norbruis 2018)

- Common gender *o*-stem nouns (thematic)
- Common gender *i*-nouns
- Common gender C-stems



Accent mobility conceivable!

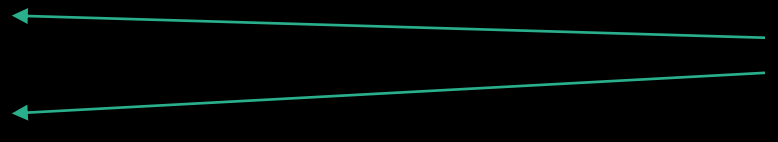
What's the deal with *i*-mutated nouns?

Overrepresentation comes mainly in *i*-mutated nouns!

Observed ratio: 18 : 15 Null-ratio: 9 : 24

Class is actually result of **merger** of several PA stem classes: (Norbruis 2018)

- Common gender *o*-stem nouns (thematic)
- Common gender *i*-nouns
- Common gender C-stems



Accent mobility conceivable!

So let's check where the stems with plene ABL/INS come from!

What's the deal with *i*-mutated nouns?

• *āri-* 'time'	2 : 1, 33%	< ?
• (!) *hamsi-* 'grandchild'	2 : 0, 100%	< mobile
• *harmahi-* 'head'	3 : 2, 60%	< probably not mobile
• *harri-* 'grindstone'	1 : 0, 100%	< ?
• (!) *īssari-* 'hand'	3 : 1, 75%	< *for sure* originally mobile!

(cf. e.g. Schindler 1967: 244ff.; Rieken 1999: 278ff.; Kloekhorst 2013: 114f.)

• *manna(hu)w(a)nni-* 'nose'	3 : 2, 60%	< mobile suffix
• *tāwani-* 'stalk, stem (?)'	2 : 0, 100%	< ?
• *tūri-* '(pointy weapon)'	1 : 1, 50%	< ?
• *ussi-* 'year'	1 : 0, 100%	< oxytone?

The non-*ahit* neuter C-stems

The data for neuter C-stems may be contaminated by common subtype of abstract stems in *-ahit-*, e.g. *huitwalahit-* 'life'

These **never have plene** in ABL/INS ending! (probably static accent *-áhit-*)

The non-*ahit* neuter C-stems

The data for neuter C-stems may be contaminated by common subtype of abstract stems in *-ahit-*, e.g. *huitwalahit-* 'life'

These **never have plene** in ABL/INS ending! (probably static accent *-áhit-*)

If we remove the *ahit*-stems…

57% of all tokens are plene spelled

vs. *ahit*-stems Fischer exact $p = 0.000001 < .05$

Worth a check

The non-*ahit* neuter C-stems

- *arpuwa(r/?)n-* ’forehead’ 3 : 1, 75% < ?
- (!) *happis-* ’limb’ 6 : 1, 86% (or 7 : 0!) < ?
- (!) *mallit-* ’honey’ 3 : 0, 100% (but same tablet) < mobile!
- (!) *battur/n-* ’mortar’ 1 : 0, 100% < maybe!
- (!) *tāīn-* ’oil’ 1 : 2, 33% < mobile!
- *tītīt-* ’pupil (of the eye)’ 4 : 0, 100% < ?

Synthesis

So what do with this?

Synthesis

Some stems are often spelled plene and could have been accented on ending

e.g. *īssari-* ’hand’ (etymology), *happis-* (consistency)

Synthesis

Some stems are often spelled plene and could have been accented on ending

e.g. *īssari-* 'hand' (etymology), *happis-* (consistency)

Are all plene endings likely to be accented? **No!**

cf. genitival adjectives in *-assa/i-* < **-osio-* (Palmér 2021: 191f.)

e.g. <[da-a-ta-ri-ia-a](m-na)-aš-ša-a-ti> (KBo 30.190 iii 2′)

<tu-ú-l[i-ya-aš-ša]-a-ti> (KBo 29.3+KUB 35.45 iii 8′)

*-assa/i-*stems: 3 : 27 (10%)

*-iya/i-*stems: 3 : 25 (11%)

Synthesis: Hypothesis 1

Hypothesis 1:

”The ABL/INS ending was long, i.e. /-aːti/, in *all or most* stems”

We find plene spelling in all well-represented stem classes, e.g.:

- *i*-mutated nominal stems: <ḫar-ma-ḫa-a-ti> ’head’ (KUB 35.25(+) rev. 7′)
- *i*-mutated adjectives: <tu-ú-l[i-ya-aš-ša]-a-ti> ’of the assembly’ (KBo 29.3+KUB 35.45 iii 8′)
- *a*-stems: <^{GIŠ}ḫa-at-ta-ra-a-ti> ’warren hoe’ (KUB 35.54 ii 33′)
- neuter consonantal stems: <[ḫ]a-ap-pí-ša-a-ti> ’limb’ (KUB 35.51 iii 11′)

Optionality of plene spelling > lack of plene = simply unwritten length

Supporting evidence 1: Lycian

Lycian ABL/INS ending = *-e/adi*

Lycian has **widespread syncope**!

Syncope in **CVd** = attested

cf. e.g. *pddẽ*(*n*)- 'flatlands' < **pedóm* (Melchert 1994: 319; Réveilhac 2021: 562)

Supporting evidence 1: Lycian

Lycian ABL/INS ending = *-e/adi*

Lycian has **widespread syncope**!

Syncope in **CVd** = attested

cf. e.g. *pddẽ*(*n*)- 'flatlands' < **pedóm* (Melchert 1994: 319; Réveilhac 2021: 562)

But no ABL/INS with syncope of *e/a*!

Potential explanation = long vowels in Proto-Luwo-Lycian!

Supporting evidence 2: Hieroglyphic Luw.

Vertegaal (2018: 180f.) has found three ABL/INS forms in the hieroglyphic corpus with length-indicating plene spelling on the ending

- <MALUS-la/i-a-ti> 'with malice' (ALEPPO 2 §24)
- <wa/i-su-*SARMA*-ma-a-ri+i> PN (SULTAHAN §45)
- <kwa/i-a-ti> 'with what' (BOYBEYPINARI 2 §4a-b)

Supporting evidence 2: Hieroglyphic Luw.

Vertegaal (2018: 180f.) has found three ABL/INS forms in the hieroglyphic corpus with length-indicating plene spelling on the ending

- <MALUS-la/i-a-ti> 'with malice' (ALEPPO 2 §24)
- <wa/i-su-*SARMA*-ma-a-ri+i> PN (SULTAHAN §45)
- <kwa/i-a-ti> 'with what' (BOYBEYPINARI 2 §4a-b)

These could be understood as reflecting the length found in cuneiform!

Supporting evidence 2: Hieroglyphic Luw.

Vertegaal (2018: 180f.) has found three ABL/INS forms in the hieroglyphic corpus with length-indicating plene spelling on the ending

- <MALUS-la/i-a-ti> 'with malice' (ALEPPO 2 §24)
- <wa/i-su-*SARMA*-ma-a-ri+i> PN (SULTAHAN §45)
- <kwa/i-a-ti> 'with what' (BOYBEYPINARI 2 §4a-b)

These could be understood as reflecting the length found in cuneiform!

Conclusion: Hypothesis 1 (long ending) stands

Synthesis: Hypothesis 2

Hypothesis 2:

”Some endings inherited the accent, i.e. /-á꞉ti/, reflected in a stronger preponderance towards plene spelling”

Can account for statistical significance in **stem type-test**

> *i*-mutated nouns & non-*ahit* C-stem neuters are largely **populated** by stems with **inherited mobility**

Synthesis: Hypothesis 2 (2)

Hypothesis 2 has a phonetic basis

accented endings [-**áːti**] have stronger articulation

> higher frequency of explicit writing (plene)

non-accented endings are still long [-**aːti**]

> licenses occasional plene spelling

Synthesis: Hypothesis 2 (2)

Hypothesis 2 has a phonetic basis

accented endings [**-áːti**] have stronger articulation

> higher frequency of explicit writing (plene)

non-accented endings are still long [**-aːti**]

> licenses occasional plene spelling

The **Relative Frequency Hypothesis:**

”A scribe writing Luwian, faced with a syllable with a long *and* accented vowel, is relatively more likely to spell the vowel plene than when faced with a syllable containing a long and *unaccented* vowel”

Supporting evidence 1: Typology

In languages which have **long/short vowels** and **stress accent**, stressed long vowels are typically phonetically **longer** than unstressed long vowels, e.g. in:

- Aleut (Eskimo-Aleut)
  16% longer (151 vs. 130 ms) (Rozelle 1997)
- Latvian (Baltic, Indo-European)
  24% longer (262 vs. 212 ms) (Bond 1991: 138)
- Finnish (Uralic)
  14% longer 152 vs. 133 ms (Suomi & Ylitalo 2004)
- Samoan (Austronesian)
  39% longer 237 vs. 171 ms (Zuraw et al. 2014)

Supporting evidence 2: *ādduwāl(i)-*

To test the Relative Frequency hypothesis, we need a stem that:

1. Is relatively well attested
2. Has two long vowels
3. We can independently establish which vowel was accented

Supporting evidence 2: *ādduwāl(i)-*

To test the Relative Frequency hypothesis, we need a stem that:

1. Is relatively well attested
2. Has two long vowels
3. We can independently establish which vowel was accented

Enter: *ādduwāl(i)-* 'evil, bad' + derived noun *ādduwāl-* 'evil'

< **h₁éd$^{(h)}$uolo-*

(Starke 1990: 60 n. 118; Rieken 1999: 446-448; Kloekhorst 2014: 577f.; Sasseville eDiAna-ID 2515)

Supporting evidence 2: *ādduwāl(i)-*

*ādduwāl(i)- < *$h_1$éd$^{(h)}$uolo-*

1. 58 attestations

Supporting evidence 2: *ādduwāl(i)-*

*ādduwāl(i)- < *$h_1$éd$^{(h)}$uolo-*

1. 58 attestations
2. Both *a*-vowels = long, per plene spelling

    cf. e.g. <a-ad-du-wa-a-[al]> (KUB 9.6 ii 2; LNS)

Supporting evidence 2: *ādduwāl(i)-*

ādduwāl(i)- < **h*$_1$*éd*$^{(h)}$*uolo-*

1. 58 attestations
2. Both *a*-vowels = long, per plene spelling
   cf. e.g. <a-ad-du-wa-a-[al]> (KUB 9.6 ii 2; LNS)
3. The first *a*-vowel must be accented
   1. Čop's law T > TT / *é*_ (Čop 1970)
   2. Lengthening of initial *á* < **é* (Melchert 1994: 263)

Supporting evidence 2: *ādduwāl(i)-*

*ādduwāl(i)- < *$h_1$éd$^{(h)}$uolo-*

Prediction: First *a*-vowel plene spelling > second *a*-vowel plene spelling

Supporting evidence 2: *ādduwāl(i)-*

ādduwāl(i)- < **h₁éd$^{(h)}$uolo-*

Prediction: First *a*-vowel plene spelling > second *a*-vowel plene spelling

Borne out by the data!

First *-ā-*: 22 : 22 (50%)

Second *-ā-*: 11 : 34 (24%)

X^2 (1, N = 89) = 6.2276 p = .012577 < .05, significant

Supporting evidence 2: *ādduwāl(i)-*

ādduwāl(i)- < **h₁éd$^{(h)}$uolo-*

Prediction: First *a*-vowel plene spelling > second *a*-vowel plene spelling

Borne out by the data!

First *-ā-*: 22 : 22 (50%)

Second *-ā-*: 11 : 34 (24%)

X^2 (1, N = 89) = 6.2276 p = .012577 < .05, significant

Conclusion: Relative Frequency Hypothesis and Hypothesis 2 (accent on some endings) stands

Mobile stems on basis of ABL/INS

Difficult to postulate accented endings for a given stem with few attestations,
but following items fairly plausible:

happis- ´'limb, member'	< *$*h₂ép-(is) : *h₂p-(i)s-´*	6 : 1, 86% (or 7 : 0!)
hamsi- 'grandchild'	< *$*h₂éms-s : *h₂ms-´*	2 : 0, 100%
īssari- 'hand'	< *$*ǵʰés-r : *ǵʰs-r-´*	3 : 1, 75%
arpuwa(r/?)n- 'forehead'	< *$*´-ur : *-un-´*	3 : 1, 75%
mallit- 'honey'	< *$*mél-it : *ml-it-´*	3 : 0, 100%
tītīt- 'pupil (of the eye)'	< ?	4 : 0, 100%
12-*t(a/i?)-* 'twelve'	< *$*-ént- : *-nt-´*	7 : 0, 100%

Mobile stems on basis of ABL/INS

Difficult to postulate accented endings for a given stem with few attestations,
but following items fairly plausible:

happis- ´'limb, member'	< *$h_2$ép-(*is*) : *h_2p-(*i*)s-´	6 : 1, 86% (or 7 : 0!)
hamsi- 'grandchild'	< *$h_2$éms-s : *$h_2$ms-´	2 : 0, 100%
īssari- 'hand'	< *ǵ^{h}és-r : *ǵ^{h}s-r-´	3 : 1, 75%
arpuwa(*r*/?)*n-* 'forehead'	< *´-*ur* : *-un-´	3 : 1, 75%
mallit- 'honey'	< *mél-it : *ml-it-´	3 : 0, 100%
tītīt- 'pupil (of the eye)'	< ?	4 : 0, 100%
12-*t*(*a*/*i*?)- 'twelve'	< *-ént- : *-nt-´	7 : 0, 100%

Note absence of *tāīn-* 'oil'! (1 : 2, 33%)

Conclusions

Conclusions

1. In the Cuneiform Luwian corpus, plene spelling in the ABL/INS ending occurs in 28% of attestations.

Conclusions

1. In the Cuneiform Luwian corpus, plene spelling in the ABL/INS ending occurs in 28% of attestations.
2. **Palaeographic chronology** has no bearing on the distribution of plene spelling.

Conclusions

1. In the Cuneiform Luwian corpus, plene spelling in the ABL/INS ending occurs in 28% of attestations.
2. **Palaeographic chronology** has no bearing on the distribution of plene spelling.
3. Stem type has significant predictive power on plene spelling in the ending, particularly in:
    a) Nominal *i*-mutated stems
    b) Neuter C-stems not belonging to the subcategory of abstracts in *-āhit-*

Conclusions

1. In the Cuneiform Luwian corpus, plene spelling in the ABL/INS ending occurs in 28% of attestations.
2. **Palaeographic chronology** has no bearing on the distribution of plene spelling.
3. Stem type has significant predictive power on plene spelling in the ending, particularly in:
   a) Nominal *i*-mutated stems
   b) Neuter C-stems not belonging to the subcategory of abstracts in *-āhit-*
4. These classes are largely populated etymologically **mobile** stems > could have retained **synchronic mobility**

Conclusions

1. In the Cuneiform Luwian corpus, plene spelling in the ABL/INS ending occurs in 28% of attestations.
2. **Palaeographic chronology** has no bearing on the distribution of plene spelling.
3. Stem type has significant predictive power on plene spelling in the ending, particularly in:
   a) Nominal *i*-mutated stems
   b) Neuter C-stems not belonging to the subcategory of abstracts in *-āhit-*
4. These classes are largely populated etymologically **mobile** stems > could have retained **synchronic mobility**
5. Other etymologially **barytone** stems, e.g. *-assa/i-* and *-iya/i-*, also show occassional ending plene spellings, albeit less often (~10%) > ending was **long**, i.e. **/-a:ti/**
   1. Supported by **Lycian** and **hieroglyphic** evidence
   2. Relative frequency supported by *ādduwāl(i)-* 'evil, bad'

References

Bond, D. (1991). Vowel and word durations in Latvian. *Journal of Baltic Studies*, *22*(2), 133–144.

Čop, B. (1970). Eine luwische orthographisch-phonetische Regel. *indogermanische Forschungen*, *75*(1), 85–96.

eDiAna: Digital Philological-Etymological Dictionary of the Minor Ancient Anatolian Corpus Languages. URL: https://www.ediana.gwi.uni-muenchen.de/ [accessed 14.06.2024]

Kloekhorst, Alwin. (2013). Indo-European nominal ablaut patterns: The Anatolian evidence. In Olander, T., Keydana, G, Widmer, P. (eds.) *Indo-European Accent and Ablaut* (pp. 107-128). Copenhagen: Museum Tusculanum Press.

Kloekhorst, Alwin (2014). *Accent in Hittite. A study in plene spelling, consonant gradation, clitics, and metrics*. Wiesbaden: Harrassowitz.

Kimball, Sara E. (1999). *Hittite historical phonology*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.

Košak, Silvin (2002–2022). *Konkordanz der hethitischen Keilschriftafeln. Online-Datenbank*. Mainz: Akademie der Wissenschaften und der Literatur. Available at http://hethport.uni-wuerzburg.de/hetkonk/ (accessed 16 June 2023)

Melchert, H. Craig (1994). *Anatolian Historical Phonology*. Amsterdam: Rodopi.

Melchert, H. Craig (forthcoming). *Dictionary of Cuneiform Luwian.*

Norbruis, Stefan (2018). The origin and spread of the 'i-mutation' paradigm and the prehistory of the Luwic nominal stem classes. *Historische Sprachforschung*, *131*(1), 11-45.

References

Palmér, Axel I. (2021). The Hieroglyphic Luwian genitive case. *Indogermanische Forschungen*, *126*(1), 167-204.

Réveilhac, F. (2021). Geminate Consonants in Lycian. A twofold interpretation. In A. Payne, r. Velhartická, & J. Wintjes (Eds.), *Beyond All Boundaries. Anatolia in the First Millennium BC* (pp. 551–575). Leuven – Paris – Bristol, CT: Peeters

Rieken, Elisabeth (1999). *Untersuchungen zur nominalen Stammbildung des Hethitischen*. Wiesbaden: Harrassowitz Verlag.

Rieken, E. (2017b). Word-internal plene spelling with <i> and <e> in Cuneiform Luwian texts. *Journal of Language Relationship*, *15*(1-2), 19–30.

Rozelle, L. (1997). The effect of stress on vowel length in Aleut. *UCLA Working papers in Phonetics*, *95*, 91–101.

Schindler, Jochem (1967). Tocharische Miszellen. *indogermanische Forschungen 72*, 239-249.

Starke, F. (1990). *Untersuchung zur Stammbildung des keilschrift-luwischen Nomens*. Wiesbaden: Harrassowitz Verlag.

Suomi, K., & Ylitalo, R. (2004). On durational correlates of word stress in Finnish. *Journal of Phonetics*, *32*(1), 35–63.

Vertegaal, Alexander J. J. (2018). Signs of length. *Indogermanische Forschungen*, *123*(1), 159-210.

Zuraw, K., Kristine, M. Y., & Orfitelli, R. (2014). The word-level prosody of Samoan. *Phonology*, *31*(2), 271–327.

Thank you!

Historical scenario

Ending for ablauting *i*-stems = PA **-eio-di*

Sequence PA **-eio-di* contracts to PL **-ōdi*

Historical scenario

Ending for ablauting *i*-stems = PA **-eio-di*

Sequence PA **-eio-di* contracts to PL **-ōdi*

**-ōdi* > Luw. /-aːti/, Lyc. *-edi* (irrespecive of accentuation)

→ generalisation to other stems, e.g. *o*-stems

(*a*-stems **-eh2* = always long, oxytone stems < **-ódi* = always long)

Historical scenario

Phase:	**1**		**2**		**3**		**4**
C-stems: amphi/hysterodynamic							
NOM.SG	**-s/ø*	>	**-s/ø*	>>	**-is*	=	**-is*
ABL/INS	**-ódi*	>	**-ő́di*	=	**-ő́di*	=	**-ő́di*
***i*-stems: proterodynamic**							
NOM.SG	**ʹ-i-s*	>	**-is*	=	**-is*	=	**-is*
ABL/INS	**-éi-odi*	>	**-ő́di*	=	**-ő́di*	=	**-ő́di*
***i*-stems: retracted accent**							
NOM.SG	**ʹ-i-s*	>	**-is*	=	**-is*	=	**-is*
ABL/INS	**ʹ-ei-odi*	>	**-ōdi*	=	**-ōdi*	=	**-ōdi*
***o*-stems: barytone**							
NOM.SG	**ʹ-os*	>	**-os*	=	**-os*	>>	**-is*
ABL/INS	**ʹ-odi*	>	**-odi*	=	**-odi*	=	**-odi*