



UNIVERSITY OF  
CAMBRIDGE

Association for Written Language and Literacy  
Ассоциация письменного языка и письменности  
Ενωση για τη γραπτή γλώσσα και τη βασική εκπαίδευση  
书面语言和识字协会  
Association for Written Language and Literacy

# Diversity and Variation

## in the writing systems of Bronze Age Greece

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Mycenaean Epigraphy Group, Cambridge

AWLL 12

26<sup>th</sup> March 2019

Cambridge

# Writing Systems of Bronze Age Greece



Map: Google Earth

# Writing Systems of Bronze Age Greece

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## Linear A

1800-1450 BCE

Undeciphered: 'Minoan'



# Writing Systems of Bronze Age Greece

## Linear A

1800-1450 BCE

Undeciphered: 'Minoan'



## Linear B

1400-1200 BCE

Deciphered: Greek



Photos: PE 1 <https://www.ancient-greece.org/archaeology/zakros.html>  
KN E 777, Ashmolean Museum

## Linear B: uniformity or diversity?



- “In spite of their number and of their chronological and geographic remoteness these tablets are strikingly similar in the form of writing adopted” [1]
- “The epigraphy of the tablets is remarkably uniform in all palatial assemblages” [2]

Map created with Antiquity À-la-Carte <http://awmc.unc.edu/wordpress/alacarte/>

[1]: A. Morpurgo-Davies, in *id.* & Y. Duhoux (eds), *Linear B: A 1984 Survey* (1985), p.84

[2]: S. Ferrara, in E.J. Bakker (ed.), *A Companion to the Ancient Greek Language* (2010). p.21

# The Linear B syllabary

a 𐀀	e 𐀁	i 𐀂	o 𐀃	u 𐀄	a <sub>2</sub> /ha/ 𐀅	a <sub>3</sub> /ai/ 𐀆	au 𐀇
da 𐀈	de 𐀉	di 𐀊	do 𐀋	du 𐀌	dwe 𐀍	dwo 𐀎	
ja 𐀏	je 𐀐		jo 𐀑				
ka 𐀒	ke 𐀓	ki 𐀔	ko 𐀕	ku 𐀖			
ma 𐀗	me 𐀘	mi 𐀙	mo 𐀚	mu 𐀛			
na 𐀜	ne 𐀝	ni 𐀞	no 𐀟	nu 𐀠	nwa 𐀡		
pa 𐀢	pe 𐀣	pi 𐀤	po 𐀥	pu 𐀦	pu <sub>2</sub> /p <sup>h</sup> u, bu?/ 𐀧	pte 𐀨	
qa 𐀩	qe 𐀪	qi 𐀫	qo 𐀬				
ra 𐀮	re 𐀯	ri 𐀰	ro 𐀱	ru 𐀲	ra <sub>2</sub> /rya, lya/ 𐀳	ra <sub>3</sub> /rai, lai/ 𐀴	ro <sub>2</sub> /ryo, lyo/ 𐀵
sa 𐀷	se 𐀸	si 𐀹	so 𐀺	su 𐀻			
ta 𐀽	te 𐀾	ti 𐀿	to 𐁀	tu 𐁁	ta <sub>2</sub> /tya/ 𐁂	twe 𐁃	two 𐁄
wa 𐁆	we 𐁇	wi 𐁈	wo 𐁉				
za 𐁊	ze 𐁋		zo 𐁌				

\*18 𐀭  
\*49 𐀮  
\*79 𐀯

\*19 𐀰  
\*56 𐀱  
\*82 𐀲

\*22 𐀳  
\*63 𐀴  
\*83 𐀵

\*34 𐀶  
\*64 𐀷  
\*86 𐀸

\*47 𐀹  
\*65 𐁀

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a 𐀀	e 𐀁	i 𐀂	o 𐀃	u 𐀄	a <sub>2</sub> /ha/ 𐀅	a <sub>3</sub> /ai/ 𐀆	au 𐀇
da 𐀈	de 𐀉	di 𐀊	do 𐀋	du 𐀌	dwe 𐀍	dwo 𐀎	
ja 𐀏	je 𐀐		jo 𐀑				
ka 𐀒	ke 𐀓	ki 𐀔	ko 𐀕	ku 𐀖			
ma 𐀗	me 𐀘	mi 𐀙	mo 𐀚	mu 𐀛			
na 𐀜	ne 𐀝	ni 𐀞	no 𐀟	nu 𐀠	nwa 𐀡		
pa 𐀢	pe 𐀣	pi 𐀤	po 𐀥	pu 𐀦	pu <sub>2</sub> /p <sup>h</sup> u, bu?/ 𐀧	pte 𐀨	
qa 𐀩	qe 𐀪	qi 𐀫	qo 𐀬				
ra 𐀭	re 𐀮	ri 𐀯	ro 𐀰	ru 𐀱	ra <sub>2</sub> /rya, lya/ 𐀲	ra <sub>3</sub> /rai, lai/ 𐀳	ro <sub>2</sub> /ryo, lyo/ 𐀴
sa 𐀶	se 𐀷	si 𐀸	so 𐀹	su 𐀺			
ta 𐀻	te 𐀼	ti 𐀽	to 𐀾	tu 𐀿	ta <sub>2</sub> /tya/ 𐁀	twe 𐁁	two 𐁂
wa 𐁃	we 𐁄	wi 𐁅	wo 𐁆				
za 𐁇	ze 𐁈		zo 𐁉				

\*18 𐀱  
\*49 𐀶  
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\*56 𐀷  
\*82 𐁄



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\*63 𐀶  
\*83 𐀶

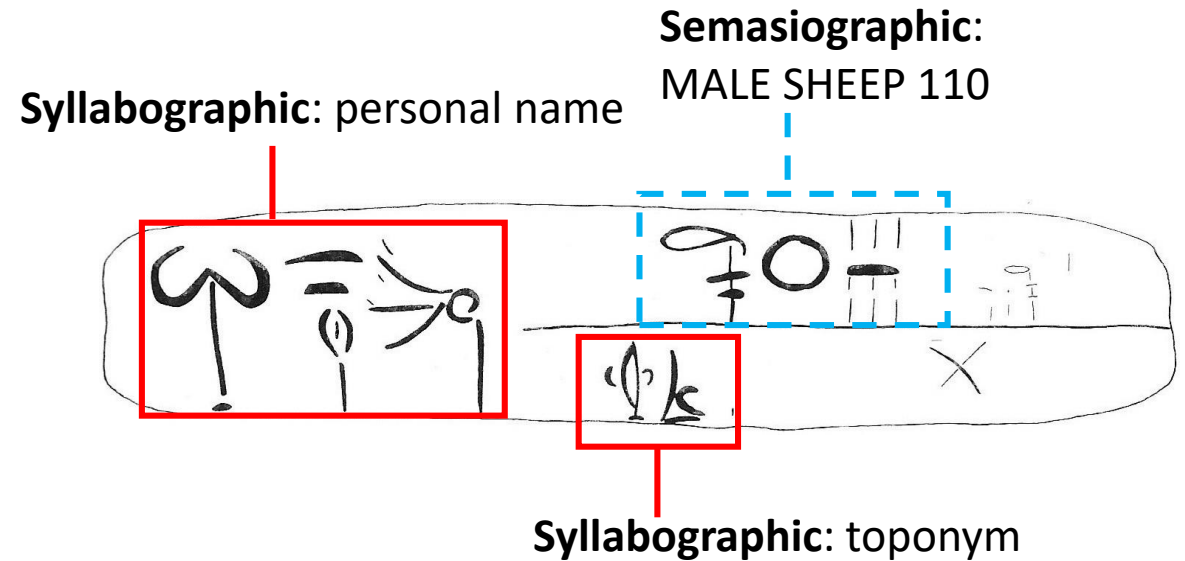
\*34 𐀴  
\*64 𐀴  
\*86 𐀴

\*47 𐀶  
\*65 𐀶

Knossos only | Pylos only



# The Linear B sematograms

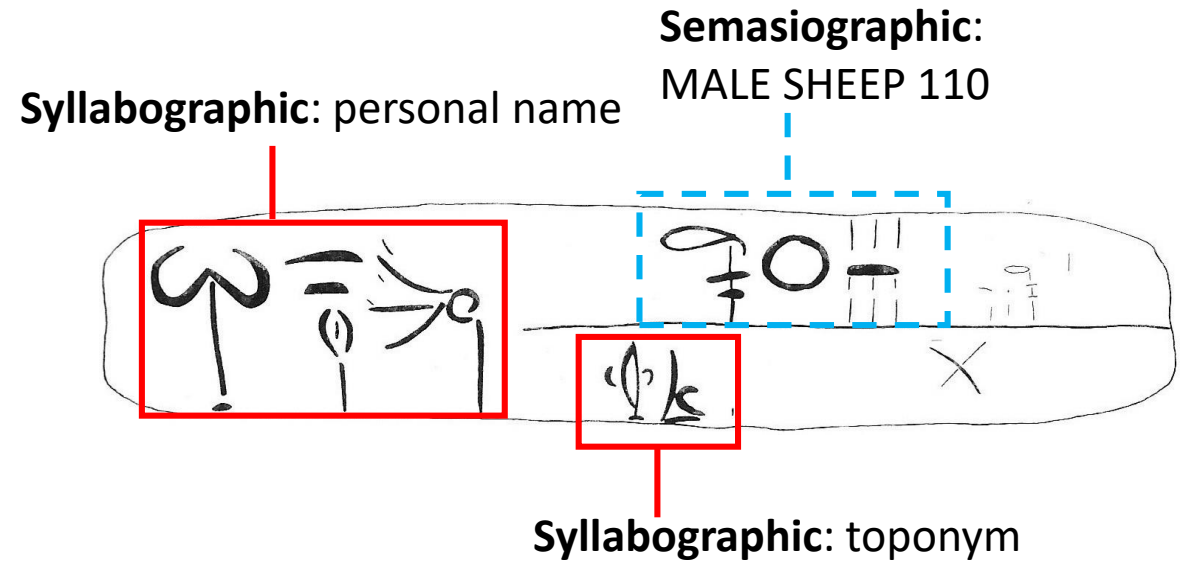
- Signs denoting objects being counted:
  - E.g.  'HORSE',  'BRONZE'
- Also numerals, weight/measure signs, punctuation, etc.





# The Linear B sematograms

- Signs denoting objects being counted:
  - E.g.  'HORSE',  'BRONZE'
- Also numerals, weight/measure signs, punctuation, etc.



- 25% of sematograms found at multiple sites = basic/core repertoire
- 75% found at only one site = local expansions on core repertoire

See V. Petrakis in M.-L. Nosch & H. Landenius Enegren (eds), *Aegean Scripts* (2017)  
Drawing: **KN Da 1098**, *Corpus of Mycenaean Inscriptions from Knossos II* (1990)

## Linear B orthography

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- Consistency in complex rules re. representation of /CC/ clusters:

**Plene spelling:**  $\langle C_1V_1-C_2V_1 \rangle = /CCV/$ , e.g. *ko-to-na* /*ktoina*/ 'plot of land'

**Partial spelling:**  $\langle CV \rangle = /CCV/$ , e.g. *wo-do-we* /*wordowen*/ 'rose-scented'

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- But ‘built-in’ variation between ‘extra’ and ‘core’ signs
  - E.g. /p<sup>h</sup>u/ = *pu* ~ *pu*<sub>2</sub>
  - /pte/ = *pe-te* ~ *pte*

(See A.P. Judson, forthcoming in *Written Language & Literacy*)

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- Cf. different choices e.g. in spelling non-Greek words:

- *e-pa-sa-na-ti* (woman’s name, Pylos Hand 1) ~ [[e]] > *i-pa-sa-na-ti* (Hand 41)

# Linear B palaeography

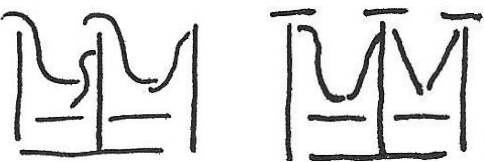
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- Increasing use of palaeographic variation to date texts, esp. at Knossos
  - Most recently: R. Firth & C. Skelton in *Minos* 2016
- Assumptions:
  - 1) chronological significance to variation
  - 2) easily identifiable processes of development – generally simplification over time

# Linear B palaeography

\*22 

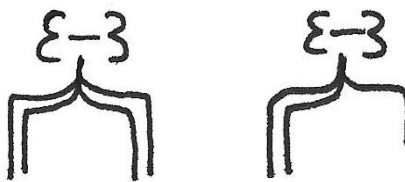
\*34 

\*63 

\*64 

\*65 

\*82 

\*83 

# The Cretan context



- **Relationship between Linear A and Linear B**
  - 1) Palaeographical & Phonological analysis (shared signs)
  - 2) Structural analysis
  - 3) Palaeographical analysis
- **Diversity & variation within Linear A**
  - 1) Structural analysis
  - 2) Palaeographical analysis

# LA > LB:

# 1) Palaeographical & phonological analysis

LB Core Syllabary

	<i>a</i>	<i>e</i>	<i>i</i>	<i>o</i>	<i>u</i>
<i>Ø</i>	a	e	i	o	u
<i>d</i>	da	de	di	do	du
<i>j</i>	ja	je	-	jo	ju?
<i>k</i>	ka	ke	ki	ko	ku
<i>m</i>	ma	me	mi	mo	mu
<i>n</i>	na	ne	ni	no	nu
<i>p</i>	pa	pe	pi	po	pu
<i>q</i>	qa	qe	qi	qo	-
<i>r</i>	ra	re	ri	ro	ru
<i>s</i>	sa	se	si	so	su
<i>t</i>	ta	te	ti	to	tu
<i>w</i>	wa	we	wi	wo	-
<i>z</i>	za	ze	-	zo	-

## Homomorphic and/or Homophonic signs

LB Additional Syllabary

	<i>a-series</i>			<i>labialised group</i>			<i>yodised group</i>			<i>aspirated stop?</i>
	aspiration	ai-diphthong		au-diphthong						
	/ha/	/ai/	/Cai/	/au/	/Cwa/	/Cwe/	/Cwo/	/Cya/	/Cye/	
<i>a</i>	a <sub>2</sub>	a <sub>3</sub>		au						
<i>d</i>						dwe	dwo			
<i>n</i>					nwa					
<i>p</i>									pte?	pu <sub>2</sub> (/p <sup>h</sup> u/ < /b <sup>h</sup> u/)
<i>r</i>		ra <sub>3</sub> (PY)						ra <sub>2</sub>		ro <sub>2</sub>
<i>t</i>						twe? (KN)	two (PY H43)	ta <sub>2</sub> ?		

LB Undeciphered Signs

<i>Undeciphered signs</i>	<i>Place of attestation</i>
*18	KN
*19	KN, PY, TH
*22	KN, TH
*34 (= *35)	KN, PY, TH
*47	KN, HV
*49	KN
*56	KH, KN, PY, TH
*63	PY, TH
*64	KN, PY
*65	KN, MY, PY, TH
*79	KN, MY, PY
*82	KN, MY, PY
*83	KN, PY
*86	KN, PY
*89	KN



LA > LB:

# 1) Palaeographical & phonological analysis

LB Core Syllabary

	<i>a</i>	<i>e</i>	<i>i</i>	<i>o</i>	<i>u</i>
<i>∅</i>	a	e	i	o	u
<i>d</i>	da	de	di	do	du
<i>j</i>	ja	je	-	jo	ju?
<i>k</i>	ka	ke	ki	ko	ku
<i>m</i>	ma	me	mi	mo	mu
<i>n</i>	na	ne	ni	no	nu
<i>p</i>	pa	pe	pi	po	pu
<i>q</i>	qa	qe	qi	qo	-
<i>r</i>	ra	re	ri	ro	ru
<i>s</i>	sa	se	si	so	su
<i>t</i>	ta	te	ti	to	tu
<i>w</i>	wa	we	wi	wo	-
<i>z</i>	za	ze	-	zo	-

## New signs in LB

LB Additional Syllabary

	<i>a-series</i>			<i>labialised group</i>			<i>yodised group</i>			<i>aspirated stop?</i>
	aspiration	ai-diphthong	au-diphthong							
	/ha/	/ai/ /Cai/	/au/	/Cwa/	/Cwe/	/Cwo/	/Cya/	/Cye/	/Cyo/	
<i>a</i>	a <sub>2</sub>	a <sub>3</sub>	au							
<i>d</i>				dwe	dwo					
<i>n</i>				nwa						
<i>p</i>							pte?			pu <sub>2</sub> (/p <sup>h</sup> u/ < /b <sup>h</sup> u/)
<i>r</i>	ra <sub>3</sub> (PY)						ra <sub>2</sub>		ro <sub>2</sub>	
<i>t</i>				twe? (KN)	two (PY H43)		ta <sub>2</sub> ?			

LB Undeciphered Signs

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LA > LB:

## 2) Structural analysis

### Structural level

**LB** = AB signs + B-only signs

**LA** = AB signs + A-only signs



# LA > LB:

# Structural Model

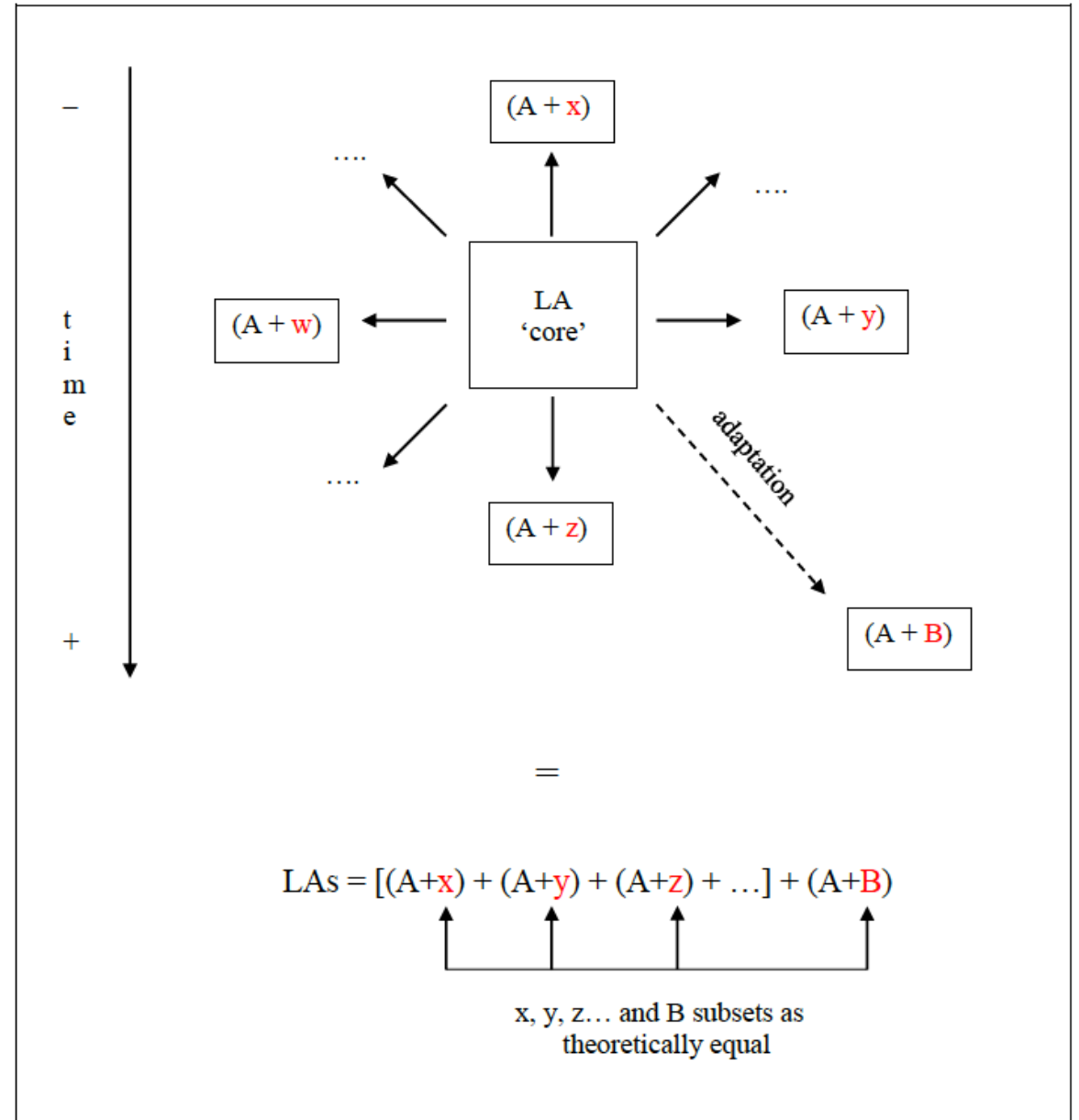
## Characterising Features

**AB 'core'** = set of signs shared within LA and between LA & LB

**A-only signs** } -----> site-restricted

**B-only signs** } -----> language-bound

= **subsets**



# LA > LB:

# Structural Model

## Characterising Features

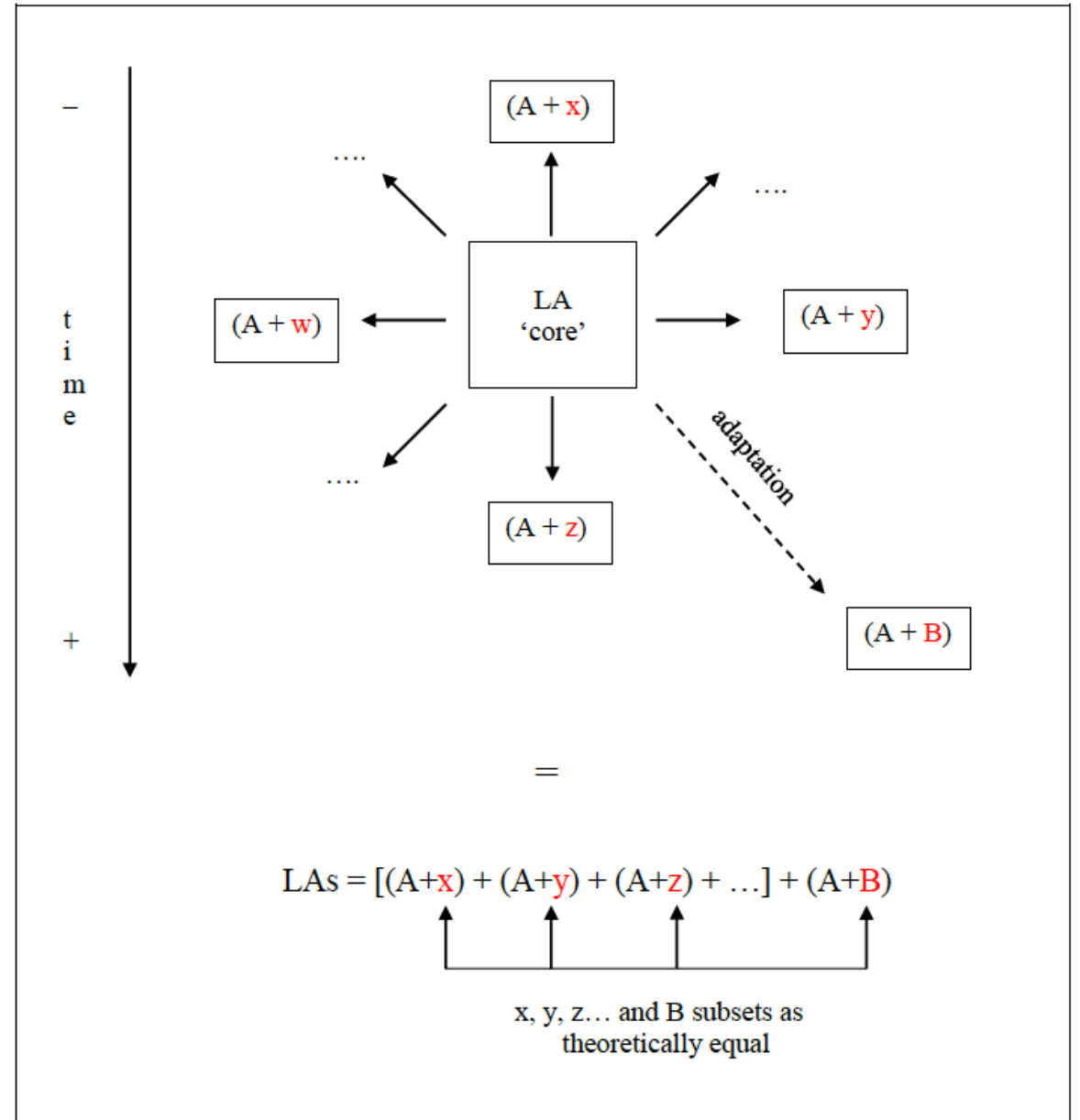
**AB 'core'** = set of signs shared within LA and between LA & LB



## Implications

For **'LA'**: not one, but many **'LA varieties'**

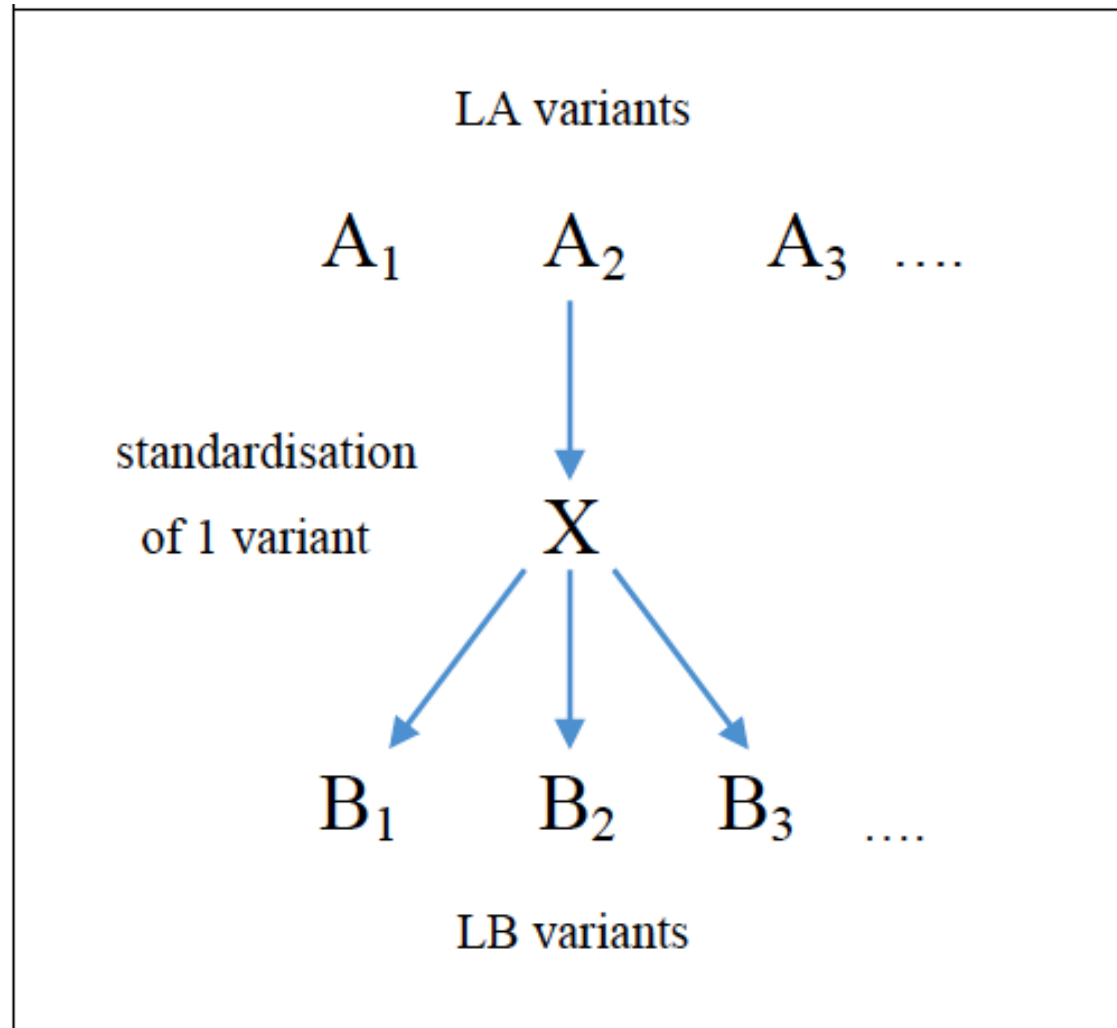
For **'LB'**: **LB** as a **chronologically later variety**,  
as developed at Knossos  
(to accommodate Greek)



LA > LB:

### 3) Palaeographical analysis

Current interpretative model: 'master sign model' (Driessen 2000)



LA > LB:

### 3) Palaeographical analysis

LA & LB sign variants distribution

Within LA

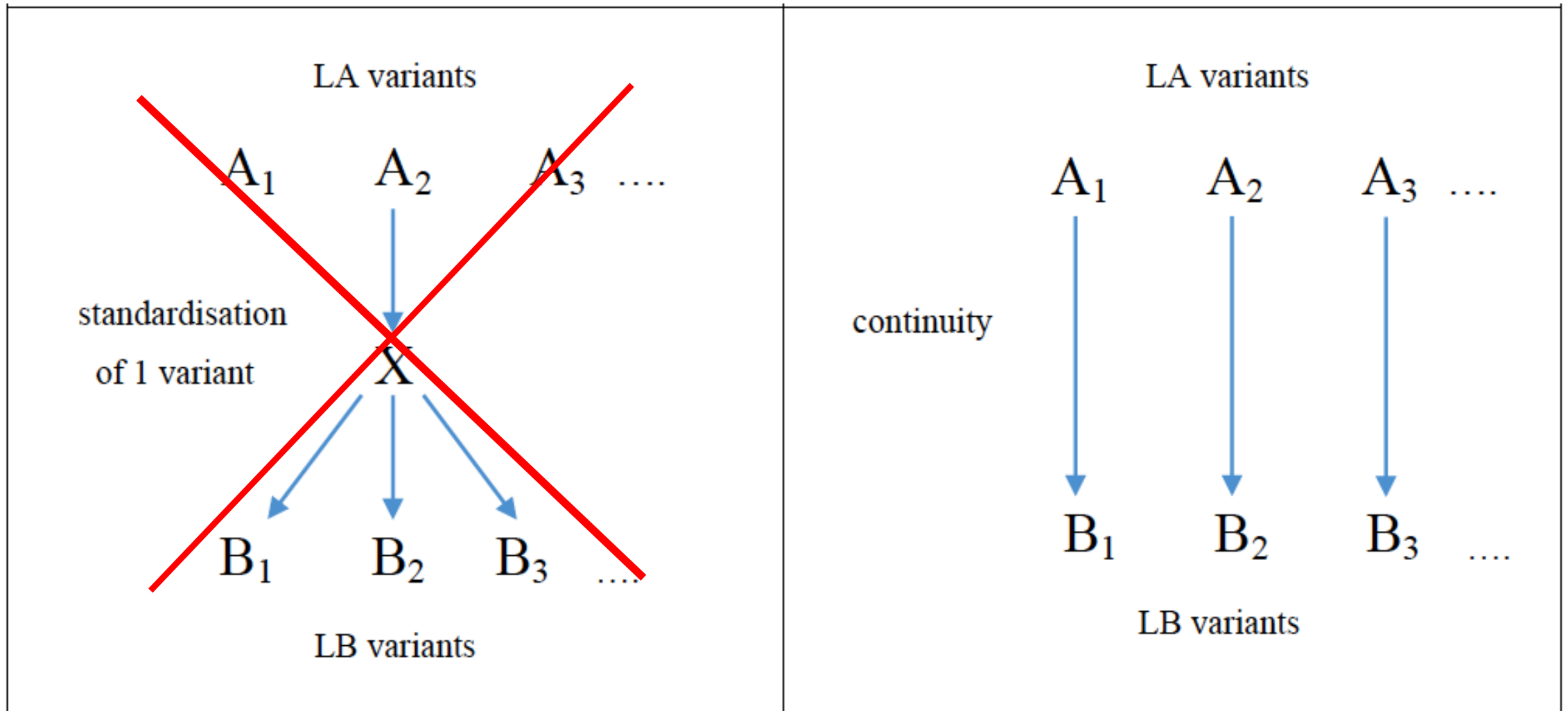
Between LA and LB

	Khania	Zakros	Arkhanes	Mallia		LA	LB
a					a		
na					na		
ni					ni		
ti					ti		

LA > LB:

# Palaeogeographical Model

'flow' of variants continued from LA into LB

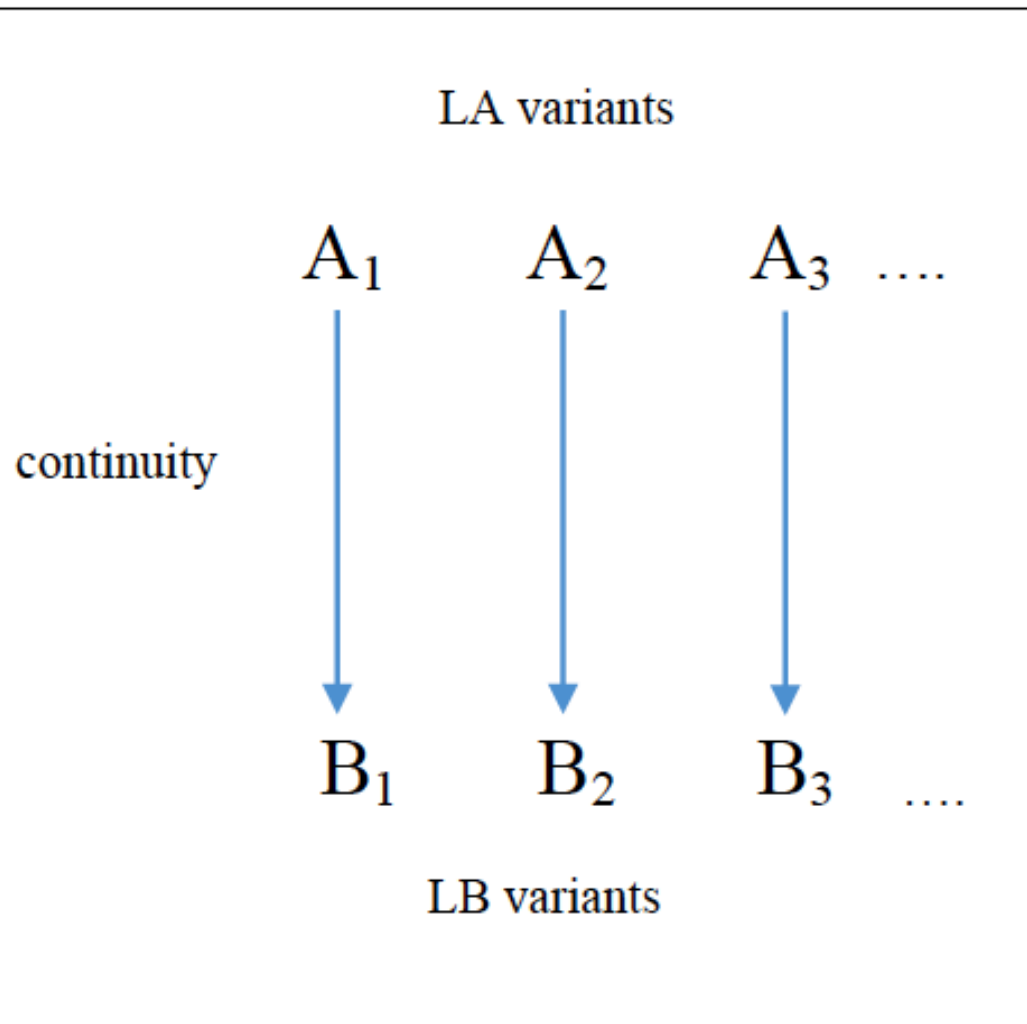




LA > LB:

## Palaeographical Model

'flow' of variants continued from LA into LB



### Implications

- **Palaeographical continuity**

No strong graphic standardisation process upon adaptation of the script to render Greek (LB)

- **Palaeography  $\neq$  chronology**

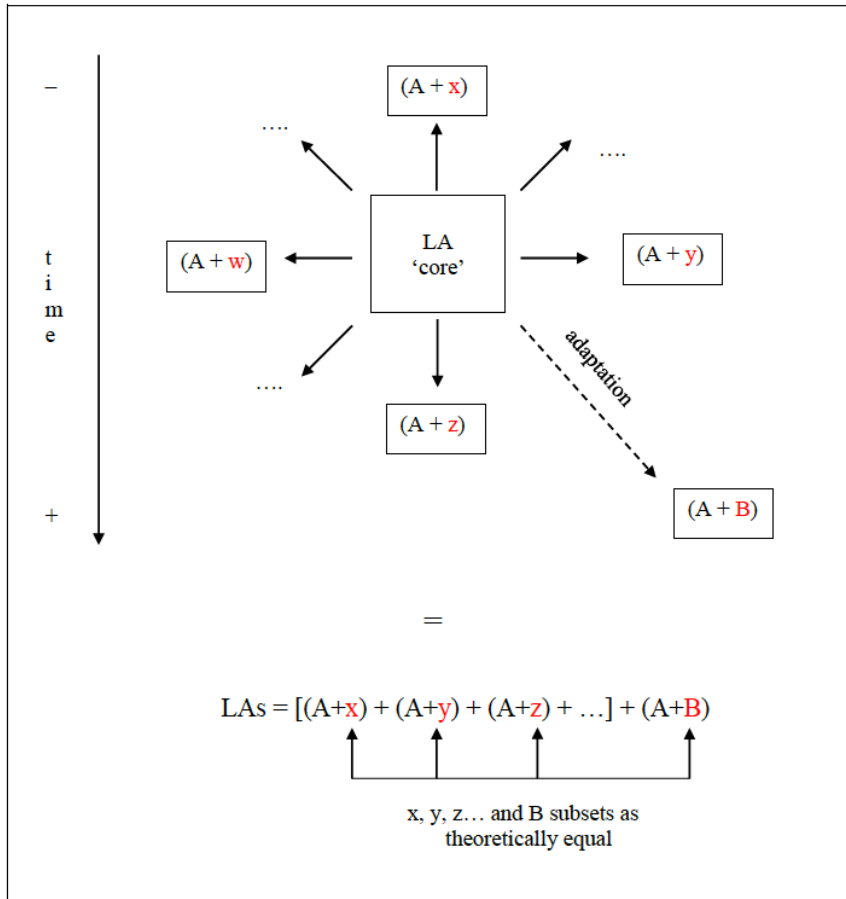
Palaeography not reliable enough tool for assessing chronological development, because variation in sign shape does not always have chronological significance

LA > LB:

# Structural + Palaeographical Model

LB conforms to the way LA is structured

**LB ∈ LAs**

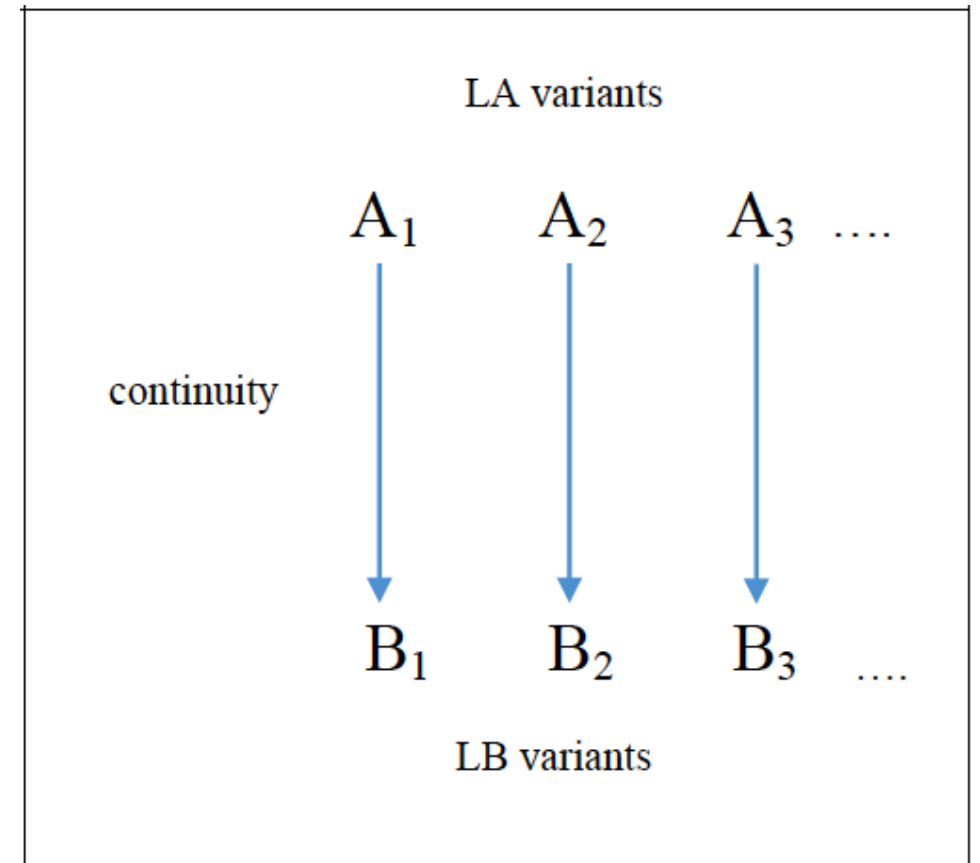


*continuity*

1

'Aegean Linear'  
Script

High graphic similarity +  
**continuation** of 'variants'



## Diversity and variation within LA

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- 1) **Structure:** Existence of local 'LAs' (LA varieties)
- 2) **Palaeography:** considerable palaeographical variation within LA (site-specific palaeography)

### Assess extent of local/regional variation in LA

- 3) **Language:** LA sign-sequences distribution & function/meaning (vocab distribution)
- 4) **Administrative practice:** local preferences (document type, ways of recording information)

## Concluding Remarks

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- LA(s) and LB **shared features**
  - Structural: core signs + local expansions
  - Palaeographical: high variation, same variants continued
- Less codification than assumed: **intra-systemic variation** (within LA & within LB)
  - LB: codification for spelling rules, but also individual preferences
  - LA? *terra incognita*
- Palaeography & Chronology?
  - Palaeographical variation: **palaeography no chronological tool** in either LA or LB
- Tension between **uniformity & diversity**

A A @ ] F

*e-u-ka-ri-to*

*Thank you!*