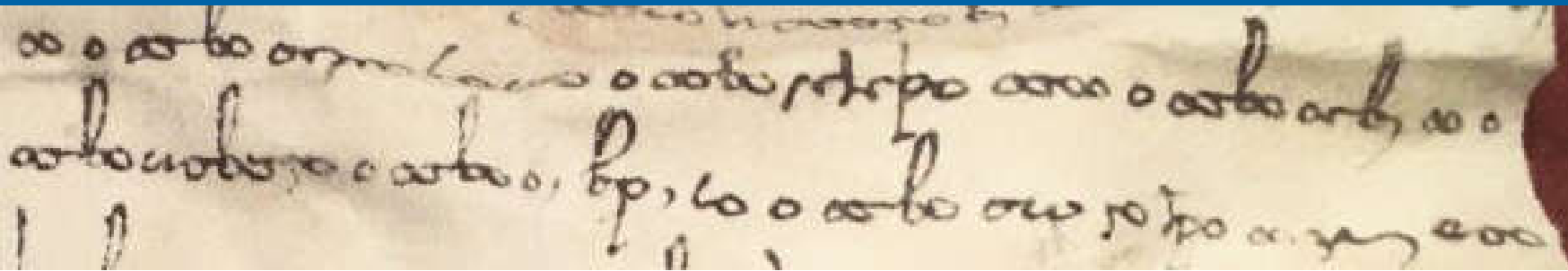


# O no!

## Final vowels in Bactrian



# Bactrian vowels

- Proto-Iranian vowels are essentially preserved in Bactrian
- The standard interpretation of the Bactrian phoneme systems is based on Sims-Williams

(Sims-Williams 1989: 233 and later works)

i	u	ī	ū
ə		ē	ō
a		ā	

α	a, ā, initial ə-
ε	e
η	ē
ι	i, ī, y
ο	u, ū, o, ə, w, Ø
ω	ō
ει	ī
ου	ū (and vowel + h)

# Word-final characteristics

Bactrian is well-known for its distinctive characteristic that all words almost invariably terminate with a vowel, typically written –<o>

- |             |                                                                                   |
|-------------|-----------------------------------------------------------------------------------|
| <b>bh1</b>  | <i>Αβο τητοκο αδοροφαρνιγανο χοηο ναζαρο βηοαρο λροδο</i>                         |
| <b>bh2</b>  | <i>ναμωσο ασο βορζομῖρο χαρανο χοβο μαρηγο οτανο οαλο βατα-</i>                   |
| <b>bh3</b>  | <i>ρανο καλδο αβο το χοηο χοαδο λρογο σηνανο μισιδο σαγωνδο το χο-</i>            |
| <b>bh4</b>  | <i>ηο ταρο λρογαδο οτο βιζγο αρμῶηιο ταδομο ναβισο τακαλδο ασο ι<sup>48</sup></i> |
| <b>bh5</b>  | <i>το χοηο λρογοαστανο οδο βιζγοαρμαστο ναγανανο ταδο χοζο βαδ-</i>               |
| <b>bh6</b>  | <i>ο βοιανο οτο αμαχο οιδρο ρωσο ραμο μαλο αβο αμαγγανο αρμα-</i>                 |
| <b>bh7</b>  | <i>ναμο ασιδο νιστο πηδαγο κοαδο βαοιαμο οτο αζο μαρο λρογημῶ α-</i>              |
| <b>bh8</b>  | <i>λο μηγοασπο οδο ιαβαρηγο ασοβαρο οδο ασπο οδο ασπασιγο ταδομ-</i>              |
| <b>bh9</b>  | <i>ο πιδο ι ναβιχτηιο κοαδο βαδο βοιηιο οτο μανο πιδο μιροβαμο α<sup>49</sup></i> |
| <b>bh10</b> | <i>βο ι χοηο χοανδο ταδοιηιο αβο βαγωωρομοζδο ναβιχτο κοαδο-</i>                  |
| <b>bh11</b> | <i>ιηιο νιρζαδο</i>                                                               |

Letter bh

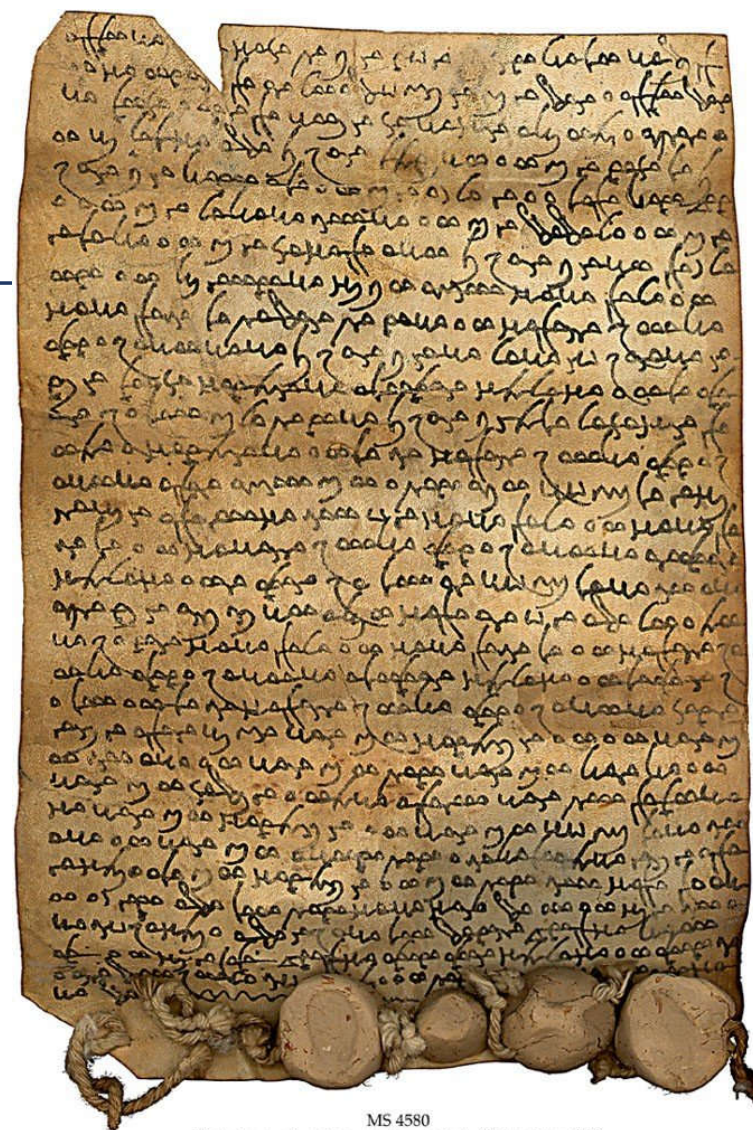
(Sims-Williams 2007: 67)

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 ΑΤΙΑΝΟΣ

# Final –<o>

- The standard view in the literature is that this –<o> is merely an **orthographic device** that signals a word boundary especially in the **cursive variety** of manuscriptal Bactrian
- This fits with the fact that here –<o> can be occasionally omitted after the similarly rounded graphemes <φ>, <ρ>, and <β>, which, again, ought to be due to “occasional graphic simplification”

(Sims-Williams 2007: 40)



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MS 4580  
Bactrian cursive documentary script. Afghanistan, 732

# Final –<o>

---

- The standard view in the literature is that this –<o> is merely an **orthographic device** that signals a word boundary especially in the cursive variety of manuscriptal Bactrian
  - Accordingly, final –<o> is often simply omitted when transcribing Bactrian word forms
-

# Scholarship 1970–1984

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Several scholars have, in contrast, stressed the nature of final –<o> as genuine vowel at least in the earlier stages of the language

- “a reduced vowel ə, phoneme or allophone”

(Morgenstierne 1970: 126)

- “il n’y a pas de raison de l’interpréter autrement que comme une voyelle postérieure arrondie, que l’on peut noter *u*”

(Lazard in Lazard / Grenet / de Lamberterie 1984: 224–226)

# Scholarship 2016–2022

- “while it [= final –o] marks the word-end in the manuscripts, it seems unlikely that it had no phonetic value whatsoever at the time when the script was adopted, and more likely that it marked a **labial vowel** at first” (Korn 2016: 421)
- at some point in “late proto-Bactrian”, this final labial vowel induced ***u*-umlaut** (Benvenuto / Bichlmeier 2022)

urir. \**pasu*- ‚Schaf‘ > frühurbaktr. \*/*pasu*/ > späurbaktr. >\*/*pasu*/  
[*posu*] > [*posə*] > baktr. ποσο /*pos*/;

# Scholarship 2024

- “In later Bactrian, the overwhelming majority of words ends in omicron, but the letter’s **use as a mere word divider** constitutes the final stage in a longer line of developments. It could well be that the omicron has its **base in phonological /-u/**, often going back to < \*-*am*, the acc.sg.m/n and nom.sg.n of the *a*-stems (cf. Sogdian -w /u/, as the marker of the acc.sg.m/n and nom.sg.n of the light stems). This **early** Kushan Bactrian -o /u/ was **later reduced to schwa** in final position and eventually served as a “**Wortschlußzeichen**” (Davary 1982: 240)” (Kreidl 2024: 208f.)

# Aim and content of the paper

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- Reappraisal of the evidence by taking into account the variation in the Bactrian corpus based on
    - date
    - materiality
    - and other features
-

# The Bactrian corpus

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- Manuscripts
    - 4<sup>th</sup> to 8<sup>th</sup> cent. CE
  - Monumental inscriptions, object/seal inscriptions, graffiti
    - early 2<sup>nd</sup> cent. CE, 3<sup>rd</sup>/4<sup>th</sup> and 8<sup>th</sup>/9<sup>th</sup> cent. CE
  - Coins
    - early 2<sup>nd</sup> to middle 4<sup>th</sup> cent. CE [from Kanishka I to Kipunadha]
  - Loan words in Khotanese, Tocharian, Sanskrit and Middle Indic
    - at least 2<sup>nd</sup> cent. CE to ?
  - Names in Achaemenid and Hellenistic documents
    - 4<sup>th</sup> – 2<sup>nd</sup> cent. BCE
-

# The Bactrian corpus

	Approx. date	Historical period	Textual evidence from Bactria in Greek-based alphabet			
			Textual evidence from Turfan / in Manichean script			
			Manuscripts	Inscriptions / graffiti	Coins	Side evidence
Old Bactrian	4 <sup>th</sup> – 2 <sup>nd</sup> c. BCE	Achaemenid / Hellenistic rule				
Early Bactrian	1 <sup>st</sup> /2 <sup>nd</sup> c. CE	Kushan Empire (heyday)				
	3 <sup>rd</sup> c. CE	Decline of Kushan Empire				
Standard Bactrian	4 <sup>th</sup> – 7 <sup>th</sup> c. CE	Sasanian, Kidarite and Hephthalite successor states				
Late Bactrian	8 <sup>th</sup> / 9 <sup>th</sup> (11 <sup>th</sup> ) c. CE	Muslim successor states				

# The Bactrian corpus

	Approx. date	Historical period	Textual evidence from Bactria in Greek-based alphabet			
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Old Bactrian	4 <sup>th</sup> – 2 <sup>nd</sup> c. BCE	Achaemenid / Hellenistic rule				✓
Early Bactrian	1 <sup>st</sup> /2 <sup>nd</sup> c. CE	Kushan Empire (heyday)		✓	✓	✓
	3 <sup>rd</sup> c. CE	Decline of Kushan Empire			✓	
Standard Bactrian	4 <sup>th</sup> – 7 <sup>th</sup> c. CE	Sasanian, Kidarite and Hephthalite successor states	✓	✓		
Late Bactrian	8 <sup>th</sup> / 9 <sup>th</sup> (11 <sup>th</sup> ) c. CE	Muslim successor states	✓	✓		✓

# Final vowels in Early Bactrian

In a few early texts, vowels other than –<o> are still attested, which in later texts are then represented by –<o> (recently Kreidl 2024)

## Final -α

- ❖ Feminine sg. forms of nouns, the article / demonstrative, and adjectives from Plr. nom.sg. \*-ā, a category given up in Standard Bactrian
- ❖ Old *ter*-stem πιδα, later पिदो ‘father’ < Plr. nom.sg. \*pitā
- ❖ Abl.sg. \*-ād > -α (Kreidl 2024), a category given up in Standard Bactrian
- ❖ Adverb μασκα, later मास्को ‘herein, thereupon’ < \*ima-uskād (Av. adv. *uskāt*)
- ❖ Adverb οιδρα, later ओद्रो ‘so long’ < \*witarād
- ❖ Adverb τα ‘then’ from Plr. stem \*tā-, as independent word given up in Standard Bactrian, there only attested as part of complex accentual units (-)τα-

# Bactrian finals in Early Bactrian

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## Final -ε

- ❖ Oblique noun sg. ending -ε beside -ι, replaced by the direct sg. ending in Standard Bactrian
- ❖ Direct noun pl. ending -ε beside -ι < \*-āh, replaced by oblique pl. ending in Standard Bactrian

# Bactrian finals in Early Bactrian

## Final -ι

Unlike -α and -ε, -ι is **still found in the later corpus**

- ❖ The monosyllabic article and Ezāfe marker ι < PIr. \*ya- is always spelled ι in the whole corpus though it can be argued that it functions as a proclitic
- ❖ Infinitive \*-tayay > Early Bactr. -δι, later -δο (no later ι-variants)
- ❖ Enclitic particle \*uti > Early Bactr. -δι, later -δο beside occasional variants in -δι in several adverbs
  - οτι ‘and, that’ > οτο and οτι, ταδι ‘so, thus’ > ταδο (no later ι-variant), κιδι ‘who’ > κιδο (no later ι-variant), etc.
- ❖ 3.sg. present ending -δι, later -δο < PIr. \*-ti (αστο ‘(s)he is’ < 3.sg. \*asti)
- ❖ 3.pl. present ending -νδι, later -νδο < PIr. \*-anti
- ❖ 3.sg. preterite ending -δι, alongside or replaced by later (?) -δο < verbal adjective stems in PIr. \*-ta-
- ❖ Direct sg. in -ι < \*-ah (Franchesca Michetti apud Bernard 2024: 56 and forthcoming)

# Variation in Early Bactrian

---

Even in the small corpus of inscriptions from the heyday of Kushan power we find **variation** with word-final vowels between inherited endings in  $-\iota$  and  $-\alpha$  and innovated  $-o$

➔ the spelling with omicron in word-final position can here also already be in the majority

---

# The Surkh Kotal inscription (SKM)

The Surkh Kotal building inscription (SKM) is

- dated into the second half of the 2<sup>nd</sup> century
- beside the official monumental monolith inscription there were **two contemporary copies** found at the same site containing the same text with variant spellings (= SKA and SKB)

(Lazard / Grenet / de Lamberterie 1984: 220f.; Humbach 2003; Härtel 2023: 118)

- notably, **version B** a number of more archaic spellings than A and M,
  - such as “κιδι ‘who’, σιδι ‘which’, οαστινδι ‘they were led’, where M and A have κιδο, σιδο, οαστινδο, “generalizing silent -o” (Humbach 2003: 161)
  - feminine forms in –α such as μα λιζα ‘this fortress’ vis-à-vis μα λιζο in versions A and M

# Variation in Early Bactrian

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However, even in the official monumental monolith inscription SKM,

- the feminine article / demonstrative **μα** **is still written** with  $-\alpha$  even though the respective nouns show  $-o$  as well
  - the **adverb** **τα** is still written with  $-\alpha$
  - the affiliation shows archaic spelling
  - and the plural form βαγε ‘gods’
-

# The Surkh Kotal inscription (SKM)

§1 ειδο μα λιζο μο κανηκο οανινδο βαγολαγγο σιδο ι βαγο ηαο κ  
 ανηκι ναμοβαργο κινδο §2 ταδιοο κεδο φορδαμο μα λιζο φρο  
 γινδο ταδηιο μανδαο αβο νιστο χοτο ασιδο μα λιζο αβαβγ  
 ο σταδο §3 οδο καλδο ασο λρουομινανο ιειρο σταδο ταδο ι βαγε  
 ασο ι νοθαλμο φροχορτινδο §4 ταδο αβο λραφο οαστινδο  
 αβο ανδηζο οτο μα λιζο πιδοριγδο §5 τα καλδο νοκ  
 ονζοκο ι καταλαγγο ι φρειχοαδηγο κινδο φρειστα  
 ρο αβο ηαο ι βαγοπουρο ι λοιχοβοσαο ι ηιζογαργο ι α  
 λοηχαλο κινδο φαο οισποανο μο οαδοβαργανο ω  
 σογδομαγγο πιδο ι ιωγο οδο υιρσο χηονο νεισανο μ  
 αο μαλο αγαδο αμο βαγολαγγο §6 ταδηιο μα λιζο πο  
 ρογατο ταδηιο ειμο σαδο κανδο οτηιο αβο οζοοαστο  
 οτηιο πιδο ασαγγε ιθο οιλινδο ατανο αβο μα λιζο φ

αρο καρανο αβο μα γασιο §7 οδο καλδανο ασο λρο  
 νομινανο ιειρο βοοηιο ταδανο ι βαγε ασο ι νοη  
 αλμο μα φροχοαβονδηιο οτανο μα λιζο μα πιδ  
 οριχηιο §8 οτηιο ασασκο μο σαδο αχρη  
 ριγιο κινδο αλβαργο ωσταδο ιθο ατο πιδ  
 εινο σαδο πιδεινο αχρητριγιο ναρουνο μα λ  
ιζο χουζο ποροοατο §9 οτο ειμο μο σαδο οδο μ  
 αητο χιργομανο κινδο αμο βορζομυρο αμο κο  
ζγαηκι πουρο αμο αστιλογανσειγι αμο νοκ  
ονζικι καταλαγγε μαρηγο πιδο ι χοαδηο φ  
 ρομανο §10 οτο ειμομανο νοβιχτο αμο μυρα  
μανο αμο βορζομυρο πουρο Mg1 αμυραμανο Mg2

Text / translation  
 Härtel 2023: 450f.

And this well and *mašto xirgo* were made by  
 me, Burzmihr the son of Kuzgashk, the  
 inhabitant of Astilgan, the servant of  
 Nukunzuk the lord of the marches, according  
 to the lord's command. And this (inscription)  
 was written by me, Mihraman the son of  
 Burzmihr: [monogram 1]. Mihraman:  
 [monogram 2]

# The Surkh Kotal inscription (SKM)

§1 ειδο μα λιζο μο κανηκο οανινδο βαγολαγγο σιδο ι βαγο ηαο κ  
 ανηκι ναμοβαργο κινδο §2 ταδιοο κεδο φορδαμο μα λιζο φρο  
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 ο σταδο §3 οδο καλδο ασο λρουομινανο ιειρο σταδο ταδο ι βαγε  
 ασο ι νοθαλμο φροχορτινδο §4 ταδο αβο λραφο οαστινδο  
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 ονζοκο ι καραλαγγο ι φρειχοαδηογο κινδο φρειστα  
 ρο αβο ηαο ι βαγοπουρο ι λοιχοβοσαρο ι ηιζογαργο ι α  
 λοηχαλο κινδο φαρο οισποανο μο οαδοβαργανο ω  
 σογδομαγγο πιδο ι ιωγο οδο υιρσο χηονο νεισανο μ  
 αο μαλο αγαδο αμο βαγολαγγο §6 ταδηιο μα λιζο πο  
 ρογατο ταδηιο ειμο σαδο κανδο οτηιο αβο οζοοαστο  
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αρο καρανο αβο μα γασηιο §7 οδο καλδανο ασο λρο  
 νομινανο ιειρο βοσηιο ταδανο ι βαγε ασο ι νοη  
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 ριγο κινδο αλβαργο ωσταδο ιθο ατο πιδ  
 εινο σαδο πιδεινο αχρητριγο ναρουγ μα λ  
ιζο χουζο ποροοατο §9 οτο ειμο μο σαδο οδο μ  
 αητο χιργομανο κινδο αμο βορζομινρο αμο κο  
ζγαηκι πουρο αμο αστιλογανσειγι αμο νοκ  
ονζικι καραλαργγε μαρηγο πιδο ι χοαδηο φ  
 ρομανο §10 οτο ειμομανο νοβιχτο αμο μινρα  
μανο αμο βορζομινρο πουρο Mg1 αμινραμανο Mg2

Text / translation  
 Härtel 2023: 450f.



Not random spellings but  
 linguistically sensitive

# Final vowels on Kushan coinage



KOIIANO

kopano

Heraios coin from the 1<sup>st</sup> cent. CE

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<https://coinindia.com/galleries-kanishka.html>

# Kushan coinage

- Bactrian script used on Kushan coins shows several deviations from inscriptional and manuscriptal Bactrian ([Härtel 2024: 111–112](#))
  - specific sign forms unattested in inscriptional and manuscriptal Bactrian (Arsakidian alpha)
  - specific sign forms attested earlier than in manuscriptal Bactrian deviating from concurrent inscriptions



# Object inscriptions

Inscription no. 1

ναρκασο καραλραγγο

ναρκασο καραλραγγο  
(*narkaso karalraggo*)  
“Narkas the *karalrang*”

Silver pyxis (around 195–225 CE)  
(Falk/Sims-Williams 2017)



# The evidence of loan words

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Relatively certain loan words in Tocharian B (recently Bernard 2025)

- TB *akālk* / *akālko* vis-à-vis αγαλγο ‘wish’ < \*ākālku
- TB *mālo* ‘wine’ vis-à-vis μολο ‘wine’ < \*mālu
- TB *sapule* ‘pot’ vis-à-vis σαβολο ‘cup’ < \*sabulə or \*sabuli (Schoubben apud Bernard 2025: 56)
- TB suffix *-īke* (*aṣanīke* ‘worthy, worthy one’) vis-à-vis (Schoubben apud Bernard 2025: 56)

# Conclusion early Bactrian

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- Final vowels **were persevered** in quality at least until the 2<sup>nd</sup> cent. CE
    - During the heyday of Kushan power when Bactrian were most prone to develop a centralized chancery standard (if any)
  - Different script types and different writing material do not have an impact the orthography on final vowels, the attestations are **linguistically significant**
  - Both the internal and external evidence suggest that final omicronat first rendered a **labial vowel -/u/**
  - **Variation** suggests that already in the 2<sup>nd</sup> cent. a process of merger of final vowels began, most likely into a **reduced schwa**
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# Final -<o> in Standard Bactrian

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- The main evidence for Bactrian comes from over 150 manuscripts with legal and economic content
  - A handful of fragments from the Tarim region show the same orthography as do
    - graffiti, even the late Tochi inscriptions
    - seals
    - object inscriptions
  - The unique textual testimony of a manuscript in Manichean script from Shorcuq does, however, not show final vowels
-

# Variants in Standard Bactrian

- The manuscript corpus is, however, likewise not uniform but shows **spelling variations**—sometimes even between two copies of the same text—as noted by Sims-Williams on several occasions in the text edition and in the grammatical sketch
- Variation in these documents with respect to phonology, morphology and lexicon is a focus of recent research, e.g.,
  - Fortification of (at least word-initial)  $w > /γ/$  (Schoubben 2023)
    - Standard Bactrian  $ολο$  ‘wife’ vis-a-vis  $γολο$  in (Uv4)  $< *wadū-$
  - Retention of the Old Iranian cluster  $*rn$  (Kreidl forthcoming)

# Variants Standard Bactrian

Few words end in *-ι* (apart from the article *ι* itself). In **xp** the fut. pt. ending is consistently written *-αγι*, though *-γο* is used in other words (*μαρηγο*, **xp3**; *φαραμαγο*, **xp17**). In **aa**, which is evidently one of the earliest documents, *-τι* is consistently written instead of *-το*, hence *οτι*, *αγγιτι*, *νιβοχτι*, etc.; cf. also *τι* in **cc**, *ναβιχτι* in **C**.<sup>6</sup> Some other documents, none later than **L**, habitually employ the spelling *-οι* (rather than *-ο* or *-οο*) for final [w] or [u]: *αγρηοι* and variants (**E-H**), *βοοι* (**xb**), *γαοι* (**aj**), *ζαοι* (**ch**, **xe**), *ιαοι* (**B-L**, **ci**), *ιαοαρδαοι* and variants (**H**, **ba**, **cq**, **eg**, **eh**, **xb**), *καραοι* (**cm**, **cp**), *λοι*, *λοοι* (**ci**, **eg**, **xh**), *ναβταοι* (**ba**), <sup>1</sup>*ταοι*, *ταοοι* (**B-L**, **ba**, **xl**, **xq**), <sup>2</sup>*ταοι* (**J**, **L**, **jc**), *τοι*, *τοοι* (**L**, **bf(?)**, **eg**, **xj**), *χοαραοι* (**ba**), *χοηοι* (**C**, **al**, **ci**, **cq**). Otherwise, final *-ι* occurs only in a few spellings which are obviously abbreviations, e.g. *δι* (**ac**) for *διναρο*, *παλγι* “inhabitant of Palag” (**cb**) for *\*παλγιγο*, *μαχιρσοβωστι* beside *μαχιρσοβωστιγο* “purchase contract” (**J**), *μορδδιδι* beside *μορδδιδιο* “dying” (**T**), *παδαχβανηι* beside *παδαχβανηιο* “you have authority” (**T**), *πιδδιδι* beside *πιδδιδιο* “at this” (**T**).

(Sims-Williams 2007: 40)

# Variation -<o> : -<ɪ>

- The consistent  $\tau\iota$ -variants in some manuscripts are “not attested in datable texts after c. 380 CE”

(Sims-Williams / de Blois 2018: 61)

- The obvious explanation of this word-final - $\iota$  must therefore be that there existed at least one Bactrian sociolect where a word-final -/i/ was spoken (or schwa perceived and rendered by - $\iota$ ) until the 4<sup>th</sup> century, in contrast to all the other sociolects that preferred at least to write a word-final -<o> that time

# Variation -<o> : -<ɪ>

- Another variation that has not received proper attention is the writing of the word-final sequence -/wi/ -oɪ in the Standard corpus until the end of the 7th century (in documents dated per Sims-Williams / de Blois 2018: 63), which was changed afterwards to -/wu/ -<oo>

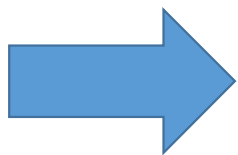


Once again, this is a phonologically straightforward rule that can be initially explained by blocking labialization in an environment that is already labial with a very late unification

# Conclusion

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- All these facts taken together suggest that there had occurred a real sound change by which all final vowels of accentual units had been weakened and turned into a shwa-like vowel
- Which then subsequently was identified either with /u/ <o> (Standard Bactrian) or with /i/ <ι> (in a Bactrian variety by a minority)
- After /w/, however, the shwa vowel was identified even by the speakers of Standard Bactrian rather as /i/ and not as /u/ and only finally turned into -/wu/ by a sound change that occurred at the end of the 7<sup>th</sup> century



When transliterating Bactrian forms, the final vowels ought to be spelled in any case!

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# Further speculation

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- Was Bactrian a basically **zero-coda language** in word-final position?
    - absence of phonological processes that specifically target coda consonants (like final devoicing, nasal assimilation to a following consonant) are absent
  - Many **Turkic** and Mongolic languages show a strong preference for words to end in a vowel or a very restricted set of single consonants suggesting a strong drive towards open syllables or a very restricted coda inventory at the word edge
  - The adherence of Bactrian to **both reduces but still keep a final (schwa) vowel** may thus be an **areal phenomenon**
-