

## Introduction to Tocharian

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### 1. Introduction

#### 1.1. Historical background and external history

##### 1.1.1. Discovery and documentation

TOCHARIAN is the conventional name for two related, extinct Indo-European (IE) languages known from documents found in the oases of the Tarim River basin north of the Taklamakan desert in Xinjiang (Chinese Turkestan).

general term	German alternatives	obsolete (see below)
Tocharian A (TA)	<i>Osttocharisch</i> (East Tocharian)	Turfanian
Tocharian B (TB)	<i>Westtocharisch</i> (West Tocharian)	Kuchean



A few Tocharian manuscripts were acquired by the Russian consuls Berezovskij and Petrovskij in Kašgar already in the 1890s, but the great bulk were uncovered by archaeological “missions” to Xinjiang in the years preceding World War I, led by

- Britain: Sir Aurel Stein
- Germany (Prussia): Albert von le Coq
- France: Paul Pelliot
- Japan: Count Ōtani Kōzui

In addition to a wealth of Middle Iranian documents, the expeditions brought back others in unknown languages, written in the “slanting” Brāhmī script of Central Asia. In 1908, the German philologists Emil Sieg and Wilhelm Siegling conclusively identified them as non-Indo-Iranian IE languages, which they labeled “Indo-Scythian”; they also succeeded in distinguishing TA and TB. These Western missions to China ceased with the outbreak of the war; other than Langdon Warner of Harvard University (U.S.), who led an expedition in the early 1920s, no Western scholars are known to have visited Xinjiang for the next few decades.

Current distribution of Tocharian manuscripts and state of publication (for details, see Malzahn 2007a, Pinault 2007):

#### Berlin

- All TA manuscripts (except for Yanqi fragments): published in Sieg and Siegling 1921
- TB manuscripts (Buddhist and secular): published in Sieg and Siegling 1949-53

#### Paris (Pinault 2007)

- TB manuscripts, mostly medicinal and magical texts: published by Lévi and Filliozat, but unreliable without Sieg’s extensive commentary and list of corrected readings
- TB secular documents from the Mission Paul Pelliot: caravan passes and cave graffiti published in Pinault 1987; other manuscripts in Bibliothèque Nationale being published by Pinault in a long series of articles

## London

- TB manuscripts in Weber, Stein, and Hoernle collections: published in Broomhead 1962 with translation, but without photographs (also no indication of provenience); new edition by Peyrot 2007, concordance in Peyrot 2007a

## St. Petersburg

- Petrovskij and Berezovskij collections, now being published by Burlak and Itkin, Pinault, Klaus T. Schmidt

## Tokyo

- manuscripts from the Ōtani collection, never systematically published

## Ürümqi

- TA fragments from Yanqi (YQ), discovered in Xinjiang in the 1970s: published in Ji et al. 1998

The manuscripts are dated to approximately the 6th to 8th cc. AD, but further chronological precision is difficult.

- The TA records were discovered in and around Turfan and Qarašahr and are entirely of Buddhist religious content; most are translations and/or adaptations of Sanskrit originals.
- TB documents were found across the northern Silk Road from Kuča in the west to Turfan in the east; the older name “Kuchean” (Fr. *koutchéen*) is thus inaccurate and best avoided. Most are Buddhist in content, but there is an important Manichean bilingual fragment in TB and Old Turkic (von Gabain and Winter 1958; see §2.2) which shows that that TB speakers also played a role in the diffusion of Manicheanism. A large number of secular records indicate that TB was the vernacular of at least part of the population in these areas in the later 1st millennium: in addition to monastery records, commercial letters, there are caravan passes, cave graffiti, and a solitary (bad) love poem. On variation in TB, see §1.3.

### 1.1.2. Who were the Tocharians?

The speakers of Tocharian played an important role in the Buddhist civilization of pre-Islamic eastern Central Asia, but their exact identity remains unknown. The name “Tocharian” rests mainly on the form *twγry* in an Old Uyghur colophon, but both the reading and the identification have been challenged. It seems certain that the speakers of TA and TB were not the “Tocharians” of antiquity (Strabon’s *Tόχαροι*; Skt. *Tukhāra*-).

Among the figures in the spectacular Buddhist cave paintings of the region are some with red hair and green or blue eyes, and many have speculated that these were the Tocharians. More recently, the discovery of red-haired, “Western”-looking mummies in the Taklamakan made headlines in the Western press in the mid-1990s, and much sensationalism — with thinly veiled racial overtones — over what “white people” or “Caucasians” were “doing” in China. The entire study of this region has become sadly politicized, and results of archaeological research have been abused to support Uyghur separatism! This has led to tension between Western and Chinese historians and other scholars of Central Asia, a state of affairs decried by the late Chinese Indologist Ji Xianlin. For our purposes this debate is irrelevant: after all, we cannot be sure which language(s) the famed mummies spoke. (See also Thursday’s lecture.)

Although the exact historical context of the two Tocharian languages and their speakers is not fully known, certain conclusions may be drawn from the texts. The classic paper of Lane (1963) is still worth reading.

- TA is remarkably uniform linguistically, and a number of facts suggest that it was no longer spoken at the time of the surviving manuscripts, but served as a sort of liturgical language among speakers of TB and Old Turkic.
- Extensive differences in Buddhist terminology between TA and TB (e.g. TA *mārkampal* vs. TB *pelaikne* ‘law, *dharma*’) indicate two different periods of Buddhist missionary activity in eastern Central Asia in early 1st millennium AD.
- Bilingual texts in TB and Sanskrit, one with inflectional forms of a noun; also TA texts with TB and Turkic glosses, TB texts with Turkic glosses
- The speakers of Tocharian (more precisely, TB) began to shift to Turkic in the later 1st millennium AD; the language was probably extinct by 1000.

## 1.2. History of Tocharian linguistic research

Early period (to the 1930s)

- The early pioneers in the study of Tocharian were SIEG and SIEGLING, along with Wilhelm SCHULZE in Germany; their publication of all the TA material in the Berlin collection in 1921 was followed by the classic *Tocharische Grammatik* (1931), still the first reference for TA descriptive grammar.
- The French Sanskritist Sylvain LÉVI (along with Antoine MEILLET) began publishing manuscripts in the Mission Paul Pelliot collection already before World War I, but their edition was rapidly surpassed in quality and quantity by the Berlin school. Along with Sieg and Siegling, Meillet drew the attention of Indo-Europeanists to a number of linguistic features of Tocharian.

Intermediate period (1930s to 1980s)

- The American Indo-Europeanist George Sherman LANE wrote several important articles on Tocharian historical phonology and morphology from the 1930s to the 1960s, and the great Danish Indo-Europeanist Holger PEDERSEN published the first historical grammar of Tocharian (Pedersen 1941).
- Prague's own Pavel POUCHA published several studies; his Latin-language TA dictionary (Poucha 1955), although not perfect, was until recently the only lexicon of that language.
- Walter COUVREUR published the first comparative grammar of Tocharian to fully take TB into account (Couvreur 1947) and edited many Paris manuscripts, but stopped working on Tocharian after the 1960s.
- The late Werner THOMAS of Germany studied with Sieg and published literally thousands of pages of research on various philological minutiae of Tocharian for a full half century after World War II.
- Beginning in the 1950s, the late Werner WINTER published dozens of almost uniformly excellent studies of Tocharian philology and historical linguistics: most of these have now been collected in Winter 2005.
- The Belgian scholar Albert Joris VAN WINDEKENS wrote innumerable articles and published an entire historical grammar and dictionary of Tocharian (van Windekens 1976-82), but his work is uncontrolled to say the least, and to be consulted only with the greatest caution.

## Contemporary period (1970s to present)

Tocharian studies have experienced a remarkable upswing since 1980, and the volume of scholarly literature now rivals that on established Indo-European branches.

- Major Tocharian specialists of the past generation include Klaus T. SCHMIDT, †Peter STUMPF, Olav HACKSTEIN, and Christiane SCHAEFER in Germany; †JÖRUNDUR Hilmarsson in Iceland; Douglas Q. ADAMS and Donald A. RINGE, Jr. in the U.S.; and Gerd CARLING in Sweden and Svetlana BURLAK in Russia.
- Georges-Jean PINAULT (École Pratique des Hautes Études, Paris) has been steadily publishing manuscripts in the Fonds Pelliot Koutchéen in the Bibliothèque Nationale in Paris, along with an impressive series of linguistic studies; see Pinault 1987 on the TB caravan passes and cave inscriptions, and Pinault 1989 and 2008, currently the best introductions to Tocharian grammar and texts.
- China's late, revered Ji Xianlin (born a German colonial subject in Qingdao in 1911!) collaborated with Schmidt and Pinault on the publication of the TA Yanqi fragments (Ji et al. 1998).
- More recently, Melanie MALZAHN (Vienna) has published many linguistic studies, including an absolutely indispensable monograph on the verb (Malzahn 2010).
- In addition to editing the Tocharian texts in the London collections (see §1.1), Michaël PEYROT has published an excellent study of variation in TB (Peyrot 2008) and a forthcoming monograph on the Tocharian subjunctive (see Peyrot 2010).
- Finally, leading Indo-Europeanists such as Jay JASANOFF, Gert KLINGENSCHMITT, Martin KÜMMEL, H. Craig MELCHERT, and Paul WIDMER have made important contributions to Tocharian historical linguistics.

Krause and Thomas's famed *Tocharisches Elementarbuch* (1960) contains a bibliography of all publications up to 1959; for the period 1960-1984, see Thomas 1985, with often idiosyncratic (and critical) commentary. Articles published since then are listed in the annual *Bibliographie Linguistique*; much, but not all recent literature is included in Pinault 2008. Malzahn 2007 is an invaluable guide to the (near-)current state of Tocharian philology and text publications.

### 1.3. General linguistic features

It cannot be overemphasized that TA and TB were distinct languages and certainly were not mutually intelligible. Nevertheless, TA and TB were structurally similar, characterized by right-headed constituent phrases, a system of agglutinating nominal case suffixes, and the central role of aspect and tense in verbal morphology. The two had doubtless been diverging for several centuries before the time of our documents, so that their latest reconstructible common ancestor, Proto-Tocharian (PT), must be dated to the last centuries BC.

The TB documents exhibit considerable **variation** on all levels.

- Based on certain phonological and morphological features, they have been divided into western, central, and eastern dialects (Winter 1955). However, vernacular TB sources (e.g. caravan passes or cave graffiti) mostly show “eastern” characteristics, so others argued that that these reflect chronological and/or sociolinguistic differences; see respectively Stumpf 1990 (originally written in 1977), Schmidt 1986.
- Peyrot (2008) is an exhaustive study of variation and change in TB, based on a much wider range of texts and improved knowledge of Tocharian paleography. It now appears that the variation in TB is primarily chronological, but naturally also conditioned by geographical and social factors. Classical TB was established as a literary language in Kucha by the sixth century, but continued to evolve under the influence of the spoken language; after the Chinese wars and destruction of the kingdom of Kucha in 648, literary activity shifted to Turfan, where scribes wrote in a language based largely on contemporary speech, and late documents from all locations show a numerous innovative features (R. Kim 2009c).
- Another source of variation is **poetic**: many forms in TB verse passages have been adjusted by one syllable to fit the meter, usually through optional but frequent deletion of stressed /ǎ/ (§3.3.3). Also characteristic of verse is *pudñäkte* ‘Buddha’ for prose *pañäkte*.

## 2. Writing Systems

### 2.1. North Turkestan Brāhmī script

Virtually all of our Tocharian sources are written in a variety of Brāhmī script, traditionally called North Turkestan Brāhmī, which developed over the course of the 5th and 6th centuries AD from the Turkestan Gupta, itself brought from India. See the attached character

charts and the discussion in Malzahn 2007b, 2007c, as well as Schmidt 1997 and the classic paleographic study of Central Asia scripts by Sander (1968). The following charts are taken from Krause and Thomas 1960:41, Malzahn 2007b:227-8.

		Vokale								
Einf. Vokale										
	<i>a</i>	<i>ā</i>	<i>ä</i>	<i>i</i>	<i>ī</i>	<i>u</i>	<i>ū</i>	<i>r</i>		
Diphthonge										
	<i>e</i>	<i>ai</i>	<i>o</i>	<i>au</i>						
		Konsonanten								
Velare										
	<i>ka</i>	<i>kha</i>	<i>ga</i>	<i>gha</i>	<i>ŋa</i>					
Palatale										
	<i>ca</i>	<i>cha</i>	<i>ja</i>	<i>jha</i>	<i>ña</i>					
Cerebrale										
	<i>ta</i>	<i>tha</i>	<i>ḍa</i>	<i>ḍha</i>	<i>ṇa</i>					
Dentale										
	<i>ta</i>	<i>tā</i>	<i>tha</i>	<i>ḍa</i>	<i>ḍha</i>	<i>na</i>	<i>nā</i>			
Labiale										
	<i>pa</i>	<i>pā</i>	<i>pha</i>	<i>ba</i>	<i>bha</i>	<i>ma</i>	<i>mā</i>			
Halbvokale u. Liquididen										
	<i>ya</i>	<i>ra</i>	<i>rā</i>	<i>la</i>	<i>lā</i>	<i>va</i>	<i>wā</i>			
Zischlaute										
	<i>śa</i>	<i>śā</i>	<i>ṣa</i>	<i>ṣā</i>	<i>sa</i>	<i>sā</i>				
Hauchlaut		<i>ha</i> (§ 5 Anm. 5)								
Affrikata										
	<i>tsa</i>	<i>tsā</i>								

## Notes

1. Vowel length probably not distinctive in either Tocharian language: thus *ā* [a] vs. *a* ([ə] or [ʌ]) vs. *ä* ([i]), with Sanskrit *ā*, *a* representing a qualitative contrast.
2. The script lacks symbols for distinctively Tocharian sounds such as labiovelar [kʷ] and (in TB) the diphthongs [ew], [ow], [aw], [ay].



3. As expected, there are signs (*akṣaras*) for Sanskrit and Prakrit phonemes absent in the language, e.g. *v*, *h*, and the voiced, aspirated, and retroflex obstruents; these are used almost exclusively in Indo-Aryan borrowings.
4. The most remarkable innovation of the Tocharian writing system is the creation of a series of *Fremdzeichen* (“foreign signs”) to represent sequences of consonant + the vowel *ä*, probably a high central [i̯]. These exist for most, but not all consonants, and are used apparently interchangeably with the normal *akṣara* plus two subscript dots (hence the transcriptions *tä*, *ñä*, etc.).
5. A second vowel (usually *u*) can be combined with a ligature, e.g. *kse + u*, transcribed *k<sub>u</sub>se*; such “subscript” *u*’s may denote either a labiovelar or a reduced/syncopated vowel (underlyingly probably /k<sup>w</sup>/; §3.1.1, 1, §3.1.2, 2).

## 2.2. Manichean script

A single manuscript fragment in a Manichean (Aramaic-derived) script similar to that used for Manichean Sogdian was published by Werner Winter and the Turcologist Annemarie von Gabain in 1958. The language is heavily influenced by Buddhist terminology, which suggests that a (small) group of Manichean missionaries were operating within a largely Buddhist social context.

## 3. Phonology

### 3.1. Synchronic phonology

#### 3.1.1. Phonemic inventory of Tocharian B

Consonants

/p/    (/pʰ/) /t/            /c/    /k/    /k<sup>w</sup>/  
           /t<sup>s</sup>/            /ś/  
           /s/    /ṣ/  
 /m/            /n/            /ñ/  
           /l/            /lʸ/  
           /r/  
 /w/            /y/

Vowels and diphthongs

(/i/            /u/)  
 /e/    /ə/    /o/            /ew/    /oy/  
           /a/            /aw/    /ay/

## Notes

1. On the existence of a unitary labiovelar phoneme, see Ringe 1998, R. Kim 1999. Examples: \*p<sup>y</sup>ək<sup>w</sup>əl > TB *pikul*, TA *p<sub>u</sub>käl*, *p<sub>u</sub>kul* ‘year’, \*yək<sup>w</sup>ë > TB *yakwe*, TA *yuk* ‘horse’.
2. PT \*p<sup>y</sup> is preserved in TB as a marginal phoneme /p<sup>y</sup>/ distinct from /p/; similarly for \*m<sup>y</sup>, although I can find at most one example of TB /m<sup>y</sup>/. See §3.3.1, 2.
3. The phonemes /a/ and /ə/ had stress-conditioned allophones from classical TB onwards (§1.3), respectively stressed *ā* [a] ~ unstressed *a* [ə], and stressed *a* [ə] ~ unstressed *ä* [i] (closed syllables), Ø (open syllables). See §3.3.3 for examples.
4. The vowels /i/ and /u/ are underlyingly preconsonantal /əy/, /əw/, and alternate with prevocalic *iy*, *y* /əy/, *uw*, *w* /əw/. Examples: TB pres. Cl. III *lyuketär* ‘shines’, Cl. VIII *lyukšäm* /l<sup>y</sup>əwk-/ ~ pret. *lyauksa* /l<sup>y</sup>ewk-/ ‘illuminated’.
5. The diphthong /ew/ merges with /aw/ in classical and late TB texts, e.g. present thematic 1sg. -*e<sub>u</sub>* ~ -*au* /-ew/ or *klye<sub>u</sub>s-* ~ *klyaus-* /kl<sup>y</sup>ews-/ ‘hear’. In addition, word-final -*o<sub>u</sub>* /-owə/ merges with -*au* in classical and late TB, e.g. *tärko<sub>u</sub>*, *tärkau* /tərk-owə/ ‘having left’. However, word-final -*e<sub>u</sub>* /-ewə/ is maintained in all dialects in e.g. *ke<sub>u</sub>* /kewə/ ‘cow’. Note sporadic instances of *e*, *o* for *ai*, *au* in late and colloquial texts, suggesting incipient monophthongization.

### 3.1.2. Phonemic inventory of Tocharian A

#### Consonants

/p/	/t/	/c/	/k/	/k <sup>w</sup> /
	/t <sup>s</sup> /	/ś/		
	/s/	/š/		
/m/	/n/	/ñ/	/ñ/	
	/l/	/l <sup>y</sup> /		
	/r/			
/w/	/y/			

#### Vowels and diphthongs

(/i/	/u/)
/e/	/a/ [ə] /o/
	/ā/ [a]

## Notes

1. As a result of the pre-TA epenthesis of \*ä in consonant clusters and syncope of \*ä in open syllables, \*ä (< PT \*ə) is no longer phonemic: its appearance is entirely predictable from the

underlying consonants. This was first noticed by Jasanoff (1987; also Adams 1988), but its effects have not been properly appreciated. See below, §3.3.2, 8.

2. On the question whether to assume a labiovelar phoneme /k<sup>w</sup>/ or a reduced rounded vowel /ū/, see Ringe 1998, R. Kim 1999. Note that if TA has no reduced “schwa” phoneme /ä/, it is extremely unlikely to have had a marked reduced vowel /ū/. I therefore prefer to analyze *p<sub>u</sub>käl*, *p<sub>u</sub>kul*, (1x) *pkul* and *p<sub>u</sub>käs*, *p<sub>u</sub>kuş* ‘all (abl.)’ as underlying /pk<sup>w</sup>l/, /pk<sup>w</sup>-ş/.
3. The vowels [i], [u] are underlyingly /y/, /w/ between consonants (cf. TB /əy/, /əw/).

### 3.2. Historical phonology: Proto-Indo-European to Proto-Tocharian

Recent research has elucidated most of the principal phonological developments from Proto-Indo-European (PIE) to PT and the two Tocharian languages, although several minor problems remain. See especially Ringe 1996, with detailed discussion of the changes and their relative chronology (reliable with few exceptions, e.g. the section on PT \*ō̄ < post-PIE \*-əy<sup>é</sup>/<sub>ó</sub>-).

#### 3.2.1. Phonemic inventory of Proto-Indo-European (PIE)

##### Consonants

*p	*t	*k̂	*k	*k <sup>w</sup>		*m	*n
*b	*d	*ḡ	*g	*g <sup>w</sup>			*l
*b <sup>h</sup>	*d <sup>h</sup>	*ḡ <sup>h</sup>	*g <sup>h</sup>	*g <sup>wh</sup>			*r
	*s (*[z])					*w	*y
	*h <sub>1</sub> , *h <sub>2</sub> , *h <sub>3</sub>						

##### Vowels and diphthongs

*i	*u					*m̥	*n̥
*e	*o	*ey	*oy	*ew	*ow		*l̥
	*a		*ay		*aw		*r̥
(*ī	*ū)						
*ē	*ō	*ēy	*ōy	(*ēw	*ōw)		
	*ā		(*āy)		(*āw)		

Like most Indo-Europeanists in Central Europe, North America, and Japan, I follow Mayrhofer 1986 in all essentials. See also Melchert 1994:46-52, Ringe 1996:1-5, Fortson 2009:53-72.

## Notes

1. PIE definitely had three contrasting series of dorsal stops, which remain distinct in Luvian and Lycian: PIE \**k̑ey-* > Luv. *ziy-ar(i)* [tʰ-] ‘is lying (down)’, PIE \**kes-* > Luv. *kišā(i)-* ‘comb’, PIE \**kʷid* > Luv. *kwid* [kʷ-] ‘what’ (Melchert 1987). Conventionally labeled “palatal”, “velar”, and “labiovelar”; more probably prevelar, postvelar, and labio-postvelar, as it is crosslinguistically rare for palatal stops to become velars.
2. On PIE “thorn” see Schindler 1977 and the discussion in Mayrhofer. TA *tkam* ‘earth’ [TB *kem*], like Hitt. *tēkan*, loc. *tagān*, *tāgan*, could have been influenced by nom./acc. \**dʰéǵʰ-ōm*. TB *taksāntsa* ‘expert, capable one’ has been connected with Ved. *tákṣā*, Gr. τέκτων ‘builder’ < \**te-tk̑-on-*, but the equation is uncertain.
3. The phonetics of the three laryngeals remain unclear, though I find it extremely probable that \**h₁* was a glottal stop [ʔ]. Possibly \**h₂* [h], \**h₃* [ʕʷ] (voicing, famously in \**pi-ph₃-°/o-* > \**pib-°/o-* > Ved. *pibati*, Old Irish *ibid*; rounding because of Greek reflex o).
4. The PIE sonorants (including the glides \**y* and \**w*) had syllabic allophones when followed by a word boundary or nonsyllabic; the rule operates iteratively from right to left, e.g. gen. \**k̑un-és* —> Ved. *súnas*, Gr. κυνός vs. instr. pl. \**k̑wn̥-bʰís* > Ved. *śvabhís* to \**k̑wn-/* ‘dog’. Numerous exceptions (e.g. nasal infix always nonsyllabic \*[n], suffixes \*-io- vs. \*-yo-) suggest that \**i*, \**ṇ*, etc. and \**y*, \**n*, etc. were distinctive already in PIE.
5. PIE had a vowel \**a* alongside (much) more common \**e*, in words such as \**albʰós* ‘white’ (Lat. *albus*; Hitt. *albaš* ‘cloud’, Gr. ἀλφός ‘white leprosy’); note also \**ā* ~ \**a* ablaut in \**nás-* ~ \**nas-* ‘nose’, \**wást-u* ~ \**wást-u* ‘settlement’. (Otherwise the Leiden school, e.g. Beekes 1995.)

### 3.2.2. Phonemic inventory of Proto-Tocharian (PT)

Consonants						Vowels and diphthongs					
*p	*p <sup>y</sup>	*t	*c	*k	*k <sup>w</sup> (*i)	*ə	(*u)				
		*t <sup>s</sup>						*ɔ			
		*s	*ʂ	*ś		*e	*ë	*o	*oy	*ew	*ëw
*m	*m <sup>y</sup>	*n	*ñ			*a			*ay	*aw	
		*l	*l <sup>y</sup>								
		*r									
*w	*w <sup>y</sup>	*y									

### 3.2.3. Major changes from PIE to PT

#### 3.2.3.1. Consonants

1. The PIE series of voiceless, voiced, and voiced aspirate stops have famously **merged**, except that \*t, \*d<sup>h</sup> > PT \*t remained distinct from \*d > PT \*t<sup>s</sup> (Winter 1962).

PIE (\*demh<sub>2</sub>- ~) \*dm̥h<sub>2</sub>- ‘build’ > PT \*t<sup>s</sup>əma- ‘grow’ > TB /t<sup>s</sup>əma-/ (pres. Cl. III 3pl. *tsmentär*), TA *ts(ä)mā-* (pret. ptcp. *tsmo*)

PIE (\*der- ~) \*dr̥- ‘split’ → \*t<sup>s</sup>ər-a- ‘be separated’ > TB /t<sup>s</sup>əra-/ (pres. Cl. III 1sg. *tsremar*), TA *ts(ä)rā-* (pret. ptcp. *tsro*)

Apparent exceptions are due to one of two combinatory changes:

- a. \*ty > \*t<sup>s</sup>

PIE \*pótis, \*póty- > PT \*pēt<sup>s</sup>ə > TB *petso* (metrical, for *pets\** /pet<sup>s</sup>ə/?), TA *pats*

PIE loc. \*-d<sup>h</sup>yey (beside dat. \*-d<sup>h</sup>yōy > Ved. *-dhyāi*, Av. *-diiāi*, Umbrian *-fei*, *-fi* /-fyē/) > PT \*-t<sup>s</sup>əy > TB, TA inf. *-tsi* (usually connected with Lithuanian *-tì*, OCS *-ti* and PIE action nouns in \*-ti-, but no case form in \*-ty- in classical proterokinetic paradigm!)

- b. Grassmann’s Law: \*d < \*d<sup>h</sup> before an aspirated stop (Winter 1962:24-5)

PIE \*d<sup>h</sup>eg<sup>wh</sup>- ‘burn’ > \*deg<sup>wh</sup>- > PT \*t<sup>s</sup>ək- > TB pres. Cl. VIII *tsakšträ*, TA pres. Cl. X *tsäknäštär* ‘burns (intr.)’

Probably voiced aspirates were then devoiced ( $*[d^h] > *[t^h]$ ), and  $*d$  [d] was affricated to  $*[dʒ]$ . Cf. PT  $*tət(t)a-$  ‘put, lay’ (TB subj. *tattam*)  $\leftarrow *d^he-d^h_1-$  to  $*d^he_1-$ . Then the now voiceless aspirates and the voiced stops fell together with voiceless stops.

c.  $*d > *∅$  in syllable onset before  $*r, *w, *y$  (Winter 1962:29-33, Schindler 1966, Ringe 1996:64-6)

PIE  $*dwit_0-$   $> *wito-$  (or  $*dwuto-$ )  $*wuto-$   $> PT *wət_ē > TB wate, TA wāt$  ‘second’

PIE m.  $*dwoh_1 > *dwū > *wū > PT *wəw *[wu] > TA m. wu$  ‘two’

PIE  $*pod-$   $\rightarrow *pod-yo-$   $> *poyo-$   $> PT *p_ēy_ē > TB paiyye, TA pe$  ‘foot’

Also in ‘wood’; see §3.2.3.2, 4.

2. PIE palatals and velars merged in PT, but **labiovelars** and sequences of palatal/velar +  $*w$  remained distinct. (For a parallel from Italic, cf. Oscan *pis, pid*  $< *k^wis, *k^wid$  vs. acc. sg. *fangvam* ‘tongue’  $< *d^hngwām$   $\leftarrow$  PIE  $*dn̄g^hwéh_2-m$ .) For details, see R. Kim 1999.

Labiovelars unrounded next to PIE  $*o$ :

PIE acc.  $*wók^wm_0 > PT *w_ēk_ə > TB wek /wek_ə/, TA wak$  ‘voice’;

PIE acc.  $*h_3ék^wm_0 > PT *ēk_ə > TB ek /ek_ə/, TA ak$  ‘eye’;

PIE  $*k^wólos$  ‘axis, turning’ (Gr. *πóλος*)  $> PT *k_ēl_ē > TB kele$  ‘navel’.

New  $*k^w$  then arose from palatal/velar +  $*w$ :

PIE acc.  $*k^wónm_0 > PT *k^w_ēn_ə > TB kwem /k^w_ēn_ə/, TA kom$  ‘dog’.

3. **Palatalization** before front vowels created new allophones which then became phonemic, and gave rise to a number of morphologically conditioned alternations. (No clear trace of PT  $*r^y$ , which merged with  $*r$  in all contexts in both languages.)

*p ~ *p <sup>y</sup>	*t ~ *c	*k ~ *ś	*k <sup>w</sup> ~ *ś
	*t <sup>s</sup> ~ *ś		
	*s ~ *ś		
*m ~ *m <sup>y</sup>	*n ~ *ñ		
	*l ~ *l <sup>y</sup>		
	*r ~ *r <sup>y</sup>		
*w ~ *w <sup>y</sup>	(*y ~ *y)		

4. *Auslautgesetze*: PIE \*-s, \*-n, \*-t/d [d] > \*-Ø; PIE \*-nt, \*-ns, \*-nts > \*-Ø

PIE *o*-stem nom. sg. \*-os, acc. \*-om > PT \*-ë > TB *-e*, TA *-Ø*, e.g. in \*ék<sup>w</sup>-os, \*-om >

PT \*yək<sup>w</sup>ë > TB *yakwe* /yək<sup>w</sup>e/ ‘horse’, TA *yuk*

PIE \*tod ‘that’ > PT \*të > TB *te* ‘this’

PIE sg. masc. nom. \*pānts, neu. nom./acc. \*pānt (Gr. παντ-) > PT \*po > TB *po* ‘all’

As a result, note that PT forms (and TB underlying forms) can only end in a vowel or a liquid \*r, \*l, with two exceptions:

- a. pres./subj. 3pl. \*-ən < \*-ənt < PIE \*-nti, thematic \*-ën < \*-ont < PIE \*-onti. Variable loss of word-final \*-i (under conditions no longer recoverable) led to variants which survived into PT and marginally in TA (usually *-iñc*, *-eñc*, rarely *-i*, *-e*). After apocope of \*-i, the now final \*-t was dropped, leaving \*-n which was not lost.
- b. acc. sg. of animate nouns: PT \*-nə > TB /-nə/, reanalyzed as /-n/, e.g. *saswe* /səswé/ ‘lord’, acc. *säswem* /səswé-nə/ vs. innovative *sáswem* /səswé-n/, with same surface stress as nom.

### 3.2.3.2. Vowels and diphthongs

Main (default) correspondences

PIE	PT	TB	TA
*a	*a	/a/ $\acute{a} \sim a$	$\bar{a}$ ( <i>a, ä/Ø</i> by weakening; §3.3.2, 5)
*e	*ə	/ə/ $\acute{a} \sim \bar{a}/\emptyset$	$\bar{a}/\emptyset$
*i	*ə	/ə/ $\acute{a} \sim \bar{a}/\emptyset$	$\bar{a}/\emptyset$
*o	*ë	<i>e</i>	<i>a</i>
*u	*ə	/ə/ $\acute{a} \sim \bar{a}/\emptyset$	$\bar{a}/\emptyset$
*ā	*o	<i>o</i>	<i>a</i> ( <i>o</i> next to *p, *m; §3.3.2, 3)
*ē	*e	<i>e</i>	<i>a</i> ( <i>o</i> next to *p, *m; §3.3.2, 3)
*ī	*i	<i>i /əy/</i>	<i>i /y/</i>
*ō	*a	/a/ $\acute{a} \sim a$	$\bar{a}$ ( <i>a, ä/Ø</i> by weakening; §3.3.2, 5)
*ū	*u	<i>u /əw/</i>	<i>u /w/</i>

1. Tocharian “great vowel shift”: distinctive vowel length lost, pre-PT \*e, \*i, \*u merge as \*ə

- \*e, \*i palatalized preceding consonant, \*u rounds adjacent velar
- initial offglide: \*e-, \*i- > PT \*yə-, \*u- > PT \*wə-
- Note that \*wi > \*wu > \*wə (not \*w<sup>y</sup>ə), e.g. in ‘second’ (§3.2.3.1, 1c; R. Kim 2000a)

2. PIE word-final \*-ā > PT \*-a, e.g. in fem. nom. sg. of adjectives and nouns (unless \*-a spread from PIE \*seh<sub>2</sub> > PT \*sa to adjs., then to all nouns?)

3. Diphthongs behave like combinations of their elements, e.g. PIE \*oy, \*ey > PT \*ëy, \*<sup>y</sup>əy.

4. Umlaut:

a. pre-PT *u*-umlaut \*o > \*ø before \*u, \*ū. Only three secure examples:

PIE \*oktōw ‘eight’ > \*oktū (> \*oktəw?) → PT \*oktə (influenced by ‘seven’, ‘nine’, ‘ten’) > TB *okt*, TA *okät*

PIE \*dór-u ~ \*dér-u- ‘wood’ → \*dór-u ~ \*dr-éw- (Ved. *dāru*, *drós*) > \*doru ~ \*rew- (§3.2.3.1, 1c) → PT \*orə > TB, TA *or*



PIE \*suy-u-s ‘son’ (Gr. υῖος), gen. \*suy-ew-s ~ \*-ow-s > \*soy-us ~ \*soy-ows > \*soy-us ~ \*sëy-ows > PT \*soyə, gen. \*sëyëw > TB *soy*, gen. *sey-i* (-i from *pātri*, *mātri*, etc.), TA *se*, *sey-o* (for \*sayo)

- b. *a*-umlaut: unstressed \*ë > \*a / \_\_ C<sub>1</sub>a (extended to stressed \*é in pre-TB; §3.3.1, 5)

PIE \*ñ<sub>3</sub>-ĝneh<sub>3</sub>-tih<sub>2</sub> > \*ëkna<sup>s</sup>a > PT \*akna<sup>s</sup>a > TB *aknātsa* /aknát<sup>s</sup>a/, TA *āknats* ‘ignorant’

PIE \*móĝh<sub>2</sub>- (~ \*méĝh<sub>2</sub>-) ‘multitude’ > pre-PT \*mēka- > PT \*maka- > TB *māka*, TA *māk* ‘much, many’ (Widmer 2004:159-60)

pre-PT pret. ptcp. \*pë-pašš-əwə ‘having (been) kept, protected’ > PT \*pa-pašš-əwə > TB *papāššu*, —> TA *pāpšu*; similarly for other pret. ptcps. to roots with internal \*a

pre-PT priv. \*ë-kaka-ttë > PT \*a-kaka-ttë > TB *akākatte* ‘not to be called’; similarly for other privatives to roots with internal \*a

- c. *o*-umlaut: (unstressed?) \*ë > \*o / \_\_ C<sub>1</sub>o

pre-PT pret. ptcp. \*së-soy-əwə, priv. \*ën-soy-əttë > PT \*so-soy-əwə, \*on-soyəttë > TB *sosoyu* ‘having satisfied’, *ontsoytte* ‘insatiable’

## 5. Sources of the ubiquitous PT \*ə

- a. \*R<sub>3</sub> > \*əR (except word-initial \*R<sub>3</sub>- > \*əR-)

- b. epenthesis in triple consonant clusters \*kst, \*pst

PIE \*swek<sup>s</sup>tós —> \*sekstos > \*šekastos > PT \*šəkəstë > TB *škaste*, TA *škāst* ‘sixth’

PIE \*psténos > \*pəsténos > PT \*pəścānë, dual \*pəścānënë —> \*pəścānë (haplology) > TB *pāścane*, TA *pāsśām* ‘breast’

- c. palatalization then becomes phonemic: \*e, \*i, \*u merge as \*ə

6. Contraction across \*w (Þórhallsdóttir 1988, Winter 1988; Ringe 1996:155-6), especially in preterite participles and \*-went- adjectives:

\*ëwë > PT \*ë      \*ewə > PT \*ə

\*owë > PT \*o      \*ëwə, \*əwë > PT \*o

\*awë > PT \*a      \*awə > PT \*o

pre-PT pl. \*tē-tēmə-wēsə ‘born’ > PT \*tētēmošə > TB *tetemoş* [TA *tatmuş* after sg. *tatmu*]

pre-PT pl. \*tərko-wēsə ‘(having) let go’ > PT \*tərkošə > TB *tärkoş*, TA *tärkoş*

pre-PT acc. \*pērnēwētə ‘worthy’ > PT \*pērnētə > TB *pernent* [TA *parnont* after sg. *parno*]

PIE \*g<sup>w</sup>ih<sub>3</sub>w-o-mh<sub>1</sub>no- ‘living’ > \*śawēmanē > PT \*śamanē > TB *śamāne*, TA *śāmaṃ*;

pre-PT \*pə-wēññə > PT \*poñə > TB, TA *poñ* ‘say’!

7. Ablaut: zero-grades to roots of the shape CeyC and CewC were remodeled in productive ablaut alternations, i.e. in forms which stood in living paradigmatic or derivational relationship with other ablaut grades (Adams 1978:446-8; see Ringe 1996:135-7). On the analogy of CeC and CeRC roots, the regular outcomes of zero-grade \*CiC, \*CuC, i.e. \*C<sup>y</sup>əC, \*CəC, were replaced by \*CəyC, \*CəwC:

\*CeC > PT \*C<sup>y</sup>əC

\*CeRC > PT \*C<sup>y</sup>əRC

\*CoC > PT \*CëC

\*CoRC > PT \*CëRC

\*C<sub>(e)</sub>C > PT \*CəC

\*CR<sub>o</sub>C > PT \*CəRC

\*CeyC > PT \*C<sup>y</sup>əyC

\*CewC > PT \*C<sup>y</sup>əwC

\*CoyC > PT \*CëyC

\*CowC > PT \*CëwC

\*CiC > \*C<sup>y</sup>əC → PT \*CəyC

\*CuC > \*CəC → PT \*CəwC

Examples:

PIE \*luk- (zero-grade to \*lewk- ‘become light, shine’) > pre-PT \*lək<sup>w</sup>- → PT \*ləwk- >

Cl. VIII pres. TB *luksām*, TA pl. *lukseñc* ‘illuminate, make shine’ (cf. full-grade \*lewk- > PT \*l<sup>y</sup>əwk- > TB *lyuke* ‘light, brightness’), but

PIE \*luk- > PT \*lək<sup>w</sup>- in adj. \*lək<sup>w</sup>-t<sup>s</sup>ē ‘shining’, \*lək<sup>w</sup>-t<sup>s</sup>ēwña ‘lamp’ > TB *laktse*, *läktsauña*.

PIE \*lip- (zero-grade to \*leyp- ‘leave behind’) > pre-PT \*l<sup>y</sup>əp- → PT \*ləyp- > Cl. III

pres. TB *lipetrā* ‘remains, is left over’ (cf. full-grade \*leyp- > PT \*l<sup>y</sup>əyp- > TB, TA *lyipär* ‘rest, remainder’), but

PIE \*lip- > PT \*lʷəp- in fossilized Cl. III pret. ptcp. \*lʷē-lʷəp-əwə > TA *lyalypu* ‘*karma*; action, deed’ (vs. absolutive *lyalyipur-äš* ‘having left behind’ with analogical *-i-*).

### 3.2.3. Laryngeal developments

1. All three laryngeals become \*a between nonsyllabic segments (as in most other IE branches, except Anatolian and Indo-Iranian), whence PT \*a.

PIE \*ph<sub>2</sub>tér ‘father’ > PT \*pacer > TB *pācer*, TA *pācar*

PIE ptcp. \*-mh<sub>1</sub>nos (Av. *-mna-*, Gr. *-μενος*, Lith. *-mas*) > PT \*-manë > TB */-mane/*, TA *-māṃ*, e.g. \*h<sub>2</sub>eĝ-o-mh<sub>1</sub>nos > PT \*ak-ë-manë > TB *akemane*, TA *ākmāṃ* ‘leading’

See also §5.2.2 on PIE seṭ roots as the source of Tocharian roots ending in \*-a- (“a-roots”).

2. Word-initial laryngeals are lost before a nonsyllabic segment, as in all IE branches other than Anatolian, Greek, and Armenian.

PIE \*h<sub>1</sub>néh<sub>3</sub>mn̥ ‘name’ > PT \*ñemə > TB *ñem*, TA *ñom* (§3.3.2, 3)

PIE \*h<sub>1</sub>rud<sup>h</sup>ró- ‘red’ > PT \*rətrē > TB *ratre*, TA *rtär*

PIE \*h<sub>2</sub>ster- ‘star’ > PT \*ścər-, pl. \*ścər<sup>(y)</sup>ēñə > TB *ściriñ*, TA *śreñ*

PIE \*h<sub>3</sub>b<sup>h</sup>ruH- ‘eyebrow’ —> PT du. \*pərwa-në > TB *pärwāne*, TA *pärwāṃ*

3. As usual, tautosyllabic laryngeals after vowels are lost with compensatory lengthening, i.e. \*VHC > \*V:C. The resulting long vowels develop like inherited \*ē, \*ā, \*ō.
4. Laryngeals are lost after syllabic sonorants, as in Germanic; impossible to tell if \*R̥HC first passed through a stage \*R̥:C (as in Balto-Slavic) en route to merging with \*R̥C.

#### Special developments

5. It is possible that the laryngeals develop differently when word-initial before a syllabic sonorant (cf. Rix’s Law for Greek and Latin), e.g. \*h<sub>2</sub>RC- > \*arC- in PIE \*h<sub>2</sub>ṛt-b<sup>h</sup>ó- > PT

\*antəp- > TB *antapi*, TA *āmpi* ‘both’ (Gr. ἄμφω, Lat. *ambo*; Jasanoff 196). See Ringe 1996:15-7, Hackstein 1998.

6. PIE \*ih<sub>2</sub> > PT \*ya at least in final position: in addition to feminine adjectives (see §4.2.1), cf. the famous PIE \*b<sup>h</sup>ér-ont-ih<sub>2</sub> > PT \*pərənt<sup>s</sup>a > TB *prentsa* ‘pregnant’ (so the usual translation, but cf. now Pinault 2012:184-6). This of course recalls the Greek development to \*-ya in e.g. \*φέροντ-ja, \*ἰδύη-ja > φέρουσα ‘carrying’, ἰδύῃα ‘knowing’. It has been argued that \*ih<sub>1</sub> > \*ye word-finally (cf. PIE du. \*h<sub>3</sub>ék<sup>w</sup>-ih<sub>1</sub> > \*ok<sup>w</sup>ye —> PT \*ešə-nē > TB *esane*, TA *asām* ‘eyes’), but all agree that \*ih<sub>1</sub> > \*ī in the optative suffix. Interestingly, PIE \*uh<sub>2</sub> appears to have become \*ū: cf. TB *akrūna*, TA *ākrun* ‘tears’ <— PT \*akrəw < PIE \*(d)ákruh<sub>2</sub> (PT \*akrəwa should have remained as such in TB †*akruwa*). See Hackstein 1995:16-37, Ringe 1996:7-36.
7. Perhaps \*Th<sub>2</sub>V > \*T<sup>h</sup>V, i.e. \*h<sub>2</sub> aspirated a preceding stop (Schmidt 1989:307-8)? Only possible to tell when C = \*d: thus PIE root aor. \*(s)kēdh<sub>2</sub>-t > PT pret. \*kəta (with \*dh<sub>2</sub> > \*d<sup>h</sup> > \*t<sup>h</sup> > PT \*t), extended to PIE pres. \*(s)kēd-n-h<sub>2</sub>-tór (Hom. (σ)κίδναται) —> PT \*kət-na-tər > TB *kātnātār\**, TA pl. *knāntrā*. (But also possible that affrication of \*d > \*d<sup>z</sup> (> PT \*t<sup>s</sup>) occurred only in syllable onset before vowel, so that pres. PT \*kət-na- would be regular, whence pret. \*kəta-.)
8. Schmidt (1988, 1989:308-11, 1992:103-5, 1995:275ff.) has also claimed that \*h<sub>2</sub> > \*k after a syllabic sonorant, but his main examples are doubtful:  
 PT \*kətk- ‘pass over, surpass, commit (a sin)’ < \*g<sup>wh</sup>d<sup>h</sup>-n<sub>ḡ</sub>-h<sub>2</sub>- to \*d<sup>h</sup>eg<sup>wh</sup>h<sub>2</sub>- (Gr. φθάνω < \*φθαυϝ-, Ved. *daghnoti\**);  
 TA pres. *trānk-* ‘say’, *tārṇā-* ‘let go’ < \*tr-n<sub>ḡ</sub>-h<sub>2</sub>-V-, \*tr<sub>ḡ</sub>-n-h<sub>2</sub>(e)-C- to PIE \*ter(K)h<sub>2</sub>- ‘let (in, out)’ (aor. PT \*tərka- <— act. \*cəra < \*térh<sub>2</sub>-t × mid. \*tərka-tē < \*tr<sub>ḡ</sub>h<sub>2</sub>-tó?)

Summary of laryngeal developments:

PIE *CHC	>	pre-PT *CaC	PIE *#HC-	>	pre-PT *#C-
PIE *VHC	>	pre-PT *V:C	PIE *#H <sub>x</sub> R <sub>ḡ</sub> -	>	pre-PT *#V <sub>x</sub> R-?
PIE *R <sub>ḡ</sub> HC	>	pre-PT *R <sub>ḡ</sub> C	PIE *ih <sub>2</sub> (#)	>	pre-PT *ya(#)

### 3.3. Major phonological developments from PT to Tocharian B and A

#### 3.3.1. PT to Tocharian B

##### Consonants

1. \*w<sup>y</sup> and \*y merge as *y*: PT \*w<sup>y</sup>entē ‘wind’, \*w<sup>y</sup>əsa ‘gold’ > TB *yente, yasa* [TA *want, wäs*]
2. \*p<sup>y</sup> and \*m<sup>y</sup> merge respectively with \*p and \*m in most contexts, but following \*ə > *i*

PIE \*méd<sup>h</sup>u > PT \*m<sup>y</sup>ətə > TB *mit* /məytə/ ‘mead’

PIE (\*méms- ~) \*méms- > PT \*m<sup>y</sup>ənsa > TB *misa* ‘meat’ (nasal lost after *i* in TB, cf. ‘five’ below)

PIE \*pénk<sup>w</sup>e > PT \*p<sup>y</sup>əñśə > TB *pis* ‘five’, but PT \*p<sup>y</sup>əñśáka > TB *pisāka, pisāka* /p<sup>y</sup>əsaka/ ‘fifty’

3. \*ś replaced by \*t<sup>s</sup> in all productive morphological alternations; survives only in *śak* ‘10’ < PT \*śákə < PIE \*dék<sup>m</sup> [TA *śāk*] and possibly *śuke* ‘juice’ < PT \*śəwkə < \*dewko- < PIE \*dewko- or \*d<sup>h</sup>ewg<sup>h</sup>o- (to \*dewk- ‘lead’ viz. \*d<sup>h</sup>ewg<sup>h</sup>- ‘draw (milk)’)

##### Vowels and diphthongs

4. \*ë and \*e merge unconditionally as *e*; see examples passim.
5. *a*-umlaut extended to stressed \*ë (in contrast to TA). First discovered by Cowgill (1967) on the basis of Class V subjunctives, e.g.

(post-)PIE \*ste-stómb<sup>h</sup>H- ~ \*ste-stmb<sup>h</sup>H-’ —> PT \*stə-stéma- ~ \*stə-stéma- > TB /stáma-/ ~ /stéma-/ (TA *štama- ~ štmā-*, without *a*-umlaut; see §5.2.1). Cf. also

PIE \*próti-h<sub>3</sub>k<sup>w</sup>-om (Ved. *prátīkam*, Gr. πρόσωπον ‘face, etc.’) > PT \*prét<sup>s</sup>ak-a > \*prat<sup>s</sup>aka > TB *pratsāka* /prat<sup>s</sup>áka/, but > \*pratsāk > TA *pratsak* ‘chest’ (no *a*-umlaut).

6. Syncope of unstressed \*ə in open syllables; development of stress-conditioned allophones of /a/ and /ə/ by the classical TB period (see §3.3.3).

### 3.3.2. PT to Tocharian A

#### Consonants

1. \*PT  $w^y$  and \* $w$  merge as  $w$ : PT \* $w^yent\ddot{e}$  ‘wind’ > TA *want*
2. PT \* $p^y$  and \* $m^y$  merge respectively with \* $p$  and \* $m$  (unconditioned)

#### Vowels and diphthongs

3. PT \* $\ddot{e}$  >  $a$ ; PT \* $e$ , \* $o$  >  $a$ , but  $o$  when next to nonpalatalized labial (\* $p$  or \* $m$ ). Hence  
PIE \* $\hat{g}omb^hos$  ‘row of teeth’ > PT \* $k\ddot{e}m\ddot{e}$  (\* $mb^h$  > \* $m$ ) > TB *keme*, TA *kam* ‘tooth’ vs.  
PIE \* $h_1n\acute{e}h_3mn_2$  ‘name’ > PT \* $\ddot{n}em\ddot{a}$  > TB *ñem*, TA *ñom* ‘name’;  
Iran. \* $p\acute{a}er\acute{a}t$  (cf. Oss. *færæt*) → PT \* $peret\ddot{a}$  > TB *peret*, TA *porat* ‘ax’;  
PIE \* $b^h\acute{a}g^hu-$  ‘arm’ (Ved. *bāhú-*, Gr.  $\pi\tilde{\eta}\chi\upsilon\varsigma$ ) > PT \* $pok-o$  > TB acc. *pokai*, TA *poke*
4. Word-final vowels \*- $a$ , \*- $\ddot{e}$ , \*- $e$ , \*- $o$  lost: see examples passim.
5. Vowel weakening. Normally PT \* $a$  > pre-TA \* $\bar{a}$ , but
  - a. \* $\bar{a}$  in second syllable > \* $a$  after “full vowel” \* $\bar{a}$ , \* $a$ , \* $e$ , or \* $o$  in the first syllable; and
  - b. \* $a$  (including \* $a$  from by first rule) > \* $\ddot{a}$  when first *and* third syllables contain “full vowel” (after apocope, no. 4 above).

These changes are responsible for numerous alternations such as

<i>eřant</i> ‘giving’	pl. acc. <i>eř\`ant\`as</i> < * <i>eřant-\`as</i>
<i>pekant</i> ‘writing’	acc. <i>pek\`ant\`am</i> < * <i>pekant-\`an</i>
<i>\`aknats</i> ‘ignorant’ < * <i>\`akn\`at<sup>s</sup></i>	pl. <i>\`aknts\`a\`n</i> < * <i>\`akn\`at<sup>s</sup>-\`a\`n</i>
<i>\`řama\`m</i> ‘monk’ < * <i>\`řam\`an</i>	pl. <i>\`řamn\`a\`n</i> < * <i>\`řam\`an-\`a\`n</i>

After \* $\ddot{a}$  was eliminated as a phoneme, the alternations became morphologically conditioned, as in the verbal examples below.

- Cl. VI pres.    *k\`arnař* < \**k\`arpn\`ař* to *k\`arpa-* ‘go down’ vs. *k\`arsn\`ař* to *k\`arsn\`a-* ‘know’  
                  *kotnař* < \**kotn\`ař* to *kota-* ‘split’                    *t\`arn\`ař* to *t\`ark\`a-* ‘let go’

- Cl. V subj. *ārtatār* < \*ārtātār to *ārta-* ‘praise’  
*kalkaṣ* < \*kalkāṣ to *kālkā-* ‘go’ vs. 2pl. *kālkāc*, abstr. *kālkālune*
- Cl. I pret. 2sg. *tākāṣt* < \*tākāṣt to *tāka-* ‘be’ vs. 2sg. *kālkāṣt* to *kālkā-* ‘go’  
*pekat* < \*pekāt to *peka-* ‘write’ *kālpāt* to *kālpā-* ‘attain’

6. \*Vns > \*Vys, \*-Vn > \*-Vy, \*Vññ > \*Vyñ; word-final \*-ñ > \*-n.

PIE \*ōmsos > PT \*ansē > \*āys > TA *es* ‘shoulder’ [TA *āntse*]

PT gen. \*yək<sup>w</sup>ēsē > \*yək<sup>w</sup>āns > TA *yukes* ‘of the horse’ [TB *yākwentse*]

PIE 3pl. \*-nti > PT \*-əñcə ~ \*-ən > \*-āñcā ~ \*-ān > \*-āñcā ~ \*-āy → TA *-iñc* ~ *-i*;  
 similarly thematic PIE \*-o-nti > PT \*-ēñcə ~ \*-ēn > \*-āñcā ~ \*-an > \*-āñcā ~ \*-ay —  
 > TA *-eñc* ~ *-e* (see §3.2.3.1, 4)

PIE \*wiHk̑mtih<sub>1</sub> > PT \*w<sup>y</sup>ikən (\*w<sup>y</sup>əykən) > \*wāykān > \*wāykāy > *wiki* ‘twenty’ [TB  
*ikām*]

PT \*wostəññē > \*wastāññ > \*wastāyñ > TA *waṣteṃ* ‘domestic, belonging to the house’  
 [TB *ostaññē*]

PT fem. \*kl<sup>y</sup>oməñña > \*klyomāññ > \*klyomāyñ > TA *klyomiñ* ‘noble’ [TA *klyomña*]

7. Monophthongization of PT \*Vy, \*Vw > \*e, \*o

8. Fate of PT \*ə > pre-PT \*ä, and elimination of phonemic \*ä  
 a. epenthesis of \*ä in consonant clusters created by apocope  
 b. syncope of \*ä in open syllables

### 3.3.3. Accent and stress

The TB stress system has been investigated by Marggraf 1970; see also Ringe 1987.  
 Main characteristics:

- The usual realization rules for /a/ and /ə/ apply in classical and late TB (§3.3.1, 6).
- Stress on underlying word-final syllables is retracted one syllable leftwards. This is an exceptionless, fully productive rule in all periods of TB, and is responsible for alternations such as

<i>cámel</i> ‘birth’	/cəméł/	pl. <i>cméla</i>	/cəméla/
<i>áke</i> ‘end’	/aké/	pl. <i>akénta</i>	/akénta/
<i>yákwe</i> ‘horse’	/yək <sup>w</sup> é/	gen. <i>yäkwentse</i>	/yək <sup>w</sup> ént <sup>s</sup> e/
		adj. <i>yäkweññe</i>	/yək <sup>w</sup> éññe/
<i>púwar</i> ‘fire’	/pəwár/	pl. <i>pwāra</i>	/pəwára/
<i>wéña</i> ‘s/he said’	/weñá/	pl. <i>weñāre</i>	/weñāre/
<i>śársa</i> ‘s/he knew’	/śərsá/	pl. <i>śārsāre</i>	/śərsāre/

- Stressed \*ə is often syncopated in metrical texts, almost always in open syllables (Thomas 1978, Winter 1990): cf. *āntpi*, *olypo*, *pärkre*, *wärpnātär* beside *antápi* ‘both’, *olyápo* ‘now’, *pärkare* ‘long’, *wärpánatär* ‘enjoys’. Phonetically this probably involved a shift of (at least some) prosodic elements of stress to an adjacent syllable, with automatic deletion of /ə/. A vowel /a/ to the left was usually written *ā*, but /ə/ was usually written *ä*, not *a*; see Winter 1990, Pronk 2009. Most examples of syncopated /ə/ in closed syllables involve reduction of a geminate, e.g. pres. *yāmsām* ‘does, makes’, caus. *stámšām* ‘stands (tr.)’, *tánmsām* ‘bears, gives birth’ beside *yamáššām*, *stámäššām*, *tánmäššām*; verbal noun almost always *-l(y)ñe* beside *-lläññe* (<— gerundive *-lle*).
- Alternations such as *puwar* ‘fire’, pl. *pwāra* or metrical *kewye*, *kästwer* for *kewiye* ‘cow’s’, *kästuwer* ‘at night’ demonstrate that prevocalic *iy*, *uw* are in fact underlying /əy/, /əw/.
- Clitic personal pronouns (see §4.3.1) count as part of the domain for stress computation, “allowing” underlying final stress on a preceding verb to surface on that syllable.

<i>táka</i> ‘was’	/taká/	<i>taká-ñ</i> ‘was to me, I had’	/taká-ñə/
<i>ásām</i> ‘leads’	/aśón/	<i>aśán-me</i> ‘leads them’	/aśón-me/
<i>wáña</i> ‘said’	/weñá/	<i>weñá-meś(c)</i> ‘said to them’	/weñá-me-ś(c)ə/

On the other hand, the secondary case endings are NOT included in the domain for stress computation, i.e. they had not yet been fully “univerbated” with the acc. of the governed noun (§4.1.3).



- Final /-ə/ may be realized optionally as -o in metrical texts when an extra syllable is required (“bewegliches o”, e.g. *pernewo* for *pernew* /pernéwə/ ‘shining’, gen. pl. *pontso* for *poṃts* /po-ntʰə/ ‘of all’, pres. 2sg. *aksasto* /aks-ás-tə/ ‘you announce’.

Although there are no clear indications of stress in TA, weakening of \*ā > \*a, \*ä in the second syllable (§3.3.2, 5) suggests that principal stress fell on the first “full vowel”, with secondary stress two syllables after. Thus in words containing ā, a, e, or o in the first syllable, the stress pattern was \*V' V V'.

The reconstructed PT stress, like the underlying stress in TB, usually falls on the second syllable, but not always.

- Cf. TB *pratsāka* ‘chest’ vs. TA *pratsak* (no *a*-umlaut in first syllable!), pointing to PT \*prétʰako <— PIE \*prótiḥ₃kʷom (§3.3.1, 5), with retention of initial stress at least into PT.
- A rightward shift from the first to the second syllable (“accent throwing”; Ringe 1987:258ff.) may account in part for the overwhelming preponderance of underlying second-syllable stress in TB
- If initial-stressed Class I, V subjunctives go back to reduplicated PT preforms (§5.2.1), all finite verb forms had stress on second syllable. Might this possibly reflect cliticization in main clauses, as attested in Vedic and indirectly (via recessive stress) in ancient Greek? Cf. Slovenia, where default initial stress in underlyingly unstressed Proto-Slavic forms shifted in most dialects and the standard language to the second syllable, e.g. PSl. acc. sg. \*gòrǫ ‘mountain’, \*nà gorǫ ‘to the mountain’ > *gorô*, *na gôro* (vs. Russ. *góru*, *ná goru*, SC *gòru*, *nà goru*). See now R. Kim 2012a.

## 4. Nominal morphology

### 4.1. Nouns

#### 4.1.1. Gender

The noun distinguishes two genders, masculine and feminine, plus a class of nouns of “alternating” gender which take masculine agreement in the singular and feminine in the plural. Historically, the latter class goes back to PIE neuters: *o*-stem nom./acc. sg. \*-om merged with

masc. nom. sg. \*-os, acc. \*-om, while the PIE collective in \*-eh<sub>2</sub> was generalized to the pl. of all feminine adjectives.

TB	masculine	feminine	neuter
	‘pure man’	‘pure woman’	‘pure thought’
nom. sg.	<i>astare enkwe</i>	<i>astarya klyiye</i>	<i>astare palsko</i>
acc.	<i>astareṃ enkwem</i>	<i>astaryai klaiñ</i>	<i>astareṃ palsko</i>
nom. pl.	<i>astari enkwi</i>	<i>astarona klaina</i>	<i>astarona pälskonta</i>
acc.	<i>astareṃ enkwem</i>	<i>astarona klaina</i>	<i>astarona pälskonta</i>

#### 4.1.2. Number

Nouns and adjectives inflect for singular, dual, and plural, as does the verb in the 3rd person, though the plural is often used for casual pairs.

- Pace Krause 1954 and Krause and Thomas 1960, Winter (1962) has shown that there is *no* contrast between “dual” (casual pairs) and “paral” (natural pairs, e.g. paired body parts).
- The productive dual ending is PT \*-nē, cf. TB *eśáne*, TA *eśäm* ‘two eyes’; cf. fossilized *eś* in *eś lmau* ‘blind’ (lit. ‘(with) the eyes sat (upon)'), *yn-eś* ‘obviously’. On the history of the various dual endings, see Hilmarsson 1989.

Tocharian also has a “numerative”, which functions as a count plural for collectives: TB *ost* ‘house, Buddhist monastery’, *ostuwa* ‘houses’, *ostuw-aiwenta* ‘several sets of houses’; pl. tantum *mīsa* ‘meat’, *mis-aiwenta* ‘several pieces of meat’; *eś-aiwenta* ‘(many) individual pairs of eyes’ (see above on *eś*). The ending \*aiwë-nta goes back to PIE \*oywo- ‘(one and) only’ (cf. Av. *aēuuu-* ‘one’, Gr. οἷος ‘only’) plus the same individualizing pl. \*-nta is found with many other neuter nouns, and in Anatolian count plurals (§4.1.4, 1): cf. especially Cuneiform Luvian *tāwa* ‘eyes’ vs. *tāwanta* ‘(many) pairs of eyes’.

### 4.1.3. Case

Nouns inflect for nine cases in each language, but only the three “primary” cases, nominative, accusative (“oblique”), and genitive, are of PIE date.

- Most non-feminine (= masculine and neuter) nouns have identical forms for nom. and acc. sg., derived from the PIE accusative. Cf. reflexes of PIE consonant-stems such as TB *ek*, TA *ak* ‘eye’ < PT \**ĕkə* < PIE \**h<sub>3</sub>ek<sup>w</sup>-m<sub>ḡ</sub>* or TB *wek*, TA *wak* ‘voice’ < PT \**wĕkə* < PIE \**wók<sup>w</sup>-m<sub>ḡ</sub>* (see above, §3.2.3.1). Archaisms: TB nom. *pācer* ‘father’, *mācer* ‘mother’, *procer* ‘brother’, *tkācer* ‘daughter’ vs. acc. *pātār*, *mātār*, *protār*, *tkātār* (TA nom./obl. *pācar*, *mācar*, *pracar*, *ckācar*); nom. TB, TA *ku* vs. acc. TB *kwem*, TA *koṃ* ‘dog’; nom. TB *walo*, TA *wāl* vs. acc. TB, TA *wlānt* ‘king’ (see §4.1.4).
- However, masculine nouns denoting rational beings have secondarily created a distinct acc. sg. in PT \*-*nə* > TB *-ṃ*, TA *-(a)ṃ*. This ending, which has also been extended to most acc. sg. adjective forms, goes back to *n*-stems formed with the PIE individualizing suffix \*-*on* (cf. the development of the Germanic weak adjective inflection). A good parallel comes from Old High German, where acc. *-n* was extended to all proper names, e.g. *Petrusan* ‘Peter’ (preserved in Yiddish, cf. *(ix ze) Mojše-n* ‘I see M.’).
- Neuter nom./acc. plurals all continue PIE collectives in \*-*h<sub>2</sub>*, often with metanalysis of a preceding consonantal suffix: hence PT \*-*a*, \*-*wa*, \*-*na*, \*-*mna*, and especially \*-*nta* (see below). All non-neuter accusatives end in *-ṃ* in TB, but *-s* in TA; both apparently from PT \*-*ns* < PIE \*-*ms*.
- The genitive continues the PIE genitive and dative functionally and formally: cf. *nt*-stem TB *-e*, TA *-Ø* < PT \*-*ĕ* < PIE \*-*os* (e.g. TB *wlānte*, TA *wlānt* ‘of, to the king’), *r*-stem TB, TA *-i* < PT \*-*əy* < PIE dat. \*-*ey* (e.g. TB *pātri*, TA *pācri* ‘of, to the father’ < PIE \**ph<sub>2</sub>tr-éy*). The origin of the feminine genitive in TA *-e* and its relationship to TB acc. *-ai* is hotly debated; see most recently Peyrot 2012a. Other genitive endings are of obscure origin: sg. PT \*-*nt<sup>s</sup>ĕ* (\*-*nsĕ*?) > TB *-ntse*, TA *-s* and pl. TB *-nts*, *-ṃts*, *-ts* /-(*n*)*t<sup>s</sup>ə*/, TA *-śśi*.

The remaining “secondary” case suffixes are **agglutinative**, added to the accusative of singular, dual, and plural alike, and attached only to the last element of a noun phrase, e.g. TA *kuklas yukas onkālmās-yo* ‘with chariots, horses, and elephants’, TB *kektseñ reki palsko-sa*

‘with/by body, word, and thought’. This *Gruppenflexion* may be compared typologically with that in Turkic languages or Japanese and Korean (see also §6). With genitives we find variation, e.g. TB *kreñcepi onolmentse* ‘of the good (gen.) being (gen.)’ or *krent onolmentse* ‘of the good (acc.) being (gen.)’.

- Although their functions in TA and TB largely coincide, not all the secondary suffixes are clearly cognate. TA has a separate instrumental ending *-yo* (denoting e.g. agent by which), which is written separately and surely identical in origin to *yo* ‘and (also)’; in TB the instrumental is expressed by the perlative */-sa/*. The TB “causal” is found with only a few abstract nouns, e.g. *läkle-ñ* ‘because of suffering, out of suffering’, and best treated as a fossilized case form.
- Note that the secondary case endings in TB still do *not* form part of the accentual domain: hence gen. *ñäkténtse* /ñäktént<sup>s</sup>e/ ‘of the god’ vs. perl. *ñáktesa* /ñäkté/ + */-sa/* ‘on, by the god’, all. *ñáktes(c)* /ñäkté/ + */-ś(c)ə/* ‘to the god’. Exception: the ablative usually does belong to the accentual domain, hence *ñäktémem* /ñäkté-men/ ‘from the god’ (Pinault 2006). (Contrast the personal pronouns in §4.3.1, which do “attract” stress, i.e. allow stress to surface on the final syllable of the base.)
- In TA, the case endings have become entirely univertated (except for instr. *-yo*, see above), and the secondary case forms are subject to vowel weakening (§3.3.2, 5): cf. *oñkas* ‘men’, perl. *oñks-ā*, all. *oñks-ac*, comit. *oñks-aśśäl*, loc. *oñks-am* (whence analogical abl. *oñks-äś*).

The secondary case suffixes must have arisen through the familiar process of grammaticalization of originally independent postpositions: in addition to TA *-yo* and *yo*, cf. TA comitative *-aśśäl* and the preposition TB *śle*, TA *śla* ‘(together) with’. See now Carling 2000, Hackstein 2004, 2007, Pinault 2008:462-74, 2011, R. Kim forthcoming c.

- TA has reanalyzed the thematic vowel as part of the allative, comitative, and locative ending: cf. PT \*ñäktē, loc. \*ñäktē-nē > pre-TA \*ñäkt, \*ñäktan → TA *ñkät*, *ñkät-am*.
- On the other hand, TB has generalized final *-s* from the acc. pl. of animate nouns in the perlative and allative, e.g. PT \*ñäktēns, \*ñäktēns-a > pre-TB \*ñäkten, \*ñäktensa → TB *ñaktem*, *ñaktem-sa*.

	TB	TA	PT	PIE
instrumental	/(-sa/)	-yo		
perlative	/-sa/	-ā	*-a?	
allative	/-ścə/	-ac	*-cə?	
comitative	/-mpa/	-aśśāl	?	
ablative	/-men/	-āš	*-šə	*-ti (Jasanoff 1987)
locative	/-ne/	-aṃ	*-nē	
[causal	/-ñə/]			

Sample paradigms of TB *ñakte*, TA *ñkät* ‘god’:

	TB		TA	
nom.	<i>ñakte</i>	<i>ñakti</i>	<i>ñkät</i>	<i>ñaktañ</i>
acc.	<i>ñakte</i>	<i>ñakteṃ</i>	<i>ñkät</i>	<i>ñaktas</i>
gen.	<i>ñäkténtse</i>	<i>ñäktém̄ts</i>	<i>ñäktes</i>	<i>ñäktasáši</i>
instr.	—	—	<i>ñkätyo</i>	<i>ñäktasyo</i>
perl.	<i>ñáktesa</i>	<i>ñáktem̄sa</i>	<i>ñäktā</i>	<i>ñäktasā</i>
all.	<i>ñáktes(c)</i>	<i>ñáktem̄s(c)</i>	<i>ñäktac</i>	<i>ñäktasac</i>
comit.	<i>ñáktem̄pa</i>	<i>ñáktem̄mpa</i>	<i>ñäktasśäl</i>	<i>ñäktasasśäl</i>
abl.	<i>ñáktem̄eṃ</i>	<i>ñáktem̄meṃ</i>	<i>ñäktäš</i>	<i>ñäktasäš</i>
loc.	<i>ñäktene</i>	<i>ñáktem̄ne</i>	<i>ñäktam̄</i>	<i>ñäktasam̄</i>

#### 4.1.4. Main inflectional classes

1. Neuter (nom. = acc.)

	PT	TB	TA
sg. *-R	*pʷəkʷəl	<i>pikul</i>	<i>p<sub>u</sub>käl, p<sub>u</sub>kul</i> ‘year’
pl. *-R-a	*pʷəkʷəl-a	<i>pikwal-a</i>	<i>pukl-ā</i>

The most archaic type, with \*-a < PIE \*-eh<sub>2</sub> (properly \*-e-h<sub>2</sub> to thematic nouns). Note that final -ā has been retained in TA, as the plural morpheme.

sg. *-ə	*wostə	<i>ost /ostə/</i>	<i>wašt</i> ‘house, monastery’
pl. *-ə-wa	*wostəwa	<i>ostuwa /ostəwa/</i>	<i>waštu</i>

These go back to old *u*-stems (PIE *wāst-u*) whose pl. \*-əwa was reinterpreted as \*-ə-wa; the new ending \*-wa was extended to other nouns ending in a consonant. Note that ‘house’ is the only exact word equation between TA and TB! Most other pls. of this type in TA end in *-wā*, with \*-ā retained as above, e.g. *kursār* ‘vehicle, mile’, pl. *kursār-wā* [TB *kwarsār*, pl. *kwārsar-wa*, *kursar-wa*].

sg. *-ə	*šw <sup>y</sup> ərmə	<i>šarm</i>	<i>šurm</i> ‘reason’
pl. *-ə-na	*šw <sup>y</sup> ərmə-na	<i>šārmana</i>	[ <i>šurm-ant</i> ]

These go back to PIE *n*-stems, though most have been remade in TA. The ending \*-na became the default fem. pl. ending in adjectives: TB *orotsts-ana* ‘great’, *astār-ona* ‘pure’.

sg. *-ə??	<i>yoktsi</i> ‘drink’
pl. *-ə-mna	<i>yokts-ánma</i>

Apparently from PIE action nouns in \*-m(e)n- (cf. TA *wākām* ‘difference’, pl. *wākmant* vs. TB *wāki*, pl. *wakanma*), but many details are unclear. Virtually absent from TA, which has pl. *-ant(u)* for most nouns with TB cognates in *-anma*.

(V≠*ə) sg. *-V	*yärkē	<i>yärke</i>	<i>yärk</i> ‘worship’
pl. *-V-nta	*yärkē-nta	<i>yärkén-ta</i>	<i>yärk-ant</i>
	*pəlsko	<i>pəlsko</i>	<i>pəltsäk</i> ‘thought, feeling’
	*pəlsko-nta	<i>pəlsko-nta</i>	<i>pəltsk-ant</i>

Melchert (2000) has correctly compared these pls. with the long misunderstood Anatolian “individualizing” *-ant-* (e.g. *hōamešhōant-* ‘spring (the season), a particular spring’ vs. *hōamešhōa-* ‘springtime’, *irman-ant-* ‘sick’ to *ērman-* ‘illness’). Cf. Hitt. 1-*ant-* [ānt-] ‘one set, amount’, and the suffixation of *-ant-* to numerals modifying collectives in *-a* < PIE \*-eh<sub>2</sub> to express a count plural, i.e. ‘so many (units of) X’. See also above under the “plurative”, §4.1.2.

The last two are the only fully productive neuter pl. formations in TB. Virtually all Indo-Aryan borrowings other than proper names are assimilated to these types, depending on whether they

consist of two or three syllables: TB *ślok* /ślokə/ ‘verse’, *ślokánma*; *kleśa* /kleśá/ ‘doubt’, *kleśánma*; *akṣār* /akṣáə/, *akṣārānta* (also *akṣaránma*); *akālk* /akálkə/ ‘wish’, *akālkānta*; *samudtār* /samáwtə/ ‘ocean’, *samudtārnta* (see Lane 1969). In TA an extended variant *-ant-u* became the most common pl. ending of neuter nouns: *-ant* → *-ant*, secondary cases *-antw-* → *-antu*, secondary cases *-antw-*.

## 2. Masculine

nom. *-ē	*yək <sup>w</sup> ē	<i>yakwe</i>	<i>yuk</i>
acc. *-ē(nə)	*yək <sup>w</sup> ē	<i>yakwe</i>	<i>yuk</i>
gen. *-ēnt <sup>s</sup> ē	*yək <sup>w</sup> ēnt <sup>s</sup> ē	<i>yäkwentse</i>	<i>yukes</i>
nom. pl. *-e	*yək <sup>w</sup> e	<i>yakwi</i>	[ <i>yukañ</i> ]
acc. *-ēns	*yək <sup>w</sup> ēns	<i>yakwem</i>	[ <i>yukas</i> ]

The good old thematic *o*-stems in \*-os, with nom. pl. PT \*-e < PIE pronominal \*-oy (extended to nouns as in many other IE languages). This vowel regularly palatalized a preceding consonant; the palatalization has been undone in most cases by analogy to the sg., but survives in e.g. TB *kercci* ‘swords’, *kokalyi* ‘chariots’ to *kertte*, *kokale*. TA has replaced many of these pls. with *-añ*, acc. *-as*, but many are retained in the adjective, e.g. TB *trici*, TA *trice* (with palatalization) to TB *trite*, TA *trit* ‘third’.

### 2a. Masculine/feminine

nom. *-e	*meñe	<i>meñe</i>	<i>mañ</i> ‘moon’
acc. *-ə	*meñə	<i>meñ</i>	<i>mañ</i>
gen. *-ənt <sup>s</sup> ē	*meñənt <sup>s</sup> ē	<i>meñantse</i>	
nom. pl. *-əy	*meñəy	<i>meñi</i>	

Often said to go back to hysterokinetic *n*- and *s*-stems with nom. sg. \*-ēn, \*-ēs (cf. Gr. ὑμήν ‘membrane’, Lat. *lien* ‘spleen’; Lith. *mėnuo*, gen. *mėnes-io* ‘moon’), but many details remain to be clarified. Note the type in TB *-iye*, A *-e* of TB *kālymiye*, acc. *kalymi* (pl. *kālymiñ*, *kālymiṃ*), TA *kālyme* (pl. *kālymeyāntu*) ‘direction’.

### 3. Feminine

nom. *-a	*śəna	<i>šana</i>	<i>śam</i> ‘woman’
acc. *-o	*śəno	<i>sano</i>	<i>śam</i>

The old type, confined to exactly three nouns: ‘woman’; TB *lāntsa* ‘queen’ (cf. ‘king’ below); and TB *šarya* ‘dear one’ (rather ‘lady’?), clearly a substantivized adjective. Probably PIE final \*-eh<sub>2</sub> > PT \*-a (see §3.2.3.2, 2), \*\*-eh<sub>2</sub>m > PIE \*-ām (Stang’s Law) > PT \*-o. See R. Kim 2009a, 2009b:78-81.

nom. *-o	*kəntwo	<i>kantwo</i>	<i>käntu</i> ‘tongue’
acc. *-a	*kəntwa	<i>kantwa</i>	<i>käntu</i>

Peters (1990) argues that at least some of these nouns go back to PIE hysterokinetic nouns in \*-éh<sub>2</sub>s, e.g. \*dnġ<sup>h</sup>wéh<sub>2</sub>s → \*gnġ<sup>h</sup>wās > PT \*kəntwo, or pl. \*-eh<sub>2</sub>es in \*d<sup>h</sup>oHneh<sub>2</sub>-es (cf. Lith. sg. *dúona* ‘bread’) > PT \*tano, but what of the others? See now Malzahn 2011.

nom. *-o	*prosko	<i>prosko, proskiye</i>	<i>praski</i>
acc. *-ai	*proskai	<i>praskai</i>	

The largest feminine type, with acc. \*-ai and in TB, pl. nom. *-aiñ*, acc. *-aim* /-ái-ñə, -ái-nə/ for disyllabics and *-añ*, *-am* /'-a-nə, '-nə/ for longer stems: *pyāpyo* ‘flower’, acc. *pyāpyai*, pl. *pyapyáiñ*, *pyapyáim* vs. *oñkolma* ‘she-elephant’, acc. *oñkolmai*, pl. *oñkolmañ*, *-am*\*. The division reflects a pre-PT sound change of posttonic \*ai > \*a / \_\_ N#; see Winter 1989. TA has generalized *-añ*, acc. *-ās* in *pyāpyāñ*, *pyāpyās*, but other secondary developments have also taken place. The nom. sg. variants in *-iye* are surely taken over from the *kālymiye* type above.

#### Smaller classes and irregular nouns

‘father’	TB	TA	PT	PIE
nom. sg.	<i>pācer</i>	<i>pācar</i>	*pacer	*ph <sub>2</sub> tér
acc.	<i>pātār</i>	<i>pātār</i>	*patər	*ph <sub>2</sub> tér-m̥
gen.	<i>pātri</i>	<i>pācri</i>	*patrəy	dat. *ph <sub>2</sub> tr-éy



‘king’	TB	TA	PT	PIE
nom. sg.	<i>wálo</i>	<i>wäl</i>	*wəlo	*wlānt-s? (cf. OIr. <i>fláith</i> )
acc.	<i>lānt</i>	<i>lānt</i>	*(w)lantə	*wlānt-m̥?
gen.	<i>lānte</i>	<i>lānt</i>	*(w)lantē	*wlānt-os
nom. pl.	<i>lāñc</i>	<i>lāmś</i>	*(w)lañcə	*wlānt-es

‘dog’				
nom. sg.	<i>ku</i>	<i>ku</i>	*kəw	*k̥wō
acc.	<i>kwem̥</i>	<i>koṃ</i>	*k̥w̥ənə	*k̥wónm̥

## 4.2. Adjectives

The adjective exhibits numerous complexities and irregularities, which have still not been fully described, but the main PIE types are well represented.

### 4.2.1. Thematic stems

Distinction in TB between mono- and disyllabic stems in \*-ro- in the masc. pl., cf. *lareñ* vs. *astari*. The latter inflection is followed by most other thematic adjectives, including the very productive ones in *-tte* (privatives), *-lle* (gerundives), *-şşe* (basic), and *-ññe* (appurtenance), except that the acc. sg. masculine is not marked by an additional *-m̥ /-n(ə)/*, and adjectives in *-şşe* and *-ññe* form the nom./acc. pl. in *-şşana* , *-ññana* (in late TB, also gerundive *-lyana*).

	‘dear’	‘pure’	‘non faciendus’	‘doable’	‘of the house’
Nsg. masc.	<i>lāre</i>	<i>astāre</i>	<i>ayāmätte</i>	<i>yamälle</i>	<i>ostaşşe</i>
A	<i>larém̥</i>	<i>astareṃ</i>	<i>ayāmäc̥ce</i>	<i>yamalye</i>	<i>ostaşşe</i>
Npl.	<i>laréñ</i>	<i>astari</i>	<i>ayāmäcci</i>	<i>yamalyi</i>	<i>ostaşşi</i>
A	<i>laré(nä)m̥</i>	<i>astareṃ</i>	<i>ayāmäc̥ceṃ</i>	<i>yamalyeṃ</i>	<i>ostaşşeṃ</i>
Nsg. fem.	<i>laríya</i>	<i>astarya</i>	<i>ayāmäcca</i>	<i>yamalya</i>	<i>ostaşşa</i>
Asg.	<i>laríyai</i>	<i>astaryai</i>	<i>ayāmäccai</i>	<i>yamalyai</i>	<i>ostaşşai</i>
N/Apl.	<i>laróna</i>	<i>astarona</i>	<i>ayāmättona</i>	<i>yamallona</i>	<i>ostaşşana</i>

Surprisingly, the feminine suffix continues \*-ih<sub>2</sub>-, NOT \*-eh<sub>2</sub>-! This fact has recently received much attention, along with the reflexes of abstract and collective \*-h<sub>2</sub>- formations in Tocharian: see. R. Kim 2009a, forthcoming b, Hackstein 2012, Pinault 2012.

In TA, most thematic adjectives have masc. pl. nom. *-e*, acc. *-es* < PT \*-e, \*-ëns and fem. *-i* < PT \*-əya (acc. *-ām* with overt ending, e.g. *āštāryām*, *yāmlyām*). Continuous recharacterization of the endings has produced a wealth of variants especially in the *-ši* adjectives (< PT \*-šəyë, TB *-šše*): masc. acc. *-ši*, *-šiṃ*, *-šinām*, fem. acc. *-ši*, *-šiṃ*, *-šinām*, *-ššām*, *-šyām*.

#### 4.2.2. Consonant stems

The three most important consonant-stem classes are *nt*-stems, almost all continuing PIE \*-went-; preterite participles in PIE \*-wos- ~ \*-us-; and *n*-stems. TA has mostly conflated the first two into a single inflectional type, along with the masculine of *n*-stems; later TB replaces *-n-* with *-nt-* in acc. *klyomom* → *klyomont*. Paradigms below for ‘worthy’, ‘(having) done, made’, and ‘famous’.

		TB		TA		
Nsg. masc.	<i>perne<sub>u</sub></i>	<i>yāmu</i>	<i>klyomo</i>	<i>parno</i>	<i>yāmu</i>	<i>klyom</i>
A	<i>pernent</i>	<i>yāmoṣ</i>	<i>klyomom</i>	<i>parnont</i>	<i>yāmunt</i>	<i>klyomānt</i>
Npl.	<i>perneñc</i>	<i>yāmoṣ</i>	<i>klyomoñ</i>	<b><i>parnoṣ</i></b>	<i>yāmuṣ</i>	<i>klyomäṣ</i>
A	<i>pernentäm</i>	<i>yāmoṣäm</i>	<i>klyomom</i>	<i>parnoñcäs</i>	<b><i>yāmuñcäs</i></b>	<i>klyomänñcäs</i>
Nsg. fem.	<i>pernauntsa</i>	<i>yāmusä</i>	<i>klyomña</i>	<i>parnoṃts</i>	<i>yāmus</i>	<i>klyomiṃ</i>
Asg.	<i>pernauntsai</i>	<i>yāmusai</i>	<i>klyomñai</i>	<i>parnoṃtsām</i>	<i>yāmusām</i>	<i>klyominām</i>
N/Apl.	<i>pernenta</i>	<i>yāmuwa</i>	<i>klyomñana</i>	<i>parnont</i>	<b><i>yāmunt</i></b>	<i>klyomināñ, -ās</i>

Note also TB, TA *pont-* ‘all’: TB has an invariant sg. *po* (both genders and cases), and TA nom. sg. *puk* (acc. m. *poñcäm*, f. *pontsām*).

#### 4.2.3. Other features

The productive genitive singular ending is TB *-epi*, TA *-(y)āp*, of obscure origin, though the *-p-* may be related to the adverbial \*-b<sup>h</sup>- that was grammaticalized in (post-)PIE in oblique case endings.

Tocharian has a number of **suppletive** adjectives.

	‘good’		‘big’			
	TB	TA	PT	TB	TA	
Nsg. masc.	<i>kartse</i>	<i>kāsu</i>		<i>orotstse</i>	<i>tsopats</i>	
A	<i>krent</i>	<i>krant</i>	*krēntə	<i>orocce</i>	<i>tsopatsām</i>	
Nsg. fem.	<i>kartsa</i>			<i>orotstsa</i>	<i>tsopatsi</i>	
A	<i>kartsai</i>	<i>krāntsām</i>		<i>orotstsai</i>	<i>tsoptsām</i>	
Npl. masc.	<i>kreñc</i>	<i>krañś</i>	*krēñcə	<i>orocci</i>	<i>śāwe</i>	
A	<i>krentām</i>	<i>krañcās</i>	*krēntəns	<i>orocceṃ</i>	<i>śāwes</i>	
N/Apl. fem.	<i>krenta</i>	<i>krant</i>	*krēnta	<i>orotstsana</i>	<i>śāwaṃ</i>	

### 4.3. Pronouns

The prehistory of the personal and demonstrative pronouns contains a number of unsolved problems. I discuss the major types here.

#### 4.3.1. Personal pronouns

	TB	TA	TB	TA
nom. sg.	<i>ñās, ñis</i>	<i>nāś, f. ñuk</i>	<i>twe (tuwe)</i>	<i>tu</i>
acc.	<i>ñās, ñis</i>	<i>nāś, f. ñuk</i>	<i>ci</i>	<i>cu</i>
gen.	<i>ñi</i>	<i>ñi, f. nāñi</i>	<i>tañ</i>	<i>tñi</i>
nom./acc. du.	<i>wene</i>		<i>yene</i>	
nom./acc. pl.	<i>wes</i>	<i>was</i>	<i>yes</i>	<i>yas</i>
gen.	<i>wesi, wesāñ</i>	<i>wasām</i>	<i>yesi, yesāñ</i>	<i>yasām</i>

TB *twe*, TA *tu* < PT \*təwē < PIE \*tuH-om (Ved. *tuwám*) and TB *ci*, TA *cu* < PT \*cəwʷə < PIE \*tewe, but the etymology of the others remains largely obscure. Noteworthy is the existence of separate masculine and feminine forms for ‘I’ in TA. For an intriguing suggestion, see Jasanoff 1989.

### Clitic personal pronoun

	TB	TA	PT
1sg.	-ñ /-ñə/	-ñi	*-ñəyə?
2	-c /-cə/	-ci	*-cəyə?
3	-ne	-ṃ	*-nē
1-3pl.	-me	-m	*-mē

### 4.3.2. Demonstrative pronouns and adjectives

These continue PT \*sē, \*sa, \*tē < PIE \*so, \*seh<sub>2</sub>, \*tod, with various suffixes; the unsuffixed forms survive only in TB. On the prehistory of the suffixed demonstratives, see Stumpf 1971, Pinault 2009.

TB <i>se, s̄a, te</i>	TA <i>s̄as, s̄ās, t̄aṣ</i>	‘this’	(Skt. <i>ayam</i> )
TB <i>su, s̄a<sub>u</sub>, tu</i>	TA <i>s̄ām, s̄āṃ, t̄ām</i>	‘that, he/she/it’	(Skt. <i>sa-, ta-</i> )
TB <i>seṃ, s̄āṃ, teṃ</i>	TA <i>saṃ, s̄āṃ, taṃ</i>	‘this here’	(Skt. <i>eṣa-</i> )
TB <i>sam(p), som(p), tam(p)</i>		‘that there’	(Skt. <i>asau</i> )

		TB			TA		
		masc.	fem.	neut.	masc.	fem.	neut.
Nsg.	<i>se</i>	<i>s̄a</i>	<i>te</i>	<i>s̄as</i>	<i>s̄ās</i>	<i>t̄aṣ</i>	
A	<i>ce</i>	<i>t̄ā</i>	<i>te</i>	<i>caṣ</i>	<i>t̄āṣ</i>	<i>t̄aṣ</i>	
G	<i>cwi ~ cpi</i>	<i>t̄āy</i>	<i>tentse</i>	<i>caṣi</i>			
Npl.	<i>cey ~ cai</i>	<i>toy</i>		<i>ceṣ</i>	<i>toṣ</i>		
A	<i>ceṃ</i>	<i>toy</i>		<i>cesās</i>	<i>tosās</i>		
G	<i>ceṃts</i>			<i>cessi</i>			

Nsg.	<i>su</i>	<i>sā<sub>u</sub></i>	<i>tu</i>	<i>sām</i>	<i>sām</i>	<i>tām</i>
A	<i>ce<sub>u</sub>, cau</i>	<i>tā<sub>u</sub></i>	<i>tu</i>	<i>cam</i>	<i>tām</i>	<i>tām</i>
G	<i>cwi ~ cpi</i>	<i>tāy</i>	<i>tuntse</i>	<i>camī</i>	<i>temi</i>	<i>tmis</i>
Ndu.	<i>tai</i>			<i>tīm</i>		
G	<i>tainaisi</i>					
Npl.	<i>cey ~ cai</i>	<i>toṃ</i>		<i>cem</i>	<i>tom</i>	
A	<i>ceṃ</i>	<i>toṃ</i>		<i>cesām</i>	<i>tosām</i>	
G	<i>ceṃts</i>	<i>toṃts</i>		<i>cesmi</i>	<i>tosmāśsi</i>	
Nsg.	<i>seṃ</i>	<i>sām</i>	<i>teṃ</i>	<i>saṃ</i>	<i>sām</i>	<i>taṃ</i>
A	<i>ceṃ</i>	<i>tām</i>	<i>teṃ</i>	<i>caṃ</i>	<i>tām</i>	<i>taṃ</i>
G	<i>cwi ~ cpi</i>	<i>tāy</i>	<i>tentse</i>	<i>cani</i>		<i>tanis</i>
Npl.	<i>cey ~ cai</i>	<i>to(y)na</i>		<i>ceṃ</i>		
A	<i>ceyna</i>	<i>to(y)na</i>		<i>cesām</i>		<i>tosām</i>
G	<i>ceynaṃts</i>	<i>to(y)naṃts</i>		<i>cesni</i>		
	<i>~ cainaṃts</i>					
Nsg.	<i>samp</i>	<i>somp</i>	<i>tamp</i>			
A	<i>comp</i>	<i>tomp</i>	<i>tamp</i>			
G	<i>cwimp</i>	<i>tāy</i>	<i>tentse</i>			
Npl.	<i>ceymp ~ caimp</i>	<i>toymp</i>				
A		<i>toymp</i>				
G	<i>cempamts</i>					
	<i>~ cainaṃts</i>					

These pronominal stems form the basis for several adverbs, including:

TB *tesa*, *tusa* (perl. of *te viz. tu*), TA *tāmyo* (instr. of *tām*) ‘thereby, therefore, thus’

TA *tṣaṃ*, *tṣā* (loc. viz. all. of *tāṣ*) ‘here’

TB *tu*, TA *tām* ‘then, in that case’

TB *tumeṃ*, TA *tmāṣ* (abl. of TB *tu*, TA *tām*; TA also *tmā*) ‘thereupon, then’

TB *tune*, TA *tmaṃ* (loc. of TB *tu*, TA *tām*) ‘therein, there’

TA *tämne, tamne* ‘in this/that way, thus’ (on this *-ne* see §4.3.3)

TB *tane* ‘here, hither’ (stem /tə-/)

TB *taisa, taisu, taise, taiseṃ* ‘thus, so; in this/that way’

TB *tot*, TA *täpreṃ* ‘so much, so many, so far’

### 4.3.3. Interrogative and relative pronouns

Interrogative ‘who, which?’

	TB	TA	PT	PIE
nom.	<i>k<sub>u</sub>se</i>	<i>kus</i>	*k <sup>w</sup> əsĕ	*k <sup>w</sup> is + *so
acc.	<i>k<sub>u</sub>ce</i>	<i>kuc</i>	*k <sup>w</sup> əcĕ	
gen.	<i>ket(e)</i>	<i>ke</i>	?	

The corresponding relative pronoun is TB *k<sub>u</sub>se*, acc. *k<sub>u</sub>ce*, TA *kus ne*, acc. *kuc ne*. Late TB reduces *k<sub>u</sub>se*, *k<sub>u</sub>ce* to *se*, *ce*. The relative particle *-ne* also surfaces in other relative pronouns, e.g.

TB *mäkte*    TA *mänt*    ‘how?’ (Skt. *katham*)

TB *mäkte*    TA *mäntne*    ‘as; so that’ (Skt. *yathā*)

TB *mant*    TA *tämne, tamne*    ‘so, thus’ (Skt. *tathā*)

TB *kos*    TA *kos, kospreṃ*    ‘how much? how long?’

TB *kos*    TA *kosne, kospreṃne*    ‘as much as, as long as’

TB *tot*    TA *täpreṃ*    ‘so much, so many, so far’

### 4.4. Numerals

Most of the numerals were recognized as IE already in the earliest years of Tocharian studies, though the details are often open to debate:

TB m. *še* ‘1’ [TA *sas*] < PT \**še* < PIE \**sēm* (Hilmarsson 1984), acc. TB *šeme*, TA *šom*,

pl. TB *šemi*, TA *šome* ‘some’ < PT \**šemĕ*, \**šeme* < thematized \**sēm-o-*

TB f. *sana*, obl. *somo, sanai*, TA *sām*, pl. TB *somona*, TA *šomaṃ* < PT \**səna*, \**somo-*

TA m. *wu* ‘2’ < PT \**wəw* \*[*wu*] < PIE masc. \**dwóh<sub>1</sub>*

TA f. *we*, TB m./f. *wi* ‘2’ < PT \*w<sub>2</sub>e < PIE fem./neut. \*dwoy<sub>h</sub>1

TB m. *trey* ~ *trai*, TA m. *tre* ‘3’ < PT \*tr<sub>2</sub>ey(ə) <— PIE \*tr<sub>2</sub>eyes (\*tr<sub>2</sub>oyes?)

TB f. *tarya*, TA f. *tri* ‘3’ < PT \*t<sub>2</sub>r<sup>(y)</sup>ya < \*tr<sup>(y)</sup>aya < PIE \*trih<sub>2</sub> (Ved. *trī́*, Av. *θrī*, Hom. *τρία*, OCS *tri*)

TB m. *stwer*, m./f. TA *stwar* ‘4’ < PT \*s<sub>2</sub>ətw<sub>2</sub>er<sup>(y)</sup>ə < PIE \*k<sup>w</sup>etw<sub>2</sub>ores (Ved. *catvārah*, Gr. Doric *τέτορες*)

TB f. *stwāra* [TA f. *stwar* by sound change or generalized masculine?]

TB *piś*, TA *pāñ* ‘5’ < PT \*p<sup>y</sup>əñs<sub>2</sub>ə < PIE \*p<sub>2</sub>énk<sup>w</sup>e

TB *ṣkas*, TA *ṣāk* ‘6’ < PT \*ṣək<sub>2</sub>ə (TB *ṣkas* rebuilt to *ṣkaste* ‘sixth’)

TB *ṣukt*, TA *ṣpāt* ‘7’ < PT \*ṣəpt<sub>2</sub>ə < PIE \*sept<sub>2</sub>h<sub>1</sub>

TB *okt*, TA *okāt* ‘8’ < PT \*ok<sub>2</sub>tə <— \*ok<sub>2</sub>təw [\*ok<sub>2</sub>tu] < PIE \*ok<sub>2</sub>t<sub>w</sub>

TB, TA *ñu* ‘9’ < PT \*ñəw<sub>2</sub>ə < PIE \*h<sub>1</sub>néw<sub>2</sub>

TB *śak*, TA *śāk* ‘10’ < PT \*śək<sub>2</sub>ə < PIE \*d<sub>2</sub>ék<sub>m</sub>

TB *ikām*, TA *wiki* ‘20’ < PT \*w<sup>y</sup>ikən < PIE \*w<sub>1</sub>k<sub>2</sub>ih<sub>1</sub> (< \*\*dw<sub>1</sub>-dk<sub>2</sub>ih<sub>1</sub>)

TB *tāryāka*, TA *taryāk* [with *a* from *stwarāk*, for \**tāryāk*] ‘30’ < PT \*t<sub>2</sub>r<sup>(y)</sup>yāka < PIE \*trih<sub>2</sub> (d)k<sub>2</sub>omt (< \*\*-omt-h<sub>2</sub>, cf. Gr. *τριάκοντα*; Schindler 1967)

TB *stwārka*, TA *stwarāk* ‘40’

TB *p<sub>2</sub>śāka*, *piśāka* /p<sup>y</sup>əśāka/, TA *pñāk* ‘50’

TB *ṣkaska*, TA *sāksāk* [< \*ṣāksāk] ‘60’

TB *ṣuktānka*, TA *ṣāptuk* ‘70’

TB *oktānka*, TA *oktuk* ‘80’

TB *ñumka*, TA *nmuk* ‘90’

TB *kante*, TA *kānt* ‘100’ < PT \*k<sub>2</sub>ənt<sub>2</sub>ə < PIE \*k<sub>2</sub>ih<sub>1</sub>tóm

TB *yaltse*, TA *wālt<sub>s</sub>* ‘1000’ < PT \*w<sup>y</sup>əlt<sub>s</sub>ə to PIE \*w<sub>2</sub>eld<sup>h</sup>-? (cf. Lith. *tūkstantis*, OCS *tysoŭstī*, PGmc. \*þūsundi- ‘strong hundred’)

TB *tmāne*, *tumane*, TA *tmām* ‘10,000’ (cf. Iranian and Turkic cognates; Eurasian *Wanderwort*)

## 5. Verbal morphology

The Tocharian verb exhibits numerous idiosyncratic developments alongside a wealth of interesting and archaic features, and has played an increasingly prominent role in the reconstruction of the PIE verbal system.

### 5.1. Inflectional categories

Both languages have the same morphological categories and system of stem derivation. Each verb has five “principal parts”, from which all other forms may be derived:

- imperfective (**present**) stem:  
present and imperfect (= non-past and past)  
present participle active and middle  
gerundive I (denoting obligation, Latin *-ndus*)  
infinitive (TA only!)  
agent nouns in TB *-enta*, *-uki*, other mostly unproductive suffixes, e.g. *kaus-enta* ‘murderer’, *kälpássh-uki* ‘thief’
- perfective (**subjunctive**) stem:  
subjunctive/future and optative (= non-past and past of the perfective stem)  
gerundive II (possibility, Latin *-bilis*)  
verbal noun or “abstract”, almost always built to gerundive II  
infinitive (TB only!)  
TB privative in *-tte* (TA relics in *-t*)
- **imperative** stem: imperative
- **preterite** stem: preterite
- **preterite participle** stem: preterite participle, “absolute” (deverbal noun, cf. Skt. *-tvā*, *-ya*)



	Imperfective (Present)	Perfective (Subjunctive)	Imperative	Preterite	Pret. Ptcp.
finite	Present	Subjunctive			
	Imperfect	Optative			
			Imperative		
				Preterite	
nonfinite	Pres. <i>nt</i> -Ptcp. Pres. <i>m</i> -Ptcp.				Pret. Ptcp.
	Gerundive I	Gerundive II			
	(verbal noun)	Verbal Noun			Absolutive
	Infinitive (TA)	Infinitive (TB)			
	Agent nouns	Privative			

Note that the infinitive is built to the imperfective (present) stem in TA, but to the perfective (subjunctive) stem in TB. The imperfect is formally divergent in TA and TB (except for ‘be’ and ‘go’), but is always formed to the present stem in TB with suffix *-i-*, and usually in TA with suffix *-ā-*. (On exceptional TA *lyāk* ‘was seeing’, *pārat* ‘was taking’, pl. *śārsar* ‘knew’, *crāṅkās* ‘was saying’, etc., see now Peyrot 2012b, R. Kim forthcoming.)

In practice, most verbs do not distinguish five separate stems. Especially in TA, most verbs have a single stem for the perfective, imperative, preterite, and pret. ptcp., so much so that Sieg, Siegling, and Schulze (1931) classify subjunctive forms under the preterite stem. TB has gone slightly further than TA in creating innovative subjunctive and/or present stems, so more verbs in that language contrast three stems for imperfective, perfective, and preterite.

The preterite participle of most verbs can be predicted from the preterite, including *all* verbs ending in */-a-/*. In general, verbs not ending in */-a-/* exhibit more irregularities and greater unpredictability in their stem formation; see §5.2.3 below for more discussion. As might be expected, a few verbs form irregular imperatives (§§5.2.1, 5.3).

### 5.1.1. Aspect and tense

See Thomas 1957 on the usage of the various past-tense forms: imperfect, preterite, and periphrastic perfects. The preterite participle and gerundive II build a range of periphrastic constructions, e.g. resultative perfect, past irrealis, etc.; note especially that *mā* ‘not’ + gerundive II is the standard way to express negative futurity.

The designation of the present and subjunctive stems as “imperfective” and “perfective” is due to Winter (e.g. 1982:9, 1994b:286), and finds a neat parallel in North Slavic languages, where the present of the perfective has future reference in main clauses (cf. Russ. *píšet*, Cz. *píše* vs. *napišet*, *napše*). However, Peyrot (2010:155-327) has carried out an exhaustive study of uses of the subjunctive in both TA and TB, with reference to Old Turkic parallels of TA texts, and concludes that the subjunctive does not have any perfective value synchronically, but rather expresses uncertainty and hence (often in main clauses) futurity. If the Tocharian contrast of present and subjunctive goes back to an earlier aspectual distinction, as I believe, this must have broken down by the time of our documents.

### 5.1.2. Voice

The inherited voice distinction of active and mediopassive is robustly preserved. Most mediopassive verbs are either deponent (*medium tantum*) or denote middle voice (reflexive, self-interest, etc.), but passive examples are also found, e.g. TB *seṃ pśākka še cakanma ok taum yap pīnkce ikām še tānktsi śawāte* ‘this 51 *cāks* [and] 80 *taus* of wheat **was eaten** [from] the fifth to the 21st [of the month]’ (B461.3). For a detailed study of the middle in Tocharian, see Schmidt 1974.

### 5.1.3. “Grundverb” vs. “Kausativ”

A famous feature of the Tocharian verb is the widespread suffixation of PT \*-skē- ~ \*-ššə- ~ \*-s- (> TB /-ske-/ ~ /-ššə-/ ~ /-s-/; → TA -sa- ~ -š-) to derive transitives to intransitive roots and causatives to many, but not all, transitive roots. Krause and Thomas set up a fundamental divide between “Grundverb” and “Kausativ”, but not every verb forms both, and some “causatives” have the same meaning as the basic verbs from which they are derived. The label is useful, but we should rather think of them as marked transitives. On the formation of the causative, see §5.2.1.

Contrary to the handbooks, there is no contrast between causative and noncausative Class VIII *s*-presents; all presents of this class (usually with Class I or II subjunctive and Class III preterite) in fact have transitivizing meaning. Cf. Cl. VIII *wikšäm* ‘avoids’ vs. Cl. IXb *wikäššam* ‘removes’ (‘makes disappear’) to Cl. III *wiketär* ‘disappears’; the two have merged in TA *wikäs* ‘removes; avoids’. See the extensive discussion of Hackstein 1995:1-2, 147-65.

### 5.1.4. Person-number endings

#### Present/subjunctive

	TB	TA	PT	PIE
1sg. act.	-u /-əw/	-m	*-m	*-mi
thematic	-e <sub>u</sub> , -au /-ew/	-a-m	*-ē-m	(*-o-mi)
2	-t(o) /-t/	-t	*-tə	*-tu?
3	-ṃ	-ṣ	*-ṣə ~ *-Ø	*-ti
1pl.	-m(o) /-mə/	-mās	*-məsə, *-mə	*-mes- ~ *-me?
2	-cer (!)	-c	*-cə	*-te
3	-ṃ	-iñc ~ -i	*-əñcə ~ *-ən	*-ṃti
thematic	-e-ṃ	-eñc ~ -e	*-ē-ñcə ~ *-ē-n	*-o-nti
1sg. mid.	/-mar/	-mār	*-mar	*-h <sub>2</sub> e-r
2	/-tar/	-tār	*-tar	*-th <sub>2</sub> e-r
3	/-tər/	-tār	*-tər	*-to-r (<— *-o-r)
1pl.	/-mtər/	-mt(t)ār	*-m(ə)tər	*-med <sup>h</sup> <sub>2</sub> ?
2	/-tər/	-cār	*-Xər?	*-dh <sub>2</sub> we?
3	/-ntər/	-ntār	*-ntər	*-nto-r (<— *-ro-r?)

#### Imperfect/optative

1sg. act.	-m /-mə/	(-m)	*-mə	(*-m)
3	-Ø	(-ṣ)	*-Ø	*-Ø

All others like present/subjunctive.

#### Imperative

2sg. act.	-Ø	-Ø	*-Ø	*-Ø
pl.	-so	-su	*-so?	

2sg. mid.	-r	-r	*-r
pl.	-t	-c	*?@

Preterite

a-preterites

1sg. act.	/-a-wa/	-ā	*-a-wa?	
2	/-a-sta/	-ā-št (-a-št)	*-a-sta-	*-s + *-th <sub>2</sub> e?
3	/-a/	-Ø, -ā-	*-a	*-t
1pl.	/-a-mə/	-ā-m (-a-m)	*-a-mə	*-me
2	/-a-sə/	-ā-s (-a-s)	*-a-sə	?
3	/-a-rē/	-ā-r (-a-r)	*-a-rē	perf. *-r + *-ont

(pre)sigmatic

1sg.	/-ə-wa/	-u, -wā	*-ə-wa?	
2	/-ə-sta/	-äšt	*-ə-sta	*-s + *-th <sub>2</sub> e?
3	/-əsa/	-äs	*-əsa	*-s-t?
1pl.	/-ə-mə/	-äm	*-ə-mə	*-me
2	/-ə-sə/	-äs	*-ə-sə?	
3	/-ə-rə/	-är	*-ə-rē	perf. *-r + *-nt
1sg. mid.	/-a-mai/	-e	*-(a)-ai	*-h <sub>2</sub> e + *-i?
2	/-a-tai/	-ā-, -(a)-te	*-a-tai	*-th <sub>2</sub> e + *-i?
3	/-a-te/	-ā-, -a-t	*-a-tē	*-to
1pl.	/-a-mte/	-ā-, -a-mät	*-a-mtē	*-med <sup>h</sup> h <sub>2</sub>
2	/-a-tə/	-ā-, -ac	*-a-Xə?	
3	/-a-nte/	-ā-, -a-nt	*-a-ntē	*-nto

## 5.2. Stem formation

### 5.2.1. Traditional classification

Krause and Thomas (1960) divide Tocharian stem formations into the following types.

#### Present

- I: athematic to root not ending in PT \*-a-, with originally epenthetic *Stützvokal* \*-ə- before ending
- II: thematic, stem vowel PT \*-<sup>y</sup>ə- ~ \*-ë- < PIE \*-<sup>e</sup>/<sub>o</sub>-
- III: intransitives in PT \*-e- (< PIE \*-é<sub>h1</sub>-?) to roots with internal vowel \*ə (\*əy, \*əw)
- IV: intransitives in PT \*-o- to roots with internal vowel \*a (\*ay, \*aw)
- V: athematic to roots ending in \*-a-
- VI: nasal-infixed to roots ending in \*-a-, PT \*-(ə)n-a-
- VII: nasal-infixed to roots not ending in \*-a- (TB only); athematic! (Schmidt 1985)
- VIII: thematic *s*-presents: PT \*-şə- ~ \*-së- < pre-PT \*-s<sup>e</sup>/<sub>o</sub>- (N.B. “non-causative” VIIIa vs. “causative” VIIIb invalid, see §5.1.3)
- IXa: suffix PT \*-şşə- ~ \*-s- ~ \*-skë- < PIE \*-sk<sup>e</sup>/<sub>o</sub>-
- IXb: same, but causative
- Xa: suffix PT \*-nə-şşə- ~ \*-nə-s- ~ \*-nə-skë- (nasal + \*-sk- suffix)
- Xb: same, but causative
- [XIa: suffix PT \*-sə-şşə- ~ \*-sə-s- ~ \*-sə-skë-; actually Cl. IX to roots ending in \*-s-]
- [XIb: same, but causative; only \*səwas- ‘rain’ beside \*səwa-, \*-s- not part of verb suffix (cf. TB *swese* ‘rain’)]
- XII: suffix PT \*-ññə- ~ \*-ññë-: denominal < \*-n- (originally *n*-stems) + PIE \*-y<sup>e</sup>/<sub>o</sub>-, or deverbal < PIE \*-nh<sub>2</sub>-y<sup>e</sup>/<sub>o</sub>- (cf. Ved. *gr̥bhāyāti* beside *gr̥bhnāti*)

#### Subjunctive

- I: athematic to roots not ending in PT \*-a- (§5.2.2); mostly *initial* stress in TB; roots with underlying /ə/ show **ablaut** between \*-ë- in the subj. act. sg. and \*-ə- elsewhere
- II: thematic, stem vowel PT \*-<sup>y</sup>ə- ~ \*-ë- < PIE \*-<sup>e</sup>/<sub>o</sub>-
- III: stem vowel PT \*-e- (or \*-ë-?)
- IV: stem vowel PT \*-əy- (\*[-i]) < PIE \*-(e)y<sup>e</sup>/<sub>o</sub>- (see R. Kim 2007a)

- V: athematic to roots ending in PT \*-a- (§5.2.2); many have *initial* stress in TB; roots with underlying /ə/ show **ablaut** between \*-ë- (> TB *ā* by *a*-umlaut, TA *a*) in the subj. act. sg. and \*-ə- elsewhere
- VII: (TA only) suffix PT \*-ñə- ~ \*-ñë- < ???
- IX: suffix PT \*-şşə- ~ \*-s- ~ \*-skë- to Cl. IX causative presents
- X: suffix PT \*-nə-şşə- ~ \*-nə-s- ~ \*-nə-skë- to Cl. X presents
- XII: suffix PT \*-ññə- ~ \*-ññë- to Cl. XII presents

### Preterite

- I: PT \*-a-, originally final vowel of set roots, reinterpreted as suffix and extended to almost all preterites (except Class VI relics); roots with underlying /ə/ (§5.2.2) show **ablaut** between act. sg. \*-’ə-, du./pl. -ë-(!), and mid. \*-ə-
- II: PT \*-a- to causative verbs with root vowel \*ə: originally reduplicated, preserved in TA but remodeled in TB, e.g. TA *śasārs* vs. TB *śārsa* ‘made know(n), announced’ (vs. Cl. I TB *śarsa*, TA *śārs* ‘knew’; R. Kim 2003a)
- III: PT 3sg. \*-əsa to roots *not* ending in \*-a-, stem vowel \*e < PIE \*ē: continues ancestor of classical PIE sigmatic aorist (§5.4.3)?
- IV: PT \*-şş-(əy)a- to causative verbs with root vowel \*a (and a few with \*ə)
- V: PT \*-ññ-(əy)a- to Class XII pres./subj.
- VI: old relics, thematized root aorists: ‘go out’, ‘come’ (R. Kim 2001, Pinault 1994:184-204), ‘drink’ (Schmidt 1997:258-9)

The imperative usually patterns with the subjunctive (e.g. TB *ptārka*, pl. *ptārkaso*, TA *ptark*, pl. *ptārkās* ‘let go!’ like subj. Cl. V TB *tārkaṃ*, pl. *tārkaṃ*, TA *tarkaş*, pl. *tārkeñc*) or preterite (TB *ptes*, mid. *ptāsar*, TA *ptas*, mid. *pātstsār* ‘put!’ like pret. Cl. III TB *tessa*, TA *casās*). Irregular forms include relics of PIE thematic \*-e (virtual PIE \*wok<sup>w</sup>-n-ye → \*pə-wēññə > PT \*poññə > TB *poñ*, TA *peṃ* ‘say!’), athematic \*-d<sup>hi</sup> (\*h<sub>1</sub>id<sup>hi</sup> → \*isi > \*(pə-)yəşə > TB *paş*, TA *piş* ‘go!’; Jasanoff 1987), and the \*-si imperative type (\*klewsi → PT \*pə-kl<sup>y</sup>ewşə > TB *pāklyauş*, TA *pāklyoş*; cf. Ved. *śróşi*, *ibid.*), as well as several TB iptvs. in *-e*, of obscure origin.

### 5.2.2. “a-roots” and “non-a-roots”

The most important division within the Tocharian verb system is that between roots ending and not ending in \*-a- (> TB /-a-/, TA *-ā- ~ -a- ~ -Ø-*). Since laryngeals between nonsyllabic segments became PT \*a, PIE *seṭ* roots, i.e. roots ending in a laryngeal, developed into roots ending in \*-a-. This is clearest from Class I preterites which continue PIE root aorists (Schmidt 1982; see below, §5.4.1):

PIE \*k<sup>w</sup>rih<sub>2</sub>- ‘buy’ (Ved. *krīṇāti*, mp. *krīṇīte*, OIr. *crenaid*, aor. Myc. *qi-ri-ja-to*, Hom. *πρίατο*) > \*k<sup>w</sup>r<sup>y</sup>aya- > PT \*k<sup>w</sup>ər<sup>(y)</sup>ya- > TB /kərya-/, pret. 1pl. *käryām*, mp. 1sg. *käryā-mai*, 2 *-tai*, 1pl. *-mte*;

PIE \*kedh<sub>2</sub>- (Hom. *σκέδα-σα*) > PT \*śəta- > TB pret. 2sg. *štasta*, 3pl. *štare* (w. dial., for *štāsta\**, *štāre\**) ‘scattered, sowed’

PIE \*stemb<sup>h</sup>H-t (Ved. *ástambhīt*) > PT \*ścəma > pret. TB *śama*, *ścmā(-c)*, TA *śäm* ‘stopped, came to a stand’

PIE \*kélh<sub>1</sub>-t > PT \*śəla > pret. TB *śala*, TA *śäl* ‘led’, mid. \*k<sub>l</sub>h<sub>1</sub>-tó > PT \*kəla-të > TB *klāte*, TA *klāt*

This root-final \*-a- was extended to many roots which were not originally *seṭ*, as well as many of obscure etymology. We can observe the spread of \*-a- to a limited degree in TB: the verb for ‘eat’ is /šəwa-/, but the pret. ptcp. *šeśu* /še-šəwə/ and isolated subj. 1sg. *šū* /šəwəw/ (for \*šuwu? Pinault 1994:170-82) preserve the earlier root \*šəw- < \*kyew- (OE *cēawan* ‘chew’, Pers. *jāv-īdan*). As we will see below, the morphology of roots ending in \*-a- was much more regular and predictable, and so was more readily learned by children and tended to be overapplied to other verbs.

Tocharian verb roots can also be divided into those with underlying root(-internal) vowel \*ə and those with \*a; the latter have various sources, but in those with identifiable PIE sources, the \*a appears to reflect a root-internal laryngeal (cf. PT non-pres. \*(s)ak- ‘be’ < PIE \*sth<sub>2</sub>-k- to \*steh<sub>2</sub>- ‘stand’). There are thus four possible types of roots, which may be labeled as follows (Peyrot 2010:44-7):

	internal *-ə-	internal *-a-
root not ending in *-a-	∅   ∅	a   ∅
root ending in *-a-	∅   a	a   a

### 5.2.3. Major patterns of verb stem formation

#### a. Roots ending in \*-a-

Present	Non-present
intransitives in *-e- (III/IV)	root in *-a- (V)
transitives in *-(ə)na- (VI)	root in *-a- (V)

- Note the high degree of predictability: most transitive verbs take nasal-infixes presents in PT \*-(ə)n-a-, whereas intransitives form mostly deponent presents in PT \*-e- or \*-o- < PIE stative \*-éh<sub>1</sub>-.
- A handful of originally Cl. VI presents have been recharacterized with the \*-sk- suffix to become Cl. X presents in \*-na-<sup>ssə</sup>/skē-. The original pres. may become subj., displacing the earlier Cl. V formation. Example: TB pres. Cl. X /kər-n-a-sk-/ ‘buy’, subj. Cl. VI /kər-n-a-/, pret. Cl. I /kərya-/.
- Cl. V subjs. to transitive Cl. VI presents continue old reduplicated formations (cognate with PIE perfect) and so exhibit initial stress and paradigmatic ablaut in TB, while Cl. V subjs. to intransitive Cl. III presents are inner-Tocharian innovations, and have regular second-syllable stress and no ablaut in TB. Similarly, Cl. I preterites to the first type go back to root aorists and show ablaut, while Cl. I preterites of the second type are likewise innovative and do not ablaut. For details, see R. Kim 2003b.

#### b. Roots not ending in \*-a-

Present	Non-present
simple thematic *- <sup>ə</sup> /ē- (II)	simple thematic *- <sup>ə</sup> /ē- (II)
thematic *-s <sup>ə</sup> /sē- (VIII)	root athematic (I)
	simple thematic *- <sup>ə</sup> /ē- (II)



thematic \*-<sup>ssə</sup>/skē- (IX)

root athematic (I)

thematic \*-ññ<sup>ə</sup>/ε- (XII)

thematic \*-ññ<sup>ə</sup>/ε- (XII)

“causative” \*-<sup>ssə</sup>/skē- (IX)

“causative” \*-<sup>ssə</sup>/skē- (IX)?

Note that TB drops root-final /-a-/ and has initial stress in the caus. pres. and subj.:

*anā-ššäm* /aná-/ ‘breathes (in)’ vs. caus. 1pl. *ānāskem* /án-/ ‘id.’;

*kārsanam* /kərs-én-a-/ ‘knows’ vs. caus. pres./subj. *sársäššäm* /sárs-/ ‘lets know, informs’;

*wiketär* ‘disappears’ (root /wəyká-/) vs. caus. pres./subj. *wikäššäm* /wəyk-/ ‘makes disappear, removes’.

TA likewise drops root-final *-ā-* in the pres., but regularly retains or adds *-ā-* in the subj., e.g. pres. *tsälp-äš-tär* ‘releases’, subj. *tsälp-ā-š-tär* vs. TB pres./subj. *tsälp-äs-tär* (to TA *tsälpā-*, TB /t<sup>s</sup>əlpə-/, non-caus. pres. TB *tsälpetär*, TA *šalpatär* ‘is released’).

### 5.3. Suppletion

Approximately a dozen verbs are suppletive, second only to Old Irish among IE languages. The most important are:

‘go’

- PT pres. Cl. I \*yə- (< \*i- <— PIE \*h<sub>1</sub>éy- ~ \*h<sub>1</sub>i-’ > TA *yäš*, pl. *yiñc*; TB 1sg. *yam*, 3 *yam*, but pl. *ynem* (<— \*yən + them. \*-en, whence 1pl. *ynem*, *m*-ptcp. *ynemane*)
- TB subj. = pres.; pret. sg. Cl. III *masa*, pl. Cl. III *maitär* (cf. pres. Cl. III *mitetär* ‘sets out, goes’)
- TA non-pres. *kalka-* ~ *kalkā-*

‘do, make’

- TA *ya-*, *ypa-* (distributed exactly like \*-e- vs. \*-o- forms in thematic paradigms; prehistory?); TB /yam-<sup>əssə</sup>/<sub>əske-</sub>/ rebuilt to subj. /yam-/  
• PT non-pres. \*yam-: subj. Cl. I (thematized as Cl. II in TA), pret. Cl. III (replaced in TB with secondary \*yam-əşşəya-)

‘stand (up), be standing’

- PT pres. Cl. II \*kəl<sup>y</sup>-ə/<sub>ē-</sub> (*medium tantum*; < \*kl<sup>y</sup>əy-ə/<sub>ē-</sub> < PIE aor. subj. \*kléy-<sup>e</sup>/<sub>o-</sub>)  
• PT non-pres. \*stēma- ~ \*ścōma- ~ \*stōma- (< PIE \*stemb<sup>h</sup>H-)

‘sit (down), be sitting’

- PT pres. Cl. II \*şəm<sup>y</sup>-ə- ~ \*şəm-ē-  
• PT non-pres. \*lēma- ~ \*l<sup>y</sup>əma- ~ \*ləma-

‘give’

- PT pres. Cl. IX \*ay-<sup>ssə</sup>/<sub>skē-</sub>, subj. Cl. I \*ay-  
• PT pret. Cl. I \*wəsa-  
• iptv. TB *pete*, pl. *petso*, *petes*, TA *paş*, pl. *pac*

‘take’

- PT pres. Cl. II \*pər<sup>(y)</sup>-ə- ~ \*pər-ē- (< PIE \*b<sup>h</sup>er-<sup>e</sup>/<sub>o-</sub>)  
• PT subj. TB /as-/, TA *kām(a)*-  
• PT pret. TB /kama-/, TA *kām(a)*-

‘lead’

- PT pres. Cl. II \*aś-ə- ~ \*ak-ē- (< PIE \*h<sub>2</sub>eĝ-<sup>e</sup>/<sub>o-</sub>)  
• PT non-pres. TB /waya-/, TA *wāwa-* (< PT \*waw<sup>y</sup>a-?)

The forms of the verb ‘be’ are also formed to several stems:

- present: PT \*nēs- > TB Cl. I *nes-*, TA Cl. II *nas-* (3sg. *naṣ*, pl. *neñc*)
- imperfect: PIE \*h<sub>1</sub>s-yéh<sub>1</sub>- (~ \*h<sub>1</sub>s-ih<sub>1</sub>-) > \*še + productive impf./opt. suffix \*-(ə)y- → PT \*sey > TB *sey* ~ *ṣai*, TA *še-ṣ* (with pres. -ṣ)
- non-present: PIE \*steh<sub>2</sub>- ‘be standing’ > \*sta-  
initial \*s- preserved only in TA iptv. 2sg. *pä-ṣtāk* ‘be!’  
PT \*ta- preserved in TA subj. 1sg. *tām*, 3 *tāṣ*, 3pl. *teñc* (~ *tākeñc*)  
otherwise PT \*taka- (subj. TB *tākam*; pret. TB 3sg. *tāka*, 3pl. *takāre*, TA 3sg. *tāk*, 3pl. *tākar*)

In addition, TB also has a copula *ste*, pl. *skente* < PIE \*h<sub>1</sub>s-skê-to, \*h<sub>2</sub>s-skô-nto, the only clear survival of the imperfect in Tocharian (Hackstein 1995:272-82, also on late TB pl. *stare*).

## 5.4. Evolution of verb stems and stem systems

Most inflectional categories and patterns of verbal stem derivation are of PIE date, including reflexes of nasal and stative presents and root and (pre-)sigmatic aorists.

### 5.4.1. PIE verb formations in Tocharian

The following reconstructed PIE verb categories have secure reflexes in Tocharian.

Aspect (Aktionsart)

Present	root (athematic)	Class I presents (non- <i>a</i> -roots) Class V pres.? ( <i>a</i> -roots)
	nasal infix	Class VII pres. (non- <i>a</i> -roots) Class VI pres. ( <i>a</i> -roots)
	simple thematic	Class II pres./subj. (only three! see §5.4.3)
	thematic *-sk <sup>o</sup> /o-	Class II pres./subj. Class IX pres. (subj.) [Class X pres. (subj.)]
	thematic *-y <sup>e</sup> /o-	Class XII pres./subj. (*-n- + *-y <sup>e</sup> /o-)

	*-nt-, *-mh <sub>1</sub> no- participles imperfect	<i>nt-</i> , <i>m-</i> participles TB copula <i>ste</i> , <i>skente</i>
Aorist	root (athematic)  proto-sigmatic  reduplicated (or originally imperfect?)	thematized in Class VI preterites (non- <i>a</i> -roots) Class I preterites ( <i>a</i> -roots), *- <i>a-</i> reinterpreted as suffix Class III preterites  Class II preterites
Perfect	(proto-)perfect  perfect ptcp.	Class I subjunctive (non- <i>a</i> -roots)? Class V subjunctive ( <i>a</i> -roots)? preterite participle, (formerly) reduplicated
Mood		
subjunctive	(present? aorist	Class II presents/subjunctives) Class II presents/subjunctives
optative		imperfects of ‘be’, ‘go’ all optatives and imperfects (except small TA class of reanalyzed preterites; R. Kim forthcoming a) Class I pret. in *-əya- to Class II pres./subj. Class IV pret. in *-şşəya- to Class IX pres./subj. Class V pret. in *-ññəya- to Class XII pres./subj.
imperative	root (athematic) in *-Ø thematic athematic *-d <sup>h</sup> i *-si ← s-subjunctive	Class I iptv. (roots in *-a-) ‘say!’ (see §5.2.1) ‘go!’ ‘give!’ ‘hear!’

### 5.4.2. PIE origin of Tocharian verb formations

Tocharian		PIE
present	<	present (athematic, thematic; root, nasal-infixed, suffixed) root present/aorist subjunctive
subjunctive	<	proto-perfect? (R. Kim 2007b) root aorist subjunctive
imperfect/optative	<	optative (*-yéh <sub>1</sub> - ~) *-ih <sub>1</sub> -
imperative	<	imperative (various types)
preterite	<	root aorist proto-sigmatic aorist? optative *-ih <sub>1</sub> -
preterite participle	<	perfect participle

### 5.4.3. Outstanding problems

- Remarkable paucity of inherited simple thematic presents (Ringe 2000): only \*pəṛ<sup>(y)</sup>-ə- ~ \*pəṛ-ë- ‘bring’, \*aś-ə- ~ \*ak-ë- ‘lead’, \*śaw<sup>y</sup>-ə- ~ \*śaw-ë- ‘live’ < (post-)PIE \*b<sup>h</sup>(e)r-<sup>e</sup>/<sub>o</sub>-, \*h<sub>2</sub>eĝ-<sup>e</sup>/<sub>o</sub>-, \*g<sup>w</sup>ih<sub>3</sub>w-<sup>e</sup>/<sub>o</sub>-. See also Jasanoff 1998, 2003, R. Kim 2012b.
- Origin of the Tocharian subjunctive, and its relation to the classical IE subjunctive and perfect: cf. Jasanoff 2003, R. Kim 2007b.
- Origin of the Class III preterite and its relation to the Hittite *hi*-conjugation pret. 3sg. in -š and the classical IE *s*-aorist: cf. Jasanoff 2003
- How did the morphological split between *a*-roots and non-*a*-roots become established?

## 6. Word formation and syntax

As the Tocharian languages are left-branching, the verb is usually clause-final in prose documents, but may be raised for various pragmatic effects. (Metrical texts not surprisingly

offer much variation.) The left-branching nature of Tocharian is also apparent in complex derivatives: it is far from rare to find nominals with four or even more suffixes, as in the following examples:

TB *raddhi-* *lak-* *äṣ(ṣ-* *äly)-* *ñe-* *ṣṣe*  
wonder see CAUSATIVE GERUNDIVE VB.NOUN ADJ  
‘of causing to see wonders’

TA *ākār-* *aś-* *n-* *um-* *in-* *ān-* *ac*  
tear eye DUAL ADJ FEM ACC.SG ALLATIVE  
‘to her of the teary eyes’, i.e. ‘to her whose eyes are both full of tears’ (Krause 1955:30-1)

Here once again we observe a typological similarity to Turkic languages or Japanese and Korean.

Along with the grammaticalization of postpositions as case markers (see §4.1.3), one also finds the opposite phenomenon in which suffixes become phrasal clitics:

TB *[tā<sub>u</sub>* *ri]-* *ṣṣi* *śāmna* *ṣemi*  
this.FEM. city.SG.OBL pertaining to human.PL.NOM one.MASC.  
SG.OBL PL.NOM  
‘some people of this city’ (PK 17.10 b5; Hackstein 2004:93 with refs.)

Cf. English possessive *'s* <— Old English *a*-stem gen. *-es* in *[the guy in our class who I ran into yesterday]'s dog just died*.

Nominal compounds are fairly common, although the overwhelming majority are Sanskrit or Prakrit borrowings. Due to massive cultural influence of Buddhism over the centuries, very few traces of PIE poetic language or naming practices survive in our texts: in addition to the famous TB *ñem-kälywe*, TA *ñom-klyu* ‘(name and) fame’, cf. (male) names of laymen such as *Kweṃ-toko* ‘running like a dog’ (Pinault 1987).

## 7. The position of Tocharian within Indo-European

Early on, many Indo-Europeanists were struck by the apparent connections between Tocharian and the western IE languages, particularly (Italo-)Celtic and Germanic. However, most of the relevant features turned out to be archaisms (and so of no value for subgrouping) or trivial innovations, most famously

- the “centum” merger of PIE palatals and velars: easily repeatable (like most phonetic mergers), also occurred between Proto-Anatolian and Hittite; and
- the primary *r*-endings of the mediopassive: archaism, also preserved in Anatolian (and Phrygian) in addition to Italic and Celtic; replaced in Indo-Aryan, Greek, and Germanic by \*-i from the active.

Adams has argued for a close connection between Tocharian and Germanic; likewise Georgiev for Tocharian and Balto-Slavic. Ringe (1990) argues persuasively that none of these hypotheses withstands closer scrutiny, and that Tocharian is not closely related to any other branch of IE. More recently, Hackstein (1998, 2005) adduces further innovations allegedly shared by Tocharian and “western IE” (including Greek and Balto-Slavic), but most of these are either possible archaisms or isolated syntagms, instances of grammaticalization, etc. involving Tocharian and a single other branch, e.g. Greek.

Today, the emerging (now general?) consensus holds that Tocharian is not closely related to any other branch, but rather was the second after Anatolian to diverge from the ancestral speech community. The remaining “Brugmannian” or Inner IE languages then underwent certain innovations in common, which may be projected back to “Proto-Inner-IE”.

### Morphological evidence

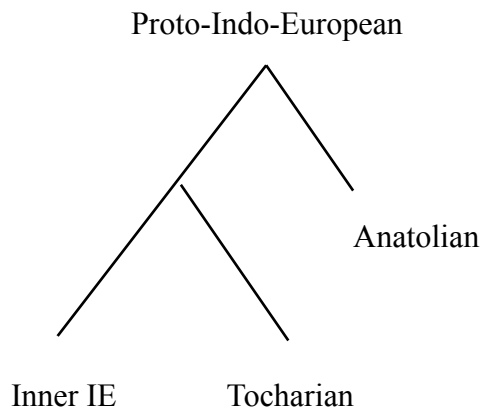
- Cl. III preterite with *-s-* formant in 3sg. only, vs. classical PIE sigmatic aorist; cf. Hitt. *hi-*conj. pret. 3sg. *-š* (Jasanoff 1988, 2003, with older references going back to Ivanov, Watkins, etc.; otherwise Ringe 1990)
- Paucity of simple thematic presents (Ringe 2000; see §5.4.3)

- Thematic optative \*-ih<sub>1</sub>- < \*-o-ih<sub>1</sub>- with deletion of thematic vowel as in *i*-stem abstracts and adjectives in \*-yo- to *o*-stem bases; remodeled in Italic and Celtic as \*-ā- (\*-eh<sub>2</sub>-?), elsewhere as \*-oih<sub>1</sub>- (see now Jasanoff 2009)
- Generalization of feminine adjectives in \*-ih<sub>2</sub>- to thematic bases, vs. Inner IE \*-eh<sub>2</sub>-? See R. Kim 2009b, forthcoming b, Fellner 2012.

Lexical evidence (see Winter 1968, 1997, Schmidt 1987, 1992)

- PIE \*h<sub>3</sub>eb<sup>h</sup>- ‘enter’ > PT \*yop- ~ \*yǝp- > TB /yop-/ ~ /yǝp-/ vs. Inner IE ‘f\*ck’ (Ved. *yábhati*, Gr. οἶφω, Russ. *jebú*): one-way semantic development!
- PIE \*wiHró- ‘young’ > TA *wir* vs. Inner IE ‘hero, man’ (Ved. *vīrá-*, Lat. *vir*, OIr. *fer*, Lith. *výras*): ditto
- PIE \*nók<sup>wt</sup>- ~ \*nék<sup>wt</sup>- ‘evening’ > Hitt. *nekuz (meḫur)* ‘evening time’, TB *nekciye*, TA *nakcu* ‘(yesterday) evening’) vs. Inner IE ‘night’
- PIE \*h<sub>2</sub>erh<sub>3</sub>-o- ‘plow’ > PT \*arē > TB *āre* vs. Inner IE \*h<sub>2</sub>erh<sub>3</sub>-tro- > Gr. ἄροτρον, W. *aradr* (Lat. *arātrum*)
- PIE \*(h<sub>1</sub>)é<sup>h</sup>h<sub>2</sub>g<sup>wh</sup>- ~ \*(h<sub>1</sub>)éh<sub>2</sub>g<sup>wh</sup>- ‘drink’ > Hitt. *ekw-* ~ *akw-*, PT \*yok<sup>w</sup>- > TB, TA *yok-* (cf. Lat. *ēbrius*); lost as a verb in Inner IE in favor of \*peh<sub>3</sub>- (R. Kim 2000b)

Computational models have also arrived at an optimal cladistic tree for IE with this same first-order subgrouping; see Ringe et al. 1998.





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