

## (M) Sound Judgments (1/3)

The Tocharian languages were an extinct branch of the Indo-European language family (including English, French, German, Greek, and many other languages in Europe and Asia). Linguists have reconstructed the ancestor language, called Proto-Indo-European, from which all the descendant branches descended.

A major part of language change is sound change, where a language's sounds shift around over time. Importantly, sound change is regular, and can be encapsulated neatly by writing down rules to describe how one stage of the language proceeds to the next. For example, a rule like  $t > d / \_r$  means that all instances of 't' change to 'd' before 'r', so *tree* would become *dree*, while:  $p > \emptyset / \_ \#$  means that all instances of 'p' disappear (change to 'zero') at the end of a word (represented as the hash #), so *stop* would become *sto*. Sound changes apply to all sounds, in all words, that fit their criteria.

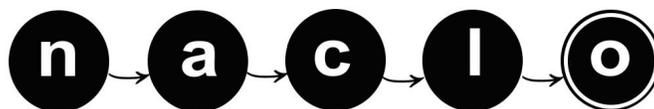
Because many ancient languages were never written down until recent millennia, linguists have to rely on clever deductions to work out the details of their early history. Our only records of Tocharian are some 9th century manuscripts around the Tarim Basin in western China, so our knowledge of its development comes from inferences of this type.

**M1.** Here are some Tocharian words, meaning "share", "row of teeth", "knee", "war", "one hundred", "dog", and "prop" respectively. These groups of words represent seven stages in the very early history of the language, in a random order:

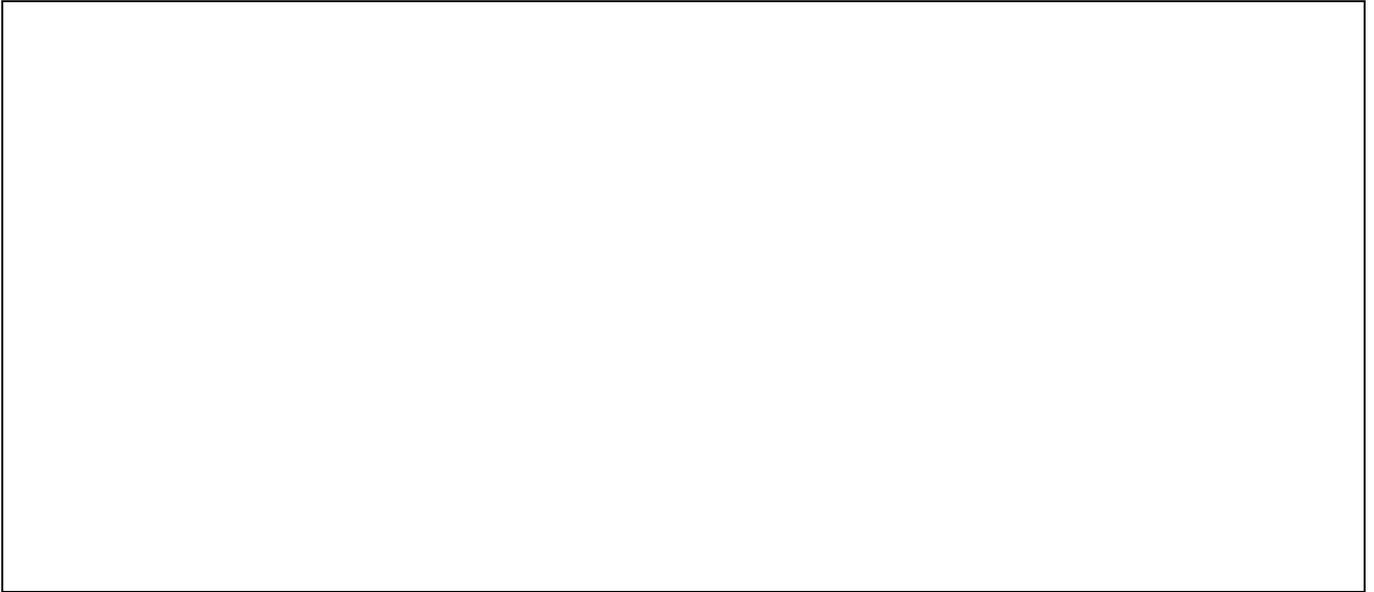
stage	"share"	"row of teeth"	"knee"	"war"	"one hundred"	"dog"	"prop"
(A)	pákos	kómos	kónu	kóro-	kṃtóm	kuó	stema-
(B)	págos	gómos	gónu	kóro-	kṃtóm	kuó	stema-
(C)	b <sup>h</sup> ágos	jómb <sup>h</sup> os	jónu	kóro-	kṃtóm	kuó	stemb <sup>h</sup> a-
(D)	b <sup>h</sup> ágos	jómb <sup>h</sup> os	jónu	kóro-	cṃtóm	cuó	stemb <sup>h</sup> a-
(E)	páko	kómo	kónu	kóro-	kṃtóm	kuó	stema-
(F)	b <sup>h</sup> ágos	gómos	gónu	kóro-	kṃtóm	kuó	stema-
(G)	b <sup>h</sup> ágos	gómb <sup>h</sup> os	gónu	kóro-	kṃtóm	kuó	stemb <sup>h</sup> a-

As we can see, between these stages of Tocharian, some sound changes have occurred. Put the stages in historical order, and write down rules describing the sound changes that happened in between each stage. If you can find different orders, explain which you think is the most likely. (The accent ´ on a vowel can be ignored.)

Earliest        Latest



## (M) Sound Judgments (2/3)



**M2.** Here in alphabetical order are some roots from a slightly later point in the early development of Tocharian, and their descendants later on in the history of the family:

	Early Tocharian	Later Tocharian
“they drive”	*agonti	*akën
“they are driven”	*agontor	*akëntär
“ten”	*dékämt	*śákə
“one hundred”	*kəmtóm	*kənté
“stag hunter”	*kēruwos	*śerəwë
“father”	*patér	*pacér
“running” (later > “river”)	*ték <sup>w</sup> os	*cák <sup>w</sup> ë
“that”	*tód	*té
“twenty”	*wíkanti	*w <sup>ʷ</sup> íkən



## (M) Sound Judgments (3/3)

Between these two stages of Tocharian, some further sound changes have occurred. Here they are in a random order. (Some changes apply to multiple sounds at once; a comma indicates this.)

- |  |                              |                             |                                     |
|--|------------------------------|-----------------------------|-------------------------------------|
| (A) $o > \ddot{e}$                         | (B) $nt > \emptyset / \_ \#$ | (C) $e > \text{ə}$          | (D) $or > ur / \_ \#$               |
| (E) $\ddot{e}, \bar{i}, \bar{u} > e, i, u$ | (F) $m > n / \_ \#$          | (G) $t > c / \_ e, \bar{e}$ | (H) $d > \acute{s} / \_ e, \bar{e}$ |
| (I) $n > \emptyset / \_ \#$                | (J) $m > n / \_ t$           | (K) $u > \text{ə}$          | (L) $k > \acute{s} / \_ e, \bar{e}$ |
| (M) $w > w^y / \_ i, \bar{i}$              | (N) $g > k$                  | (O) $d > \emptyset / \_ \#$ | (P) $s > \emptyset / \_ \#$         |
| (Q) $ti > \emptyset / n \_ \#$             |                              |                             |                                     |

Using any diagrams or notation you wish, write down as much as you can deduce about the order in which these changes happened, and *explain* how you have reached your answer.

