



HAL
open science

Tocharian *l-stems from an Indo-European Perspective

Véronique M Kremmer

► **To cite this version:**

Véronique M Kremmer. Tocharian *l-stems from an Indo-European Perspective. 40th East Coast Indo-European Conference hosted by Cornell University & Virginia Tech June 19, 2021, Jun 2021, Ithaca, France. hal-03354991

HAL Id: hal-03354991

<https://hal.science/hal-03354991v1>

Submitted on 27 Sep 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Tocharian **l*-stems from an Indo-European Perspective

Véronique M. Kremmer, M.A.

PhD student, École Pratique des Hautes Études, Paris Sciences et Lettres (EPHE - PSL)

40th East Coast Indo-European Conference hosted by Cornell University & Virginia Tech June 19, 2021

This publication belongs to the research conducted under the *HisTochText* project.

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No. 788205).

1 Introduction

- To this day we have no comprehensive survey of Tocharian nominal derivation.
- Tocharian inherited from Indo-European a productive pattern of deriving gerundives in **-lo-* or **-l(i)io* (>TB-*lle*, *-le* or *-lye*, TA *-l*) from verbal roots, and synchronically, verbal stems: present gerundive (Ger I, “ expresses necessity) and subjunctive gerundive (Ger II, expresses possibility).
- In addition to this productive use, Tocharian shows a few rare instances of **-lo-* in other nominals independent of the verbal paradigm, e.g., TB *lakle* (n. alt.) “pain, suffering” < **lug-lo-*.
- But besides the nominal forms going back to thematic stems, Tocharian appears to preserve remnants of athematic stems in **-l-* or **-vl-*.
- In its finished version, this paper aims to offer a comprehensive survey of Tocharian athematic *l*-stems, based on philological investigation, and suggest an interpretation of these stems in the framework of IE nominal derivation.

1.1 A few caveats when working with Tocharian:

- Need to distinguish inherited material from inner-Tocharian innovations and / or borrowings from various Central Asian (= Indian / Iranian / Sinitic / Turkic) languages
- Evidence from TA may be fallacious as **-los#* / **-lom#* > *-#* and maybe **-l(i)ios#* / **-l(i)iom#* > *-#* through suffixal depalatalization (Pinault 2008:458) “ “
- The Tocharian languages have undergone fundamental innovations in terms of nominal morphology (inflectional and derivational), so that the Tocharian evidence can hardly stand alone to reconstruct athematic **-l*-stems in IE.

2 Evidence for *-l/-stems in Indo-European

- Earliest accounts of *-l/-stems in Indo-European: Benveniste (1935:40-49), Fraenkel (1936), need to be revised: see, e.g., Rieken 2008, who showed that many supposedly archaic stems ending in *-l* and *-ul* in Hittite actually go back to thematic forms in **-l̥-lo-* and **-úl̥-lo-*, e.g., *hurk-l̥* "perversion" < **h₂urgí-lo-* "of turning/twisting" (also Melchert 2014:209)
- Evidence for archaic *-l/-stems or heteroclitic *-l/-n- (or **-uel/-uen-*) is relatively scarce, especially compared to **-r-* stems.
 - One possible explanation for this discrepancy: a phonotactic rule against **//* in absolute Auslaut, except in the sequence **-P^ol*, where *P* = any labial (Olsen 2010:78)
- Existence of *-l/-stems or **-Vl-*stems in PIE can often be merely inferred through the comparative method, as **-l/-*stems tend to be suffixed further (*viz.* thematized with the addition of **-o-*, or derived with **-eh₂₋*, e.g., the Latin *loquēla-* type).

2.1 Form and function of *-l/-stems in IE

- Because of the aforementioned scarcity of evidence, the ablaut patterns of **-l/-*stems are particularly difficult to reconstruct.
- The reconstructed forms are most often referred to as abstract nouns in the literature, but I hope to provide some more specification during the course of my (ongoing) research.
- Abstract or action nouns in **-l-* or **-Vl-* have been reconstructed with virtually all types of accent and ablaut pattern known in the framework of the so-called Erlangen Model, *viz.*:

proterokinetic	<i>*sépl</i> <i>*sp-él-D(∅)</i> "± honor"	LIV2 <i>*sep-</i> "(richtig) behandeln, in Ehre halten", Lat. <i>sepeliō</i> "bury", Ved. <i>saparyáti</i> 'honors'
hysterokinetic	<i>*d^huh₂-él-D(∅)</i> <i>*d^huh₂-l-D(é/ó)</i> "smoke"	LIV2 <i>*d^hueh₂₋</i> "Rauch machen", Gk. θύελλα 'squall', θυηλή (victim of) sacrifice', θυήλημα, Ion. pl. θυσάλήματα 'sacrificial offering(s)' (Vine 2008)
amphikinetic	<i>*g^héb^hh₂-ol-D(∅)</i> <i>*g^hb^hh₂-l-D(é/ó)</i> 'head'	Gk. κεφαλή "head", Gmc. <i>*gebla</i> "head, top", TA <i>šp^oal</i> (NIL s.v.)
acrostatic	<i>*sp^o-eh₂-l-D(∅)</i> <i>*speh₂-l-D(∅)</i> "± fullness"	Gk. πηλός "mud", TB <i>spel</i> , TA <i>spal</i> "mud, poultice", from <i>*speh₂₋</i> "be full", Malzahn 2014:260 fn. 5 (alternative explanations <i>cf. infra</i>)

3 Evidence for *-l/-stems in Tocharian

- Tocharian exhibits several stems in *-l* which are clearly athematic, as shown by the variety of plural formations: e.g., TB *pikwala*, TA *pukl^oa* 'years', TB *šaulanma*, TA *šoläntu* 'lives'.
- Tocharian also has *l*-stems which are (synchronically) based on characterized verb stems (Prs or Sub stem).
- Unfortunately, many of the stems ending in *-l* are *hapax legomena*: the meaning cannot always be determined with certainty due to lacking context, especially if no underlying verbal root is attested.

- A first approach: classification according to the surface form of the suffix, starting with Tocharian B, due to the ambiguous nature of the Tocharian A evidence (*cf. supra*). Within this classification, special attention is paid to root (R) vocalism (*-e-, *-o-, *-Ø-) and palatalization ([+pal] or [-pal]), suffix (S) shape, and palatalization ([+pal] or [-pal]) of the (root-final) consonant preceding the suffix.

These criteria might provide information about the original ablaut pattern, e.g., in very general terms¹:

- (R)[+pal] (points to PIE e-grade) combined with (S)[-pal] and (S) shape TAB /ä/ (< *-l or -l) might reflect an old proterokinetic stem
- (R)[-pal] (points mostly to PIE Ø-grade) combined with (S)[+pal] and (S) shape TAB /ä/ or TB or -al) (< *-el-) might reflect an old hysterokinetic stem
- (R)[+pal] (points to PIE e-grade) combined with (S)[-pal] and (S) shape TB /e/, TA /a/ (< *-ol-) might reflect an old amphikinetic stem
- acrostatic stems could technically be characterized by a (S) [-pal] and (S) shape /ä/ (< *-l or -l), and for the (R), either:
 - * (R)[+pal] and (R) vocalism TB /e/, TA /a/ (points to PIE e-grade; diphthongs */ei/ and */eu/ would surface as TB /ey, ai/, TA /e/ and TB /e_u, au/, TA /o/ respectively)
 - * (R)[-pal] and (R) vocalism TB /a, a/, TA /a/ (points to PIE o-grade; diphthongs */oi/ and */ou/ would surface as TB /ai/, TA /e/ and TB /au/, TA /o/ respectively).

The criterion (R)[+/-pal] is indicated only when relevant, (S)[+/-pal] is used to distinguish (potential!) old hysterokinetic stems in *-el (or derivatives in *-elo-, -eli-, see below.)

- Rieken 2008:253 "Hittite [...] has become more normal" (after supposedly athematic *-l-stems could be explained as thematic, *cf. supra*)

→ Can we make Tocharian more normal?

- some apparent l-stems with no obvious etymology may actually be loanwords, e.g., TA *w^ˉatsakäl*, TB *wats^ˉalo* "(some type of) bag, receptacle" < Skt. *vaksask^ˉara* "id." (details to be specified at a later date)
- some athematic l-stems may not actually go back to nominals in PIE *-l- or its allomorphs, but may be analyzed as endocentric substantivizations in *-i- or *-u- of thematic *-lo- and *-elo-stems, as in both Tocharian A and B, word-final *-i# and *-u# > PT *-ä- > Ø.
In that, case, Tocharian shows traces of a well-known pattern of substantivization known in other Indo-European languages, exemplified by Av. *tīyra-* (adj.) "pointed" → *tīyri-* (m.) "arrow" (Nussbaum 1999:399, more recently Grestenberger 2014:89, for *-u-substantivization see Höfler 2015, Massetti 2016).

3.1 Words ending in TB -l, except -ol

3.1.1 Hapaxes with uncertain meaning

- TB *atkwäl* "?", derived adj. *atkwaltse* "?"
THT 282 a4: *an^ˉkain placsa sew^ˉiträ atkwäl spä*, possible reading *se w^ˉiträ* 'he battles', thus "he battles against

¹ A few caveats here: (R)[+pal] is not always a valid criterion because 1) not all consonants are affected by palatalization, and 2) some root-initial consonants are always palatalized, if the root starts with a cluster *Ci, *cf. šuw^{a-}* 'eat' < **gieuH-*. As for the (S)-shape criterion, derivatives of roots that show so-called A-character (generally speaking, *set-* roots) will have to be treated with special caution because *-CH# would regularly surface as TAB -a^ˉ# and could potentially be confused with the outcome of PIE *-o^ˉ > TAB -a^ˉ.

bad speech and *atkwal*"

PK AS 16.8 a4: *-tsa atkwaltse: śan'ki-y(o)käm krän'kaimtsa k{a/e}m r̄i ram no ///* "... provided with With chickens of the color ... earth [and] city as if ..." [CEToM]

- TB *aś'al* "?: very fragmentary context THT 629 */// ntse aś'al mla ///*

3.1.2 /-stems not associated with a verbal root in Tocharian

(S)[-pal]

- TB *aps'al* "weapon, sword"
THT 17 b3: *aps'altsa y'amu p'ile kektsemne curnanmasa s'älypentasa nano m'isa rätan'kem*. "[If] with a sword I make a wound on the body, with powder [and] ointment the flesh comes into being again." [CEToM]
Etym.: Possibly a (proterokinetic?) abstract of a *set*-root which acquired a concrete meaning, but the etymology remains difficult: possibility of a loanword. A connection with YAv. *afša-* (m.) "damage" and GAv. *afšman-* (nt.) 'id.' is considered by *DoT*, s.v.. However, the Av. words seem to mean either 'loss' (Bartholomae: "Schaden, Verlust, damnum") or "deed" (Kent:1928: connection between *afšman-* and Skt. *āpas-*, Lat. *opus* (< **h₃ép-es*), but this is incompatible (semantically and phonetically) with the Tocharian form). Humbach:1991 translates as "merit". The connection with *afšman-* must, in my opinion, be abandoned. Another candidate for comparison: Skt. *aksara-* "sword" (L.) (MW:3a), but again, the phonology is difficult to reconcile².

- TB *pisäl* (= BHS *tusi-*), TA *psäl* "chaff of grain, husk", *sne-psäl klu* 'huskless rice'

Etym.: *DoT*, s.v. reconstructs PT * *piäsäl* from PIE **pes-l*, from **pes-* 'blow', c.f. OHG *fesa* "chaff", but also proposes a connection with a root **b^h us-* (popular Skt. *busa-* - (nt.), Lat. *furfur* "chaff"). Another possibility: a proterokinetic abstract **péis-l* "that which has been crushed" from **peis-* "crush" (*LIV2*:466, with Ved.

pinasti, Lat. *pins'o*, and maybe Gk. πτίσσω "crush grains").

- TB **śp'al* "head", derived adj. *śp'alu* "superior", TA *śp'al* "head"
Etym.: From a purely phonological point of view, *śp'al* could reflect either amphikinetic **g^héb^hh₂-ol* > PT **śäp'al* or a proterokinetic **g^héb^hh₂-l*. However, the Greek evidence (κεφαλή) points towards a proterokinetic stem.

- TB *spel* (m.), TA *spal* (f.) "mud, poultice", *TEB* I, §112 "Kügelchen"

Etym. : The correspondence TB / *e*/, TA /*a*/ combined with (R)[+pal] points to PT *-*e-* in the root (c.f. *supra* where *spel* is listed as a possible acrostatic stem). *DoT*: PT **spi-el(ä)*; with Malzahn 2014:260 I prefer the analysis as an "endocentric substantivization in *- *i* of a *vrd^hi-* adjective * (s)*peh₂lo-* "muddy"".

(S)[+pal]

- TB *warksäl*, TA *wärksäl* "power, might"

Etym.: Hackstein 1995:78ff postulates a sigmatic Prs VIII B /*w@rks-*/ A *wärks-* on the account that deverbal abstracts in /-(@)/- could be made from characterized present stems, citing *trokol* from Prs IV **trokotär* (objection by Malzahn

² It has to be noted that the cluster *-ps-* is rare in TB and usually spans over morpheme boundaries, e.g., *yopsa* 'he entered' 3sg Prt III of *yäp-*, *ru'psa*, perl. sg. of *rup* (m.sg.) 'face'

2010:672: **traukotär*), *aiwol* from *aiwotär* and *samsäl* from Prs = Sub II *samstär*. Another possibility: a hysterokinetic derivative in *-el- from a thematic adj. made on an **uér*-s-stem to the root **uér*-g- "be active, work", similarly to how Pinault 2015:396ff proposes to explain TB *eksalye*, TA *opsäly* (f.) "feast, wonder". Another possibility would be to derive an adjective of appurtenance in *-el- from an **ur*-s-stem (**ur*-g-s-elo-), which in turn was substantivized in (**ur*-g-s-eli-.) (cf. *infra*).

3.1.3 *l*-stems associated with a verbal root in Tocharian

3.1.3.1 Verbal roots which show A-character All items are (S)[-pal].

- TB *wätkäl* (adv. "decisively", derived adjs. TB *wätkältse* "different", TA *wätkälts* "firm", abstr. TA *wätkälune* (alt.) "decision"

Etym.: From *wätkäl* "decide" < **ui-d^hh₁-ské/ó-* < Melchert 1979:113. The TB adv. might be an old *l*-abstract used adverbially, cf. *aiwol*. In any case, this seems to be an inner-Tocharian formation, given that it is based on a Prs / Sub stem. This also provides evidence that *-l* as an abstract suffix remained productive for some time in Common Tocharian.

- TB *śwāl*, TA *śwāl* "meat, flesh, bait" (= +- BHS *amisa-*)

Etym.: From TAB *śuwäl* "eat, consume" (< **gieuH* but the details are tricky, see Malzahn 2010:923). While the TA form can be interpreted as a Ger II on the Sub V stem, the TB form cannot. The forms *śwālmem*, *śwālmem* are to be read as *śpālmem* "superior", with intervocalic /p/ > /w/. TB *śwāl* was probably derived from a Prs / Sub stem like *wätkäl*.

Difficult context in THT 295 a7: *yokaisse śwāl nukowä* "having swallowed the bait of thirst / desire".

3.1.3.2 Verbal roots which do not show A-character (S)[+pal]

- TB *samsäl* 'number, enumeration'

THT 45 a7, THT 169 a4 *snai samsäl* along with *snai yärm* and *snai keś*

Etym.: Derived from *säms-* "count, count as" < *(*s*)*kens-* - '(zweckgebunden) zählen' (Malzahn 2010:926). (S)[+pal] would point to either (1) a derivative from a present stem, e.g., Prs II *sämsam* (*sic*) or (2) a hysterokinetic derivative in *-el-, but that would not explain the root-initial palatalization since we would expect a \emptyset -grade there. Contamination from the present stem cannot be excluded, as can an endocentric substantivization meaning "+-the counted one" in either **u* or **i* on the basis of a possessive derivative in *-elo-.

- TB *eñcil* "tax" (?)

Ching 2011:74 fn.35 identifies the meaning "tax" or "taxable" depending on context, with expressions A[NOM.] B[OBL.] *eñcil tessa(ne)* "A placed a tax on B" and C *eñcil sai* "C was taxable".

Etym.: Clear connection with *en'k-* "seize, grasp". Root-final palatalization may point to a suffix **-el*. As cogently argued by Hackstein 1998:223ff, the Tocharian root form (in, e.g., the Sub I *en'ktär*) is derived from the \emptyset -grade **h₁nk* - of the root **h₁enk* - "seize". The form *eñcil* could thus mechanically be reconstructed as

. Of course, a substantivization in **-i-* of a derivative in **-eloa* the strong stem of a hysterokinetic **h₁nk-él* would also be possible, as would be a derivative from an intr. \emptyset -grade present stem in **-ie/o-*.

An interesting semantic comparandum: Gk. φόρος "tribute", a τόμος-type derivative of φέρω (to which **h₁enk* - makes the suppletive aorist ἤνεγκον).

(R)[-pal], (S)[-pal]

- TB *tren'käl*, pl. *tren'kalwa* "cling, attachment", *snai tren'käl* = BHS *asan'ga-*
Etym.: Derived from *tren'k-* "adhere, cling" (Prs. *tren'kastär* < PT **trän'k-*. Extra-Tocharian connections unclear. I would tentatively propose a connection with a putative *(s)*trengh-* "to be stiff, tighten" which should underlie Lat. *stringō* "to bind fast, tighten", **strongh-o-* > PGmc. **strang(j)a-* 'strong', and **strongh-i-* > PGmc. **strangi-* 'string' (Kroonen 483), but this leaves many problems unexplained and remains very speculative. The suffix, in any case, doesn't palatalize and is thus to be reconstructed as **-(ä)l*.
- TB *en'käl*, pl. *en'kalwa*, TA *en'käl* "passion"
Etym.: Derived from *en'k-* "seize, grasp"; original meaning must have been "takenness", cf. French *emprise*, and also TB *kapille* "fever" < **kh₂p(-ie)-lio-* "Ergriffensein" (Hackstein 2003:59). Because the root is fixed in the \emptyset -grade in Tocharian (cf. *supra*), and the [-pal]-suffix *-äl* also suggests a suffix (*-l*, or PT **-(ä)l*), it is easiest to assume this is an inner-Tocharian formation: note the parallelism with *tren'käl* in the plural forms (although both forms don't occur together often).
The TA form may be a loan from TB, as the corresponding root in TA is *emts-* (see *ents'al* "grip, handle", a probable substantivized gerundive). However, the *s*-extension of the verbal root in TA might be a relatively recent innovation (Malzahn 2010: s.v., with lit.), and *en'käl* might have been a Common Tocharian word.
- TB **kaläl* "womb"
THT 333 a4: *om no ceu kalälne ykuwes kautsiśco speltke yamasäm* "but then he makes zeal for killing this one who has come into the uterus"
Etym.: Multiple interpretations possible. It could be an **-l*-abstract built on the bare root or the Sub I stem of *käl-* "endure, bear" (Malzahn 2010:673). Ogihara 2013:208 proposes the hypothesis of a loan from Skt. *kalala-* (n.) "embryo, uterus". However, most TB forms borrowed from Sanskrit stems ending in *-Cala-* show the ending *-Cal* or *-C'al*: c.f., e.g., *kuśal* (adj.) "salutary" and *akuśal* (adj.) "inauspicious" from *kuśala-* and *akuśala-* respectively, and *man'k'al* "good fortune" from *man'gala-*.

(R)[+pal], (S)[-pal]

- TB *pikul*, pl. *pikwala* (f.), TA *p_ukäl*, pl. *pukl'a* (f.) "year"
Etym.: Van Windekens 1976:395, Pinault 1998:360f reconstruct PT **p'äkwäl*, pl. **p'äkwäl'a* < PIE **pék^u-l*, **pek^u-l-h₂*, a proterokinetic neuter abstract meaning "maturation" based on the root **pek^u-* "cook, ripen" (although in Tocharian there is no overt connection between TAB *päk-* "cook, ripen" and the words for "year").

A different etymology by Katz 1994:151ff compares the Hom. phrase ἐπιπλόμενον ἔτος "the revolving year", and so TB *pikul*, TA *pukäl* < **pi-k^ul*, from the preverb *(*e*)*pi-* + the root **k^uel-* "turn".

- TB *camel*, pl. *cmela* (alt.), TA *cmol*, pl. *cmolu* (alt.) "birth", derivative adjs. *cmolsi* "of birth" and *cmolw^{asi}* "of births"

Etym.: Derived from the root TAB *täm-* "be born" or its precursor. The TB form, with (R)[+pal] and suffix *-el* < **-æ*l < **-ol* might provide evidence for an old amphikinetic neuter singular (!) paradigm (Transponat: **T^äm-æ*l < **Tem-ol*). However, the etymology of the root *täm-* is far from clear.

The TA form has been explained as a derivative in **-el-u-* to explain the *o*-vocalism via *u*-umlaut (Hilmarsson 1986:27, 165). The plural forms in *-u* < **-w^a* < **-uh₂* seem to corroborate this, although the *o*-vocalism can also be explained through labial rounding, and the *-u*-plural could be an innovative trait (whereas TB *-a* would reflect an old plural in **-h₂*).

- TB *śaul*, pl. *śaulanma* (alt.), TA *śol*, pl. *śoläntu* (alt.) 'life'
Etym.: The finite forms of TAB *ś⁻aw-* 'live' go back to a **-ue/o-*present (or athematic **-u-*present, per LIV2:215) on the root **g^uieh₃₋* (Ved. *j⁻ivati*), Lat. *uiu^o*, Gk. ζῶω, etc.). TB *śaul* and TA *śol* show the same root vocalism as TB *śaumo*, TA *śsom* "young man". They may be based directly on this new present stem **ś⁻aw-* > TB *śo-*, TA *śau-* which would best account for the vocalism as a straightforward and regular development. Alternatively, they may be derived with a suffix PT **-äl* < **-l* from an ostensibly archaic **-u*adjective **g^uih₃₋uó-* 'alive' (Ved. *j⁻ivá-*, Lat. *uiuus*). In any case, if one accepts the deadjectival derivation, some analogical leveling must have been at play, as according to Þórhallsdóttir 1998:201, one would expect that PT **-⁻awæ-* > TB *-⁻a-* and PT **-⁻awä-* > TB *-o-*.

3.2 Words ending in *-ol*

The forms ending in *ol* are most often found in association with roots that have A-character. They may be suffixed further, notably in **-mo-* and *-au-* < (**-mn-*?) (cf. *infra*).

The easiest way to explain the suffix TB *-ol* and to connect it with an allomorph of an athematic suffix **-l-* is to assume that it represents either (1) **-^oa-l-* (< **-⁻a-l-* or **-eh₂-l-*, see Malzahn 2010:245 on **-^oa-* as an allomorph of **-⁻a-* before a non-syllabic) or (2), by way of contraction (on which Þórhallsdóttir 1998:201), **-^oa-⁻æ*l-, where **-æ*l- < **-ol-*, pointing to an old amphikinetic paradigm. These forms can be derived from characterized verb stems and they have mostly concrete meanings.

- TB *aiwol* (adv., postp. + ALL.) "towards", derived adj. **aiwoltstse* "directed to" (+ALL.)
Etym.: Possibly an old abstract which came to be used adverbially. Connection with TA *yul^a* "aimed at", which itself seems to be an old perlativ, is difficult. Hilmarsson 1991:128 deems the root *aiw^a* as a denominative based on a syntagm or hypostatic compound **æn-yäw^a* "in sympathy", but a derivation from a **-uo-*adjective from the root *ai-* 'to give' < **h₂ei* (Malzahn 2010:546) would also be possible. In this case, the verbal paradigm (and presumably the **-l-*abstract) would be based on an **-eh₂₋*abstract "givenness". In fact, the suffix **-l-* could possibly have been used in IE as a secondary suffix to recharacterize derivatives in **-h₂₋*, cf. the stems **g^heb^h(-)*h₂₋*l-* and **me^g(-)*h₂₋*l-* > Gk. μέγας (nom.sg.) "great", ἀγάλλομαι "be happy".
- TB *trokol* "provisions"
Etym.: Attested in only one text (THT 441), it is derived from *truk^a* "provide", of which no finite forms are attested. The expected full grade of the root *truk-*, PT **träwk* is **truk-*, and the (R) vocalism *trok-* is best explained by *o*-umlaut, suggesting that the suffixal vowel implementing the peak of the next syllable was **-^oa-*, to which was added either **-^ol* < **-l* or **-æ*l < **-ol*.

- TB *lyo(k)kol* "model" (?)

Etym.: Found in a TB-Old Uyghur bilingual text U 5208 from the Turfan collection of the Berlin-Brandenburg Academy of Sciences and Humanities (Pinault, Peyrot, Wilkens 2019:80). From the root *luk^o*- "be illuminated", AG "illuminate" < **leuk*- "hell werden" (LIV2: 418). Like in *trokol*, the expected outcome of the full grade of the root **leuk*- > PT **l'äwk* is **lyuk*-, and the (R) vocalism *lyok*- is best explained by *o*-umlaut, cf. *trokol*.⁴

- TA *kränol* / *kärnol* "adopted child", fem. *kränol^aañc*, abstr. *kärno(l)ne* (alt.) "condition of being adopted" Etym.: There is evidence that this word is a loan from TB: (1) the suffix *-ol* is not found in TA, and (2) the verbal root *käry^a* and its Prs X stem *kärn^a-* are absent from TA as well. This form, which appears to be a calque of Skt. *kr^aita-* "purchased from his natural parents as a son" (MW: 321b), thus "adopted child", further provides the valuable evidence that deverbal nouns in *-ol* could in fact be derived from present stems.

3.3 Derivatives of *l*-stems

3.3.1 Verbal roots maybe derived from *l*-stems

- TAB *akl-* "learn" (Prs IXa with *nt*-Part. *aklasseñca*)

Etym.: Winter 1990:376 proposes a nominal stem **/ ak@l/* underlying the verbal paradigm; the idea is taken up by Hackstein 2003:60, reconstructing a proterokinetic abstract **h₂e^og-l* "announcement" based on **h₂e^og-* "speak publicly, announce". Alternative explanations by Schmidt 1992:112 and Hilmarsson 1996:8ff:

o-klu-* "listen to" (k^oleu^o*) and Jasanoff 2016: **o-klei^o* -.

- TB *lal-* "work hard" (Prs IXa *lalassäm*)

Etym.: Winter (l.c.) reconstructs a nominal stem

/ lal/ underlying the verbal paradigm (rejected by DoT).

3.3.2 Derivatives in *-*mo* and -*au*

It seems that *l*-stems, specifically (a priori amphikinetic) stems in PT **-l'æ* could be further suffixed in *-*mo*-, or both suffixes were combined to form a complex suffix *-*olmo* or *-*elmo* (of course a Transponat, as no such suffix is known elsewhere in IE). This process of suffixation was especially productive in TB and seems to have been used to convert abstract nouns into resultative / concrete nouns: thus "woven object" becomes "web", "sudation" becomes "sweat".³

- TB *onolme* (m.) "creature, living being"

Etym.: A calque of Skt. *pr^aanin-* (adj.) "breathing, alive", (m.) "living creature", derived from the root **h₂enh₁-* "breathe": Pinault 2009:480, " **an^aælmæ-* est dont la forme sous-jacente, en termes structurels.", contra Jasanoff 2003:157 fn.4: **an-olmo-* without vocalized laryngeal. According to Pinault 2009, this word then served as a basis for TB *on^akolmo*, TA *on^akaläm* "elephant".

- TB *yśelme* (m.), TA *yśaläm** (m.), pl. *yśalm^aañ* "sexual desire"

Etym.: This is the only derivative not directly related to a verbal root in Tocharian, but a connection can be made with *yk^aassäññe* (n.) "sexual pleasure, sexual desire, concupiscence" (DoT:558). We are probably dealing with a root **Hei^gh-* "strive for, desire" (LIV2:222) in the Ø-grade. Thus, the (S)[+pal] and the vocalism TB *-e*-, TA **-ā* suggest that the suffix had the shape **-el-* > PT **-l'æ*. Maybe this is an old hysterokinetic stem which was incorporated into the

³ That being said, if our above analyses are correct, abstract nouns could take on concrete meanings without undergoing further suffixation, c.f. *pisäl*, *eñcil*, and also the series in *-ol*, especially *kärnol*.

category of derivatives in *-mo- which were originally based on (amphikinetic) stems in *-ol- > PT *-æ/- > TB -el- [-pal]

- TB *wpelme* "cobweb"
Etym.: From *wäp*[̄]- "weave" < **h_{2/3}uebh*[̄]-. The root has to be in the Ø-grade (unusual for a supposedly amphikinetic stem), and the suffix could reflect *-ol-mo- because of the lack of palatalization (for a palatalized example of the root *wäp*- in the Ø-grade see maybe *ypiye* (n.) "nest" < *"woven object" (DoT: 561)).
- TB *syelme* "sweat"
Etym.: Derived from either the Sub V stem or the Prs stem in *-ie/o to the root *siy*[̄]- "sweat" (**sueid*- "sweat"). Not from **suid-ol-mo*- as this would have given TB **salme* (Malzahn 2010:388).
- Other potential derivatives in *-mo-: TB *tsrermē* (m.) "ditch" (with progressive assimilation from **tsrelme*), DoT, s.v.), TB *sleme* (m.), TA *slam* (m.) "flame", TB *wreme* (m.sg.) "object", TA *wram*, pl. *wramäm* (alt.)

It has been shown (Klingenschmitt 1994, Malzahn 2005) that certain stems in TB -au reflect old neuter *-menstems, through the lenition of the Nom./Acc.Sg. in *-mn: *-m- > *-μ- > *-u-. With this in mind, it might be possible to connect derivatives in -au based on *l*-stems with those in *-mo-.

- TB *yotkolau*, Obl. *yotkola(m)t* "foreman, director"
Etym.: The basis of this derivative would be a putative * *yotkol* "decision, commandment", from the causative, palatalized stem of the root *wätk*[̄]- (cf. *supra*). If *yotkolau* really reflects an old *-men-stem (or a complex *-ol-men), it would really mean "commandment" by itself. The passage from the abstract to the agent noun would then be paralleled by Lat. *magistratus*, -u-s (m.) which designates both the "civil office" and the "official". However, the Obl. ending -a(m)t points rather to a possessive derivative in *-ue/ont-, as already noted by Malzahn 2005:390f.
- TB *waipalau* "giddiness, vertigo"
THT 529 a2: [bhr][̄]amika • *waipalau* y[̄]amu Etym.: Probably a derivative of *wip*- 'shake (tr.)', itself to be traced back to **ueip*- "in schwingende / zitternde Bewegung geraten" (LIV2:671). Malzahn 2005:394 postulates a denominal origin, or a derivation from a verbal stem * *waipäl*[̄]- which itself is not attested and should also be of denominal origin. The root vocalism points to an old o-grade, as exemplified by the related *waipe* (m.sg.) "banner, flag", from **uóip-o*-. Multiple interpretations of the *l*-suffix are possible, e.g.: (1) an old acrostatic (?) abstract meaning "shaking, swaying", which was then suffixed in -au the same way some abstracts were suffixed in *-mo- (but why the secondary suffixation?) (2) a formerly thematic derivative in *-vlo- of **uóip-ow* which must have meant "kind of shaking, swaying", which was then resuffixed in -au (analogically?).

→The evidence is (in my opinion) not quite conclusive enough for this connection to be made.

3.3.3 Derivatives in TB -(i)ye (TA -yi)

It would be tempting to unite all derivatives in TB -(i)ye under one single derivational process. It has been shown by Pinault (1999, 2015) that (pre-)Tocharian had a suffix *-éi-, Nom.Sg. **-éi*, Acc.Sg. **-i-m* belonging to a hysterokinetic paradigm. In Tocharian, these derivatives are distinguished by a Nom.Sg. in *-iye*, an Obl.Sg. in -(y)i. Thus, the derivatives with a suffix in -i- that fall into this inflectional class might reflect substantivizations / abstracts derived from old *-lo-stems (or maybe, athematic *-l-stems).

- TB *eksalye*, TA *opsäly* (f.) "feast, wonder"

Etym.: Pinault 2015:389-399: a derivative in *-*éi*- of a putative **h₃ok^us-el-*, to **h₃ek^u-* "see". Support for an *s*-stem is adduced from Ved. *áks-* (nt.) "eye". A hysterokinetic action noun **h₃ok^us-él* would have meant "seeing, viewing" or "view, sight", but one has to postulate that the *o*-grade replaces the expected zero grade of the root. If this reconstruction is correct, then we may identify other derivatives in *-*éi*- from *l*-stems in Tocharian.

- TB *akalye* (m.), Obl.Sg. *aklyi*, TA *aklye* (m.) "study, practice; teaching"
TB *laliye*, Obl. Sg. *lalyi* (f.) "effort, exertion"

Etym.: See above for the corresponding verbal roots, which are themselves said to be derived from *l*-stems. Judging from their inflections, *akalye* and *laliye* fit into the hysterokinetic paradigm described above.

- TB *ysalye*, TA *yäslyi* "discord, hate", adj. (subst.) *yäslu* "enemy"

Etym.: The closest (and only) comparandum: Av. *an'ra-* "hostile" < **h₁ens-lo-* (DoT: 567). The Tocharian abstracts could be abstracts in *éi*- derived from this thematic form. The TA adj. *yäslu* "enemy" was derived using a productive suffix -*u*- which might ultimately point to a possessive **-ue/ont*-adjective built to an athematic stem (cf. *šp⁻alu* "superior" from *šp⁻al* "head").

- TB **wäntalyi*, Obl.Sg. *wäntalyi* "bow"

Etym.: Probable connection with *wänt^{-a}*- "wrap, cover, envelop" (DoT: 644) < **uend^h*- "wrap around" (LIV2:681), cf. TA *añcäl* "bow", also an *l*-stem. The (S)[-pal] points towards a derivation not with **-el-* but a simple *l*-suffix, maybe even based on a Prs or Sub stem.

3.3.4 Derived adjectives in TB **(ts)tse*, TA **-ts*

- TB *mant⁻alaitse* "evil-minded, malicious" (**mant⁻alo*, Obl.Sg. *mant⁻alai* "malice"), TA *m⁻antälw⁻ats* "injuring, offending"

TA *y⁻atälw⁻ats* "powerful"

Etym.: In both preceding items the respective roots are quite clear: TB *mänt^(-a)*-, TA *mänt^{-a}*- "destroy" (< **menth₂-* "stir", LIV2:438) and TA *y⁻at^(-a)*- "be capable" (< **iet-* "establish oneself", LIV2:313). Both TA forms could have undergone "vowel balancing" and might be reconstructed as **m⁻ant⁻älw⁻ats* and **y⁻at⁻älw⁻ats* respectively. The (R) vocalism might go back to (pre-)PT **o*: PT **mænt^{-a}*- and **yæt^{-a}*- could have yielded *m⁻ant^{-a}*- and *y⁻at^{-a}*- by *a*-umlaut. The (S)[-pal] is certainly due to the fact that these were abstracts based already on a verbal stem ending in **-a*, like *wätk^{-al}*. In that case, they look like Common Tocharian (but still inner-Tocharian) formations: an example of the simple suffix **(-ä)l-* having gained productivity in Tocharian, as in *tren⁻käl* and *en⁻käl*.

Why I think **m⁻ant^{-al}* and **y⁻at^{-al}* are abstracts and not substantivized gerundives: (1) the TB evidence: the derivation in *-o* / Obl.Sg. *-ai* is not seen with other gerundives; and (2) the TA derivation with the productive possessive suffix *-w⁻ats* which is usually attached to full-fledged abstracts, e.g., *tampew⁻ats* (adj.) "powerful", based on *tampe* (alt.) "power", *amanw⁻ats* (adj.) "proud, arrogant", based on *am⁻am* (m.) "pride".

3.4 Ambiguous cases from Tocharian A

3.4.1 Not directly associated with a verbal root in Tocharian

- TA *añcäl* (f.) "bow"

A 91a3: *ws⁻a-yok⁻as poken-yo añcäl pañwä(s)* "with his gold-coloured arms he is drawing the bow"

Etym.: Could be from **h₂enk-* "bend" (LIV2 :268) with (S)[+pal] which points to a hysterokinetic paradigm **h₂nk-él-* (but the expected outcome of **h₂N-* seems to be TA *ˉan-*, Hackstein 1998:221). Alternatively, a substantivized thematic stem: **h₂enk-(e)lo-* "bent" → **h₂onk-(e)li-* "the bent one", viz. "bow".

- TA *nispal*, pl. *nispal(n)tu* (alt.) "wealth, possessions"

Etym.: Difficult. Pinault 2020:329-330 proposes a compound replacing a merism of the type [Men + Cattle] (**uih₁ró- *pekú-*), where **uih₁ró-* → **nis* < **nizdī-* "nestmate" and **pekú-* → **spal* < **spæl* < **spol*, itself from an amphikinetic **sép-ol-*, weak stem **sp-l-*, cf. the proterokinetic **sép-l* mentioned above.

- TA *masal** in *masalyam*, pl. *masalyamäs* (adj.) "causing", *masalyamtsune* (alt.) "contribution, effect, influence"
TA *ywˉatal** in *ywˉatalyam* (adj.) "standing in opposition"

A 385 b2-b3 : *pramˉadapratidvamdividharma : ykorñeyis ywˉatal yam märkampal*

Etym.: It is not clear whether *masalyam* and *ywˉatalyam* are compounds or syntagms. In any case, we can isolate the agent noun *yam* "doer", which may be interpreted as a derivative in **-mˉon* from the present stem *ya(p)-* which is suppletive to *yˉam-* "make, do" in TA, cf. TB *aišamo* "clever, intelligent" from the Prs II stem *aištär* of *aik-* "know, recognize"

This leaves us with the abstracts *masal* "+- cause" and *ywˉatal* "+- opposition", which look like either substantivized gerundives (from unattested or very poorly attested roots) or **l-*abstracts (judging from the (S)[-pal], maybe proterokinetic). The form **masal* may be connected to the hitherto unexplained verbal root TA *mäs-* (Prs VIII (m) *msästär*), which is unfortunately always attested in a very fragmented context. As for the element **ywˉatal*, it is possible to make a connection with TAB *ywˉar* "half, middle", which in turn contains the local particle **yän-* and the distributive numeral for "two" < **duoh₁* (cf. Hilmarsson 1991:190f). This is corroborated by the Sanskrit equivalent *pratidvamdivin-* "vying with".

- TA *šemäl* "small livestock"

A96 b3 *šemälyo talke yatsi wätkseñc* "they decide to make a sacrifice with livestock"

A72 b2-b3 *ylem krop tˉalont warpam tatmu(nt) šemäll o(ki)* "the flock of gazelles, like small livestock raised in a miserable enclosure..."

Etym.: Difficult. From the texts, it is only obvious that this animal was (1) kept in an enclosure and (2) fit for sacrifice. Connections with Gk. nt.pl. *κεμήλια* "riches" and, on the other hand, *χίμαρος, χίμαιρα* "young goat", lit. "cattle pertaining to winter, one winter old" have been proposed (see, e.g., Van Windekens 1976:

477f). In my opinion, the connection with *χίμαρος, χίμαιρα* (so, a putative **g^h-eim-el-o-* or **g^h-eim-el-i-*) seems more convincing, but I plan to further investigate this matter in the future.

3.4.2 Probable substantivized gerundives

Many "abstracts" and other nominals ending in *-l* could actually be analyzed as substantivized gerundives. They sometimes exist besides abstracts in *-lune*. Their exact relationship still has to be further investigated. Here is a (obviously non-exhaustive) list of words in TA which could be substantivized gerundives:

- *el* Nom./Obl.Pl. *elant* (alt.) "gift, present, alms", Ger II based on Sub I stem of *e-* "give"
- *entsˉal* "handle, grip", Ger II based on Sub V stem *emtsatär / emtsˉatär* of *emts^(a)-* "seize, take, understand"
- *wsˉal*, Nom.Pl. *wsˉalu* (alt.) "garment", Ger II based on Sub stem of *wäs-* "don, wear"?

- *karel* "laughter", Ger I based on Prs stem *kares* of *kary-* "laugh"
- *wakal* (adj. / adv.) "half", probably from *w⁻ak^(-a)*- "split apart, burst"
- **śral* "separation" in the adj. *śralsi* "of separation", from *tsär^(-a)*- "be separated"
- *sepal* "ointment", Ger II based on the Sub V stem of *sip^(-a)* "anoint"
- etc.

4 Conclusions and final thoughts

In this paper I have argued that:

- The suffix **-l-* and its allomorphs gained some productivity in (pre-)Tocharian to derive deverbal abstracts from either roots or characterized verb stems, maybe under the influence of the very successful gerundives in **-lo-* or **-liio-*
 - In Common Tocharian, the "proterokinetic" model (suffix **-(ä)l*) remained productive for some time to derive abstracts such as *en'käl*, *tren'käl* and other abstracts such as *aiwol*, *wätk'al*.
 - The hysterokinetic inflection is only present in certain archaisms, such as *eñcil* (if it is not derived from a thematic stem or based on a present stem), maybe TB *yśelme* and the derivatives TB *eksalye*, TA *opsäly*.
 - Traces of amphikinetic inflection remain only in TB *camel*, TA *cmol*, as well as in the suffix PT **-æł* < PIE **-ol*, extracted from the neuter singular stem (without **h₂* and lengthening to **-⁻ol*), which was then suffixed further in **-mo-* to form result nouns from abstract nouns.
 - No secure examples of acrostatic **l-*stems are attested.
- Although it is sometimes impossible to determine whether a specific nominal form ending in TB (or TA) *-l* reflects an athematic **l-*stem or is derived in **-i* or **-u*, some apparent "archaic" **l-*stems are better analyzed as substantivizations of **-(V)lo-*stems, a process which is paralleled in other IE languages, thus making Tocharian "more normal" overall.

5 Bibliography

- DoT* = Adams, Douglas T. 2013. *A Dictionary of Tocharian B, revised and greatly enlarged*. Amsterdam / New York: Rodopi
- CEToM* = *A Comprehensive Edition of Tocharian Manuscripts*. <https://www.univie.ac.at/tocharian/>
- LIV2* = Rix, Helmut. 2001. *Lexikon der Indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen. Zweite, erweiterte und verbesserte Auflage bearbeitet von Martin Kümmel und Helmut Rix*. Wiesbaden: Reichert MW = Monier-Williams, Monier. 1899. *A Sanskrit-English dictionary. Etymologically and philologically arranged with special reference to cognate Indo-European languages, by Monier Monier-Williams, new edition, greatly enlarged and improved*. London: Clarendon Press
- NIL* = Wodtke Dagmar, Irslinger Britta, Schneider Carolin. 2008. *Nomina im Indogermanischen Lexikon*, Universitätsverlag Winter
- Bartholomae, Christian. 1904. *Altiranisches Wörterbuch*. Strasbourg: K.J. Trübner
- Benveniste, Emile. 1935. *Origines de la formation des noms en indo-européen*. Paris: Maisonneuve.
- Carling, Gerd, Pinault, Georges-Jean. fthc. *Dictionary and Thesaurus of Tocharian A*. Wiesbaden: Harrassowitz
- Ching, Chao-Jung. 2011. "Silk in Ancient Kucha: on the Toch. B word *kaum** found in the documents of the Tang period", in: *TIES* 12. 63-82.

- Fellner, Hannes. 2017. "The Tocharian gerundives in ^B-*lle*^A-*l*". In: *Usque ad Radices. Indo-European Studies in Honor of Birgit Anette Olsen*. Copenhagen: Museum Tusulanum Press. 149-159.
- Fraenkel, Ernst. 1936. "Die indogermanischen *l*-Stämme". *ZVS* 63, 3./4. 168-201.
- Grestenberger, Laura. 2014. "Zur Funktion des Nominalsuffixes *-*i*- im Vedischen und Urindogermanischen", in: Oettinger, N., Steer, Th. (eds.) *Das Nomen im Indogermanischen. Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*. Wiesbaden: Reichert. 88-102.
- Hackstein, Olav. 1995. *Untersuchungen zu den sigmatischen Präsensstambildungen des Tocharischen*. Göttingen: Vandenhoeck & Ruprecht.
- Hackstein, Olav. 1998. "Tocharisch und Westindogermanisch: Strukturell uneinheitliche Laryngalreflexe im Tocharischen (Uridg. *-*Uh*₁*C*- vs. *-*Uh*_{2,3}*(C)*- und **#h*₁*RC*- vs. **#h*_{2,3}*RC*-). in: Meid, W. (ed.) *Sprache und Kultur der Indogermanen. Akten der X. Fachtagung der Indogermanischen Gesellschaft, Innsbruck, den 22.-28. September 1996*. (Innsbrucker Beiträge zur Sprachwissenschaft, Vol. 93). Innsbruck: Universität Innsbruck, Institut für Sprachen und Literaturen. 217-236.
- Hackstein, Olav. 2003. "Zur Entwicklung von Modalität in Verbaladjektiven". In: Tichy, E., Irslinger, B., Wodtko, D. (eds.) *Indogermanisches Nomen. Derivation, Flexion und Ablaut. Akten der Arbeitstagung der Indogermanischen Gesellschaft, Freiburg, 19.-22. September 2001*. Bremen: Hempen. 51-66.
- Hilmarsson, Jörundur. 1986. *Studies in Tocharian phonology, morphology and etymology, with special focus on the o-vocalism*. Reykjavik.
- Hilmarsson, Jörundur. 1991. *The Nasal Prefixes in Tocharian. A Study in Word Formation*. (TIES Suppl. Series, vol. 3). Reykjavik: Málvísindastofnun Háskóla Íslands
- Hilmarsson, Jörundur. 1996: *Materials for a Tocharian Historical and Etymological Dictionary, ed. by Alexander Lubotsky, Guðrún Þórhallsdóttir* (TIES Suppl. Series, vol. 5). Reykjavik: Málvísindastofnun Háskóla Íslands Höfler, Stefan.
2015. "Denominale Sekundärderivation im Indogermanischen: Eine Ochsentour", *MSS* 69/2. 219-244.
- Humbach, Helmut. 1991. in collab. with J. Elfenbein and O. Skjærvø. *The Gāthās of Zarathushtra. Text and Translation - and the other old Avestan texts*. Heidelberg: C. Winter.
- Jasanoff, Jay H. 2003. *Hittite and the Indo-European Verb*, Oxford: Oxford University Press.
- Jasanoff, Jay H. 2016. "Tocharian *ˀakl*- "learn"", in: Byrd, A., De Lisi, J., Wenthe, M. (eds.) *Tavet tat satyam. Studies in Honor of Jared S. Klein on the Occasion of his Seventieth Birthday*. Ann Arbor: Beech Stave Press. 123-129.
- Kent, Roland G. 1928. "Three notes on the Gathas of the Avesta". in: *Language*, vol. 4, No. 2. Linguistic Society of America. 106-108.
- Klingenschmitt, Gert. 1994. "Das Tocharische in indogermanistischer Sicht". in: Schlerath, B. (ed.) *Tocharisch. Akten der Fachtagung der Indogermanischen Gesellschaft, Berlin, September 1990*. TIES Suppl. Series, vol. 4. Reykjavik: Málvísindastofnun Háskóla Íslands. 310-423.
- Kroonen, Guus. *Etymological Dictionary of Proto-Germanic*. Leiden: Brill
- Malzahn, Melanie. 2005. "Westtocharische Substantive auf *-au* und einige Fortsetzer von Idg. *men*-Stämmen im Tocharischen", in: Schweiger, G: ed. *Indogermanica. Festschrift Gert Klingenschmitt*. Taimering: Schweiger VWT-Verlag. 378-407.
- Malzahn, Melanie. 2010. *The Tocharian Verbal System*. Leiden / Boston: Brill.
- Malzahn, Melanie. 2014. "Surprise at length of Tocharian nouns", in: *Indogermanische Forschungen*, vol. 119. Walter De Gruyter. 259-268.
- Massetti, Laura. 2016. "The Belly of an Indo-European: Some Greek and Iranian Cognates of PIE **mer*“*g*- 'to divide, cut'“, in: *Proceedings of the 27th Annual UCLA Indo-European Conference, October 23rd and 24th, 2015*. Bremen: Hempen. 116-129.
- Melchert, Craig. 1979. "Tocharian verb stems in *-tk-*". *ZVS* 91, 1977[1978], 93-130.

- Melchert, Craig. 2001. "Hittite Nominal stems in *-il-*", in: Carruba, O., Meid, W. (eds.) *Anatolisch und Indogermanisch. Anatolico e Indoeuropeo. Akten des Kolloquiums der Indogermanischen Gesellschaft. Pavia, 22.-25. September 1998*. 263-272.
- Melchert, Craig. 2014. "Anatolian Nominal Stems in **(C)o-*", in: Oettinger, N., Steer, Th. (eds.) *Das Nomen im Indogermanischen. Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*. Wiesbaden: Reichert. 205 - 214
- Nussbaum, Alan. 1999. "**Jocidus*: An account of the Latin adjectives in *-idus*". in: Eichner, H., Luschützky, H.C., Sadovski, V. (eds.) *Compositiones Indogermanicae in Memoriam Jochem Schindler*. Prague: Enigma corporation.
- Ogihara, Hirotooshi. 2013. "Tocharian Fragment THT 333 in the Berlin Collection", in: *Tokyo University Linguistic Papers* vol. 33. 205-217.
- Olsen, Birgit Anette. 2010. *Derivation and composition. Two studies in Indo-European Word Formation*. (Innsbrucker Beiträge zur Sprachwissenschaft, Vol. 136). Innsbruck: Universität Innsbruck, Institut für Sprachen und Literaturen.
- Peyrot, Michael. 2008. "More Sanskrit-Tocharian bilingual Udaⁿavarga fragments", in: *Indogermanische Forschungen* vol. 113. Walter De Gruyter. 83-125.
- Peyrot, Michael, Pinault, Georges-Jean, Wilkens, Jens. 2019. "Vernaculars Of The Silk Road – A Tocharian B–Old Uyghur Bilingual", in: *Journal Asiatique* vol. 307.1. 65-89
- Pinault, Georges-Jean. 1998. "Tocharian Language and Pre-Buddhist Culture", in: Mair, V. (ed.) *The Bronze Age and Early Iron Age Peoples of Eastern Central Asia*, The Institute for the Study of Man in collab. with the University of Pennsylvania Museum Publications. 358-371.
- Pinault, Georges-Jean. 1999. "Tokharien A *kapšaŋi*, B *kektseñe*", in: Eichner, H., Luschützky, H.C., Sadovski, V. (eds.) *Compositiones Indogermanicae in Memoriam Jochem Schindler*. Prague: Enigma corporation. 457-478.
- Pinault, Georges-Jean. 2008. *Chrestomathie Tokharienne*. Leuven / Paris: Peeters
- Pinault, Georges-Jean. 2009. "Elephant Man. Sur le nom de l'éléphant en tokharien.", in: Balbir, Nalini, Pinault, G.-J (eds.) *Penser, dire et représenter l'animal dans le monde indien*. Paris: Librairie Honoré Champion. 447-498.
- Pinault, Georges-Jean. 2014. "Distribution and Origins of the PIE Suffixes **-ih₂-*", in: Oettinger, N., Steer, Th. (eds.) *Das Nomen im Indogermanischen. Morphologie, Substantiv versus Adjektiv, Kollektivum. Akten der Arbeitstagung der Indogermanischen Gesellschaft vom 14. bis 16. September 2011 in Erlangen*. Wiesbaden: Reichert. 273-306
- Pinault, Georges-Jean. 2015. "The Tocharian background of Old Turkic *yaŋi kün*", in: Ragagnin, E., Wilkens, J. (eds.) *Kutadgu Nom Bitig. Festschrift für Jens Peter Laut zum 60. Geburtstag*. Wiesbaden: Harrassowitz. 377-406.
- Pinault, Georges-Jean. 2020. "Tocharian Taxonomy of Wealth", in: Bichlmeier, H., Šefčík, O., Sukač, R. (eds.) *Etymologus. Festschrift for Václav Blažek*. Hamburg: baar. 323-337.
- Rieken Elisabeth. 2008. "The Origin of the *-l-* Genitive and the History of the stems in *-il-* and *-u^l-* in Hittite", *Proceedings of the 19th annual UCLA Indo-European Conference, 2007*. 239 - 256
- Risch, Ernst. 1974. *Wortbildung der Homerischen Sprache. 2., völlig überarbeitete Auflage*. Berlin, New York: Walter de Gruyter
- Schmidt, Klaus T. 1992. "Archaismen des Tocharischen und ihre Bedeutung für Fragen der Rekonstruktion und der Ausgliederung", in: Beekes, R.S.P. et al. (eds.) *Rekonstruktion und relative Chronologie. Akten der VIII. Fachtagung der Indogermanischen Gesellschaft, Leiden, 31. August – 4. September 1987*(IBS, vol. 65). Innsbruck: Institut für Sprachwissenschaft. 101-112.
- Schmidt, Klaus T. 1999. "Beobachtungen zur tocharischen Landwirtschaftsterminologie". in: *Die Sprache*, vol. 41. 1-23.
- Thomas, Werner. 1952. *Die Tocharischen Verbaladjektiva auf -l. Eine syntaktische Untersuchung*. Berlin: Akademie-Verlag
- Þórhallsdóttir, Guðrún. 1998. "Tocharian contraction across *-w-*", in: *TIES* 2. 184- 210.
- Van Windekens, A. J. 1976. *Le Tokharien confronté avec les autres langues indo-européennes. Tome I: Phonétique et Vocabulaire* Louvain.
- Vine, Brent. 2008. "On the etymology of Latin *tranquillus* "calm"". in: *International Journal of Diachronic Linguistics and Linguistic Reconstruction*, vol. 5. 1-24.