# The PIE root structure *$Te(R)D^h$-[1])

## *1. Introduction*

**1.1** In Proto-Indo-European (PIE), the basic root structure was that of consonant plus vowel plus consonant, or *CeC*, in which *C* stands for any consonant and *e* for any vowel[2]). When both of the consonants in a root were stops, there were certain restrictions as to their possible combinations.

PIE had three different types of stops, traditionally called voiceless (tenues), voiced (mediae) and voiced aspirated (mediae aspiratae). There are nine possible orders in which these three types of stop could appear in a *CeC*-root, if they were freely combinable. It appears that they were not, however. In the manuals of Indo-European linguistics (e.g. Szemerényi 1980: 92, Mayrhofer 1986: 95[19], Beekes 1995: 162), three constraints are usually put on the initial and final root consonants: the structures tenuis-media aspirata, media aspirata-tenuis and media-media (*$TeD^h$-, *$D^heT$- and **DeD*- respectively) do not occur. The only exception is that the first combination is admitted if preceded by *#s-* (*s* mobile included), for instance *$steig^h$-.

**1.2** Ferdinand de Saussure was the first to observe that a tenuis and a media aspirata cannot co-occur in a single PIE root. As his pupil Meillet put it (1912: 60): «On peut avoir **beudh*- ou **bheudh*-, mais non **peudh*-; **bheudh*- ou **bheud*-, mais non **bheut*-.»

It is striking that the sonant, which Meillet includes in his root structure, has disappeared from contemporary manuals. This raises the question whether this implies that a root structure *$TeRD^h$-, *$D^heRT$- or **DeRD*-, with a sonant in the nucleus, is now in fact regarded as possible.

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[1]) This paper is an elaborated version of a paper that I wrote as a 'kleine scriptie' in Leiden. For comments on earlier versions I am grateful to R. Beekes, A. Lubotsky and P. Schrijver. Final responsibility is, of course, mine.

[2]) The following cover symbols for PIE reconstructions are used in this article: *C* = any consonant, *R* = any resonant (*u,i,r,l,m,n*), *H* = any laryngeal, *T* = any voiceless stop, *D* = any voiced unaspirated stop, $D^h$ = any voiced aspirated stop.

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**1.3** The present study will be concerned with the *TeRD$^h$-* root structure constraints. In Pokorny's *Indogermanisches etymologisches Wörterbuch* we come across a number of lemmata with the apparent root structure **Te(R)D$^h$-*. In the following pages, I intend to assess the value of the evidence for PIE reconstruction. I shall consider all the alleged **Te(R)D$^h$-* roots from Pokorny, giving Pokorny's lemmata, his question marks included, with an English gloss. At the end I shall review the results.

**1.4** All roots in Pokorny beginning with *#(s)-* are left out of consideration. This is done on the assumption that *s-* neutralized the following stop in such a way that the structure *#(s)Te(R)D$^h$-* was in fact allowed in PIE. The fact that the *s-* is mobile means that we often find forms with an anlaut *#sT-* in one branch of Indo-European that have cognate forms with an anlaut *#T-* in another branch. In such a case, all the forms with *#T-* are under suspicion of once having had *#sT-*, and cannot be used as evidence for or against the *TeRD$^h$-*root constraint.

## *2. Explanations*

**2.1** Many scholars have looked for an explanation for the *TeD$^h$/ D$^h$eT* root structure constraint. Meillet (1912: 61) assumed an assimilation of *T* to *D$^h$* if both occurred in the same word. The problem was not much heeded in the following decades, until the discussion around Bartholomae's Law and Grassmann's Law in the 1960's and 1970's. The subsequent revision of the traditional phonemic system reconstructed for PIE, after the publication in 1973 by Gamkrelidze-Ivanov and Hopper of their theories on PIE stops, has offered the opportunity not only to reformulate the constraint, but also to modify its explanation.

**2.2** We can distinguish between two fundamentally different approaches to the root structure constraint.

**2.2.1** The root structure *TeD$^h$/ D$^h$eT* once existed, but disappeared due to later developments. A good example of this type of explanation is Kuryłowicz's assumption (1968: 339) that Bartholomae's Law is responsible for removing roots containing a voiceless and a voiced aspirate stop at the same time. This theory was elaborated by Miller (1977: 376): «It is just possible that roots of the form **dhek* and **tegh* do not exist because they merged historically into a form **dhegh* by the same assimilation process that changed a sequence like */-bh+t-/ into



*[-bh+dh-] (BL).» This assimilation process is essentially the same as the one that Meillet describes.

**2.2.2** The root structure *TeB$^h$/ B$^h$eT* never existed in PIE. The *regular* assimilation of two consonants across a vowel could point to a suprasegmental feature, such as tone. In a tone language, different consonant types often have different influences on a neighbouring vowel. This reminds us very much of the recent work on Balto-Slavic accentuation, by Dybo and others, which has shown that the accentuation of a word depends on its root structure. Furthermore, nominal accentuation of Sanskrit and Greek, traditionally termed 'musical', was shown by Lubotsky (1988) to depend largely on the consonantal structure of the root in PIE. These data lead to the supposition that PIE itself was a tonal language, in which the tonal patterns of a word depended on the morpheme structure (Kortlandt 1986: 158, Beekes 1995: 154). This would explain the root structure constraint we are dealing with, for if the consonant type *T* in PIE caused a different tone from *D$^h$*, the combination of both types in a single root would have been impossible.

The hypothesis that consonant types affect tone, which we saw above, was reversed by Kortlandt (1986: 159), because it «does not account for the rise of distinctive tone in syllables which do not contain obstruents. It is therefore probable that the proposed PIE tones were older than the distinction between voiceless stops and voiced aspirates.» We find this theory written out in Lubotsky 1988: 208–209. It starts from a hypothetical stage in which PIE had tones. PIE would have had two tones at that time, high and low, and originally only two types of stops, *T* and glottalized *T'* (= *D*). Subsequently, the tones influenced the stops, so that *T* changed to *D$^h$* in the neighbourhood of a low tone, and remained *T* elsewhere. Added to the fact that the occurrence of a high and a low tone in one and the same root is impossible, this would then explain the root constraint: *D$^h$* originated from *T*.

**2.3** The two different approaches to the root structure constraint can both explain most of the problems concerning PIE root structure (the following points have been taken from Miller 1977: 376–379). Both can account for the rise of suffix doublets such as **-tmo-/ *-dhmo-*, **-tlo-/*-dhlo-*, **-to-/*-dho-*, etc. Both can account for the root structure constraints **TeD$^h$-*, **D$^h$eT-* and *DeD-*, at least if the type *D* is interpreted as glottalized, which would explain the impossibility of the structure *DeD-*. Both can explain the type *stegh-*, one from the absence of assimilation after *s-*, the other from a form **stek-*

with a low tone, if we assume that *-t-* was not susceptible to change by tone after *s-*.

Only one point could draw a clear line. Miller has proposed that «**dhek-* and **tegh-* both merged into **dhegh-*. This predicts a number of homophonous diaspirate roots and, indeed, one finds in Pokorny such doublets as **bhedh-* 'dig' (113) beside **bhedh-* 'oppress, bend' (114),» [etc.]. Such doublets would be hard to explain from the tonal theory described above, as roots of the form $D^heD^h$- could have only one origin in the tonal theory, viz. from original $*D^heD^h$- in Beekes' view, from **TeT* with a low tone in Kortlandt's explanation. However, some of the doublets Miller lists seem doubtful, and closer investigation would probably invalidate the evidence.

Moreover, we find other homophonous roots in Pokorny, such as *ḱer-* (574–78), *pel-* (798–805), *per-* (809–19), *skel-* (923–28), *uel-* (1136–45), *uer-* (1150–52), etc., which remain unexplained in any theory concerning the PIE stop system. The cause of the homophonous *diaspirate* roots may therefore lie outside of the stop typology.

**2.4** Traditionally, the lemmata with the structure *CeRC/CReC* that violate the root constraint are explained by the assumption that they contain a consonantal root enlargement that was added to the root *after* the root constraint ceased to operate. Such an enlargement could have been a transparent suffix at the time, which modified the meaning of the verbal root, but we cannot exclude analogical formations in PIE already, such as the «Reimwortbildungen» which Güntert (1914, especially p. 195–196) discusses.

An (incomplete) list of such roots from Pokorny can be found for instance in Schmitt-Brandt (1967: 20–21). Their explanation as post-root structure constraint would imply that the latter had already ceased to operate before the desintegration of PIE. We shall return to this point in the conclusion (par. 4.5).

## *3. Evidence*

1. Pok. 516 ***kadh-*** 'to look after, cover protectingly'

Pokorny gives words from three families, viz. Italic, Celtic and Germanic.

Lat. *cassis,-idis* 'helmet', according to Walde-Hofmann I: 177, might be an Etruscan loan. Furthermore, it may contain any dental.

OIr. *cais* 'hate', sometimes 'love', is reconstructed as **kad-s-i* or **kad-t-i* by Vendryes (LEIA – C 22), and can be compared with Goth.



*hatis*, OHG *haz* 'hate', and possibly with Skt. *ri-śādas* 'concerned with the stranger', Gr. *κῆδος* 'worry, mourning' with a long root vowel. This points to a root **kHd-*.

The dental in the Germanic forms (OE *hædre* 'careful', OHG *huota* 'care') could be derived from either **-t-* or $*-d^h$-; according to Kluge-Seebold s.v. *Hut*, they belong to a root **kat-*.

The evidence for $*-d^h$- is weak: Latin *cassis* is uncertain and Germanic allows no positive identification of the original dental.

2a. Pok. 518 ***kagh-/*kogh-*** 'to enclose; wicker'

Pokorny gives cognates from Italic, Celtic and Germanic. The limited distribution and unusual ablaut of the these words a priori suggest a recent formation.

Latin *caul(l)ae* 'sheep-fold' etc. may have developed from **caholae*, cf. Ernout-Meillet s.v. *cōlum* 'sieve, fish-trap', but this remains uncertain. The etymology of *cohum* 'strap connecting the plough-beam to the yoke' and *incohō* 'to begin' is uncertain as well (Ernout-Meillet s.v.). Oscan *KAHAD* 'takes', Umbrian *cehefi*, inf. pres. med-pass.[3]) 'to be taken' are still derived from a PSab. root $*kag^h$- by Meiser (1986: 78). Rix (1976), discussing *cehefi*, tentatively reconstructs a PIE root $*(s)kh_2eg^h$-.

As to Celtic (W. *cae* 'enclosure' etc.), the forms may contain either **-g-* or $*-g^h$-.

The Germanic forms (OHG *hag*, OE *haga* 'hedge' etc.) point to **-k-* (by Verner's Law) or $*-g^h$-.

We may reconstruct this root as $*kH(o)g^h$- but, as Kluge-Seebold state (s.v. *Hag*), «die Sippe macht nicht den Eindruck altererbter Wörter».

2b. Pok. 518 ***kaghlo-*** 'small, round stone, gravel'; Germ. 'hail'

According to Pokorny, this word family belongs to the preceding root, but the semantic connection is difficult, as it is based only on the notion of 'roundness'.

Gr. *κάχληξ* 'gravel' may perhaps be reconstructed as $*kh_2g^h$*-lo-*;

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[3]) Such is the traditional analysis of *cehefi*, with an ending *-fi* derived from PIE $*-d^hiōi$, compare Avestan *-diiāi*. A different analysis has been proposed by van der Staaij (1995: 169f.) for *cehefi* and the related Sabellian forms Oscan SAKRAFÍR, Umbrian *pihaf(e)i* and HERIFI, viz. as 3 sg. mediopassive futures. Syntactically, a future meaning is conceivable for all forms, and formally the ending could reflect $*-b^hu- + e + r$, parallel to the Latin *b*-future.

The doublet *κόχλᾱξ* may have been formed on the basis of *κόχλος* 'snail, twisted shell' (Frisk s.v.). According to Frisk (III: 122), the word *κάχλης* is an onomatopoeic formation. Origin from a non-IE language has also been considered for this word, cf. Furnée 1972: 343, 391.

OHG *hagal* 'hail' and its Germanic cognates may show either **-k-* or **-$g^h$-*.

A reconstruction as **$kh_2g^h$-lo-* seems possible but doubtful, especially as far as Greek is concerned.

3. Pok. 542 ****ḱēibh-, ḱēigh-*** 'fast, violent'

For **ḱēib$^h$-*, Indic and Germanic evidence is adduced, for **ḱēig$^h$-* Indic, Germanic and Slavic. Skt. *śībham* and *śīghrá-*, both 'fast', are probably cognate (KEWA III: 350), but their etymology is uncertain. Mayrhofer is reluctant to connect *śībham* with Goth. *haifsts* 'quarrel' etc.

He seems less reluctant in connecting *śīghrá-* with Germanic and Slavic. In Germanic, however, OE *hīgian* 'to strive for', ModE *hie* 'to hurry' is isolated. Russ. *sigát'* 'to jump' is ambiguous because in the West-Russian dialects from which this form comes (Vasmer II: 622), pretonic *-ja-* < *-ę-* is phonetically identical to *-i-*, which means that the form can just as well be derived from the root *sęg-* 'to attach, grab', although the semantic connection of the latter with 'to jump' is not obvious.

Moreover, the root reconstruction presents formal problems: a reconstruction as **ḱieH-* cannot explain Goth. *haifsts*. A possible form **ḱHei-*, giving *-ai-* in Gothic and *-ī-* in Sanskrit (in zero-grade) through laryngeal metathesis (see Schrijver 1991: 512–536 for discussion) would give Skt. *kh-*, whereas **ḱeiH-* or **ḱeHi-* would give a rather unusual root structure *CeC-C-C-*, if a root enlargement is added. These problems indicate that the different root enlargements are post-PIE.

One might try to connect this entry with the root **ḱei(H)-* 'to stir, move' (Pok. 538/9) that we have e.g. in Latin *cieō, ciēre* 'to stir, call', *citus* 'fast', etc., and Greek hom.pret. *ἐκίαθον* (with *ῐ* due to metrical lengthening) 'followed, roamed'[4]). Semantically, this fits very well, but

[4]) The Hesychius gloss *κίατο·ἐκινεῖτο*, thus quoted in Frisk (I: 863) from the edition of M. Schmidt, is to be kept out of the discussion of this verbal root. Bywater (*Journal of Philology* 17 (1888), 77) has argued convincingly that the gloss originally read *κείατο·ἔκειντο*, and this has been accepted in Latte's edition of Hesychius.



the exact form of this root is hard to determine (cf. Schrijver 1991: 237–8).

I conclude that the forms that Pokorny adduces do not allow us to reconstruct a PIE root.

4. Pok. 560 ****k̯nēbh-, kenəbh-***[5]) : an enlargement of the root *2. *ken-* 'to scratch, rub, plane'.

To match these forms to modern standards, we must probably replace the first reconstruction by **kneHb$^h$-*. The second form, containing three consonants after the root vowel, can hardly reflect a PIE root. Four branches are adduced for this entry.

The first is Greek. According to Frisk (I: 884), Gr. *κνήφη* 'itch', *σκνήφη* (Hes.) 'stinging nettle' must be separated from *κνάφος* 'weaver's card', *κνάπτω* 'to scratch, tear apart'. The short *a* in the latter two words is hard to explain: **knh$_2$p-* would give **knāp-*, and **knh$_2$ep-* would give **kanap-*. We must then resort to the assumption that a secondary zero grade was introduced into these forms. *Κνέφαλλον* 'ball of wool; pillow' contains a non-IE suffix, and has the variants *γνόφαλλον* and *κνάφαλον*. Schwyzer (p. 414), taking *γνόφαλλον* (Alkaios) as the original form, thinks that *#κ-* was assimilated from *γν-π/φ-*. Chantraine's remark (II: 547) that «le caractère technique et populaire pourrait rendre compte du passage *κν-* > *γν-* et le flottement du vocalisme» could imply non-Indo-European origin[6]). This leaves us with Greek *(σ)κνήφη* as the only usable form (viz. as **(s)kn(e)h$_1$b$^h$-*).

As for Celtic, W. *cnaif* (m) 'fleece' seems to call for **knabh-*; the alternative is **knauī-*, which, according to Vendryes (LEIA - C 128/9), has the advantage of explaining the cognate Breton (*kreoñ* 'fleece') and Irish (*cnaí* (f) 'fleece') forms. W. *cnaif* would then be deverbative, from the verb *cneifio* 'to shear' that can be explained as a late *-iā-*formation of a nominal stem **kneiu-* < **knauī-* (Schrijver, p.c.). We would expect the Celtic forms to derive from a root without a laryngeal, as we generally assume PIE **knHC-* to give **knāC-* , and **knHVC-* to give **kanaC-*. But a secondary development **knHC-* > **knaC-* is atte-

[5]) The reader should be aware, in this entry and in the stems 7, 11, 17, 21 and 22 below, that the symbols *ə* and *̯* that Pokorny uses are no longer current in Indo-European reconstructions. The *ə* can in most instances be replaced by a laryngeal *H*, whereas the *schwa secundum* can be omitted from phonemic reconstructions altogether.

[6]) These words do not occur in Furnée's study of pre-Greek consonantal phenomena.

sted in Celtic, cf. Joseph 1982. The problem with our form is that it lacks solid comparative evidence.

Germanic (OIc. *hnafa* 'to cut', etc.) may contain either **-$b^h$-* or **-p-*. The forms would point to an o-grade, but of a root without a laryngeal; from **knHob$^h$-* we would expect Gm. **hunab-*. De Vries remarks s.v. *hnafa* that words containing *#hn-* usually are «Sonderbildungen» within Germanic, with an affective meaning.

Pokorny further mentions two names, viz. the Celtic god *(Mars) Cnabetius* and Runic (Gs.) *Hnab(i)das* (a surname that survived in OE *Hnæf*, OHG *Hnabi* 'the maimed one'), which are discussed by Gutenbrunner (1935). According to him, they may represent *-tio-* and *-to-*participles respectively, of the Germanic verb *hnafa* 'to cut', which would then show *-$b^h$-*. The Celtic name occurs only in the area of the *Treveri* and could point to close Celto-Germanic contacts. This is an argument to separate it from the other Celtic forms.

The Baltic forms (Lith. *knabù* 'to peel', *knibù* 'to disturb, tickle', etc; see Fraenkel I: 277 for more forms) are part of a large group of words in Baltic containing *#kn-* with expressive meaning. This means that this group is likely to have suffered various analogical changes, the starting point of which is hard to determine.

I conclude that, as far as the phonetics are concerned, a connection between any of these branches is either difficult or impossible. Semantically, the problems are equally large: the two nominal stems, 'itch' in Greek, 'fleece' in Celtic, may be connected if one keeps in mind that (stinging) nettles were used for weaving[7]); but they are hard to connect with the two verbal stems, 'to cut' in Germanic and 'to peel; to tickle' in Baltic.

No common origin can be reconstructed for these words.

5a. Pok. 563: a ***dh***-enlargement of the root **kenu-, kneu-*.

Two branches are supposed to show **-$d^h$-*. In Greek, *κνύθος· ἄκανθα μικρά, κνυθόν· σμικρόν* (Hes.) are the only forms adduced; they probably represent recent formations derived from the verb *κνύω* 'to scratch or knock softly' (Frisk s.v. *κνύω*).

As was mentioned above, Germanic forms with *#hn-* are likely to have been remodelled (cf.de Vries ad *hnafa*), which renders the Germanic words (OIc. **hnjoða* 'to hit' etc.) uncertain. Compare also Kluge-Seebold s.v. *Niete* 'metal pin' on **hnjóða*: «weitere Herkunft unklar».

As Pokorny admits himself, Latvian *knūst, -du* 'to itch' is inconclusive as regards the dental, and, moreover, it is part of a large group of Latvian words formed with *#kn-* with expressive meaning (cf. Mühlenbach-Endzelin II: 241–254). As in the case of Germanic words with *#hn-*, remodelling may have taken place in this group of words.

5b. Pok. 563 a ***bh***-enlargement of the root **kenu-, kneu-*.

Only OIc. *hnýfill* 'short and blunt horn (of a lamb)' and Germanic cognates are adduced, but the Germanic family may contain either **-$b^h$-* or **-p-*; *hnýfill* has a variant *knýfill* with the same meaning.

This does not leave us any ground for a PIE reconstruction.

6. Pok. 579 ****ḱerdho-, ḱerdhā-*** 'troop, row'

Six branches of Indo-European are adduced. Mayrhofer (KEWA III: 309) separates IIr. (Skt. *śárdha-* 'herd, troop' etc.) from the Greek and European forms on semantic grounds. The original Aryan meaning of *śardh-* 'power' would be difficult to connect with the original concept of 'order, succession (of pastures)' found in Germanic and Balto-Slavic. His reasoning is not convincing. Compare Toporov (s.v. OPr. *kērdan* 'time'), who defines the meaning of the PIE root **ḱerd$^h$-* as «... a certain multitude, the constituents of which are ordered in a fixed way as a planned alternation». The meaning could connect it with the PIE root **(s)ker-* 'to cut' (Pok. 938)[8]).

Greek *κόρθυς, -υος* f. 'heap of cut corn, hay-stack' has quite a different meaning, which renders the connection uncertain (Chantraine 1966, II: 566). This word poses the additional problem of a different formation. Furnée (1972: 354, 365) mentions with different suffixal vocalism *κόρθις,* acc. *-ιν* (H.) and *κορθέλαι* (*v.l.* in H.), *κορθίλαι* (inscr., H.) 'heap, sheaf'.

As to Celtic, W. *cordd* 'tribe, clan' is reconstructed by Pokorny as **kord$^h$ā*. Another option is **korio-* (cf. W. *arddu* 'to plough' < **arie-*); this has the advantage of a better connection with other Celtic (OIr. *cuire* 'troop, army', Gall. *Corio-*) and Germanic forms (Goth. *harjis*, ModHG *Heer* 'army' etc.).

Germanic (Got. *haírda* < **kerd$^h$ā* 'herd' ), Baltic (Lit. *(s)keřdžius*

[7]) Cf. Dutch *neteldoek* 'muslin', lit. 'nettle-cloth', and OHG *nazza, nezzila* 'nettle' that Pokorny (IEW 758–9) connects with the root **ned-* 'to tie together, knot'.

[8]) In fact, Skt. *śárdha-* could very well reflect **skerdho-*, according to A. Lubotsky (forthcoming): **skerdho-* > IIr.**sčardha-* > **śćardha-* > PInd. **ć$^h$ard$^h$a-* > (Grassmann's Law) **ćard$^h$a-* > *śárdha-*.

'shepherd', and OCS *črěda* 'day's order; herd' do all agree. The circumflex accent in Lith. *(s)keřdžius* is not necessarily original, because derivatives in *-ius* regularly have metatonic douce, that is, if the root had acute intonation, this was always replaced by circumflex intonation in these derivatives[9]). On the other hand, the verb(s) of which *(s)keřdžius* is derived, viz. *skeřsti* 'to slaughter, to stab' and *kiřsti* 'to hew off, to strike, to fell (with an axe, a sword, a whip, etc.)' have circumflex intonation as well. The circumflex intonation points to **-$d^h$-* rather than **-d-*. On the strength of Lit. *(s)keřdžius*, we may assign the Germanic, Baltic and Slavic forms for 'herd; shepherd' to the root **(s)ker-* 'to cut'.

This leads us to the following result: we have two isolated reconstructions, **kor-io-* for Celtic and (possibly) **kordhu-* for Greek. The probable PIE form is **(s)kerd$^h$-*, attested in Indo-Iranian, Balto-Slavic and Germanic.

7. Pok. 590 ***keubh-***, an enlargement of the root *2. keu-, keuə-* 'to bend'.

Pokorny states between brackets: «einschließlich von Worten, die *bh* oder *b* enthalten können». Four branches of Indo-European are adduced here.

There seems to be no consensus about the Vedic forms. For the forms *kubhrá-* 'high-lumped bull' and *kubjá-* 'hunch-backed, crooked' (< *kubh-ḱo-* by Bartholomae's Law ?, Mayrhofer, EWAia I: 367; it could also be a contamination of *kubhra-* and *ubjáti* 'to force'), and related Iranian forms, e.g. NP *kūž, kūz*, Mayrhofer assumes PIE origin; this is rejected by Kuiper (1991: 31), who regards the *-bh-* as a Sanskritized foreign *-b-*, on account of the variants of these words listed by Turner (CDIAL).

*Kakúbh-* 'top', is derived by Mayrhofer from the same Indo-European stem as the preceding forms. He explains the words *kakúd-* (f) 'top', *kākúd-* (f) 'throat' as dissimilations from *kakúbh-* in the *bh*-casus.

The connection with Latin and Greek, however, seems very uncertain: Lat. *cacūmen* 'top' was probably rebuilt after *acūmen*, id., which leaves the original form unclear. Greek *κυφός* 'stooped, bent' contains

[9]) This was noted for the first time by de Saussure (1894: 430) and has recently been discussed by Derksen (1996: 36–41).



an *ū* (cf. *κῦφος* 'hunch') not occurring in Sanskrit. Related words in Greek also have *-π-*, *-β-* and *-μβ-* (cf. Furnée 1972: 176, 284).

The Germanic forms, e.g. OHG *hūba*, OIc. *hūfa* 'tilt' (a covering or coarse cloth), may contain either **-$b^h$-* or *-p-*.

Too many doubts exist to reconstruct a PIE form. Not to be connected is Russ. *kubar'* 'humming-top' and its family: it belongs, with Russ. *kub* 'cup', to nr. 8.

8. Pok. 592 ***kumbh-, mostly kumb-***

For this entry five branches are adduced, of which only the first one might contain evidence for **-$b^h$-*.

Skt. *kumbhá-* 'jar, pitcher' and Av. *xumba-* 'bowl' may be reconstructed as **$k^h$umb$^h$a-*, but this remains uncertain in view of Greek *κύμβη* 'basin, bowl', *κύμβος* 'bowl', which can hardly be separated on semantic grounds. As Kuiper states (1991: 63), «it is not uncommon for *b* in foreign words to be naturalized' as *bh*.»

The forms from the other four branches, viz. Greek (*κύμβη* 'basin, bowl' etc.), Latin (*-cumbō* 'to lie down'), Celtic (MIr. *comm* 'barrel', W. *cwm* 'valley' etc.) and Germanic (OIc. *-huppr* '-hip' etc.), are all derived by Walde-Hofmann (s.v. *cubō*) from **kumb-*. Greek *κύμβη* etc. is clearly related to the forms mentioned above under nr. 7 (Furnée 1972: 176,284). Latin *-b-* instead of *-bh-* is suggested by Faliscan *cupa* 'cubat' as opposed to e.g. *loferta* 'liberta-', showing that PIE *-b-* > Fal. *-p-* and PIE *-$b^h$-* > Fal. *-f-*, cf. Giacomelli 1963: 114–5.

It is clear that this entry cannot be used as evidence for a root with the structure **TeRD$^h$-*.

9a. Pok. 594 ***ḱeubh-***, an enlargement of the root *2. ḱeu-* 'to shine, clear'.

As far as **-$b^h$-* is concerned, Pokorny adduces – apart from Arm. *surb* 'pure, sacred', which may be an Iranian loan (cf. Mayrhofer KEWA III: 357) – only Indo-Iranian cognates. S.v. *śubh-* 'beautiful, shining', Mayrhofer mentions Phryg. *Partu-soubra*, and Heth. *šuppi-* 'pure, sacred'. The reading of the Phrygian inscription, however, is probably *partus-oukra* (see Haas 1966: 105), whereas Hittite does not allow a decision on the labial and, moreover, usually has no palatalization. Watkins (1975) connects *šuppi-* with Umbr. *sopo/supa* 'sacralized flesh' and reconstructs **seup-*.

9b. Pok. 594 ***ḱeudh-***

As far as **-$d^h$-* is concerned, Pokorny adduces only Skt. *śúndhati*

'to purify' and its family. It has no certain connections outside Indo-Iranian (cf. EWAia II: 657).

The root etymology is clear, but the suffix is not attested outside Indo-Iranian.

10. Pok. 608 ***kneig$^{wh}$-, kneib-*** 'to bend, be inclined'

The meaning of Umbr. *conegos* 'conixus' is unclear, and so is its connection with the root **kneig$^{wh}$-* (Meiser 1986: 88), which is reflected in Lat. *cōniveō* 'to contract'.

Go. *hneiwan* 'to be inclined' may have its *-w-* due to contamination with **hleiwan* 'to lean' (Lehmann 1986 s.v.), but the other Germanic languages can reflect **kneig$^{wh}$-*. Polomé (1994) offers a different solution for the two Germanic reflexes: *-w-* from **g$^{wh}$* before a front vowel, *-g-* before a back vowel. Paradigmatic levelling would then lead to Go. *-w-* vs. ON, OE, OS, OHG *-g-*. This solution was previously offered by Streitberg (1896: 123).

A problem with this entry is its restricted distribution. If it is Indo-European, we have a root structure *TReRD$^h$-*.

11a. Pok. 617 *labial enlargement (-**bh**-)* of the root **krā(u)-, krəu-, krū-* 'to pile up, cover up, hide'.

Only Greek *κρύπτω* 'to hide' and its derivatives are adduced here, which renders the reconstruction for PIE uncertain. Lith. *kráuti* 'to pile up, etc.' and OCS *kryti* 'to cover' show that the root must have contained a laryngeal, which is absent in Greek.

11b. Pok. 617 (still citing Pokorny:) *dental enlargements seem to be* (i.e., of the same root as in 11a above):

Kluge-Seebold (s.v. ModHG *rüsten* 'to prepare for') derive the Germanic forms (e.g. OIc. *hrauð* poet. 'coat of mail', OHG *hrust* 'equipment'), given by Pokorny, from a Gmc. root **hreud-a-*, and state «vielleicht daneben auch *-þ-*».

Lith. *kráudinti, -ina* 'to have loaded', the only non-Germanic form which Pokorny mentions for **-d$^h$-*, contains the productive causative suffix *-dinti*.

The evidence is too narrow a basis to assume a PIE enlargement **-d$^h$-*.

12. Pok. 617 ***ḱrebh-, ḱrobh-, ḱrembh-*** 'to trust' ??

Pokorny adduces Sanskrit and Celtic forms. Skt. *śrámbhate* (Dhātup.) 'to trust' and its cognates are late, and therefore require «einer inner-indischen Erklärung», cf. Mayrhofer KEWA III: 388, who renders the connection with OIr. *crábud* 'piety, ascetism' (< *krobhitu-*, Vendryes C-221) and W. *crefydd* 'belief' «ganz unglaubhaft». We would need to reconstruct a different first vowel for Irish (**krōb$^{(h)}$-*) and Welsh (**krVb$^{(h)}$-*). The suffix poses another problem: Irish **-itu-* as opposed to Welsh **-iio-* or **id$^{(h)}$o-*.

This connection is too uncertain to assume PIE origin.



13. Pok. 623 ***kreut- (kreudh- ?)*** 'to shake, swing'

Part of the forms given by Pokorny under this entry, belong to the root **kruH-* 'to cover' that we have discussed above (nr. 11). Pokorny's translation 'to shake, swing' is arbitrary.

Three branches of Indo-European are said to contain proof for this root, although for **-d$^h$-* itself only the Germanic forms can be used. But these can have either **-d$^h$-* or **-t-*, cf. Kluge-Seebold (s.v. *Ried* 'reed') and de Vries (s.v. *hraustr* 'strong').

Hilmarsson (1986: 162f.) connects EToch. *kru* 'hollow stick' (Loc.sg. *kärwaṃ*), WToch. Gen.pl. *kärwats* with Latin *crūs* 'shinbone' and derives both from PIE **ḱruHs* 'hollow stick, bone'. No dental is involved.

Lith. *krutù* 'to stir oneself' has *-t-*.

There is no proof for the structure *TeRD$^h$-* in this entry.

14. Pok. 625 ***kseubh-*** 'to stagger, swing'

Pokorny gives Indo-Iranian and Slavic forms. As to Skt. *ksubh-* 'to stagger, tremble', Mayrhofer (EWAia I: 440) remarks: «Idg. wohl **kseubh*, vgl. auch die ältere Zusammenstellung mit **skeubh-*, Lit. *skubùs* 'fast, hasty' (...), nhd. *schieben*». As the metathesis would be unusual, the onomatopoeic character of the root may also be held responsible for the unusual form; thus Mayrhofer ad *ksep-* (EWAia I: 437), with reference to Kellens (1977: 200f.).

According to Trubačev (ESSJ 8: 153–155), **kseubh-* yields **xub-* in Slavic. **xybati* 'to stagger' would have its lengthened grade vocalism from derived imperfective lengthening of a non-attested verb **xubti*[10]). The problem is, that the nominal forms would be deverbative, e.g. Cz. *chyba* 'mistake', Pol. *chyba* 'surely'.

[10]) Trubačev seems to think that **xubati*, as attested in Pol.dial. *chubać* 'to run, fly' represents the root vocalism lost elsewhere. I think the semantic difference is too large for this to be plausible. Moreover, this formation is isolated within Slavic.

Thus, we arrive at an Indo-Iranian-Slavic correspondence **kseubh-* 'to stagger'.

Quite possibly, the *-s-* in *ks-* has the same neutralizing influence on the velar as the *s* mobile in *sk-*. This would mean that, just like structures of the type **sTeRD$^h$-* are excepted from the root constraint, structures of the type **TseRD$^h$-* are as well. Alternatively, one can assume a possible metathesis to have taken place relatively late in PIE, when the root constraint was no longer valid.

15. Pok. 627 ****ḱudh-*** 'muck, dung' ??

Pokorny adduces forms from Greek and Baltic. The Greek forms (*ὑσ-κυθά·ὑὸς ἀφόδευμα* etc.) are only found in glosses (Hes.). Chantraine (II: 597) wonders if *κυθνόν* 'sperm' (Hes.) could be derived from *κεύθω* 'to hide' , a verb with *s* mobile (Pok. 951).

According to Fraenkel (II: 1030), the etymology of Lith. *šū́das*, Latv. *sũds* 'muck, dung' is unclear (*#sḱ-*?; but we would expect *sk-* < **sḱ-*, cf. Kortlandt 1978). The acute accent would indicate that they contain **-d-* instead of **-d$^h$-* (Winter's Law).

As the exact relation remains unclear, PIE origin cannot be established for this entry.

16. Pok. 631 ****ḱu̯endhro-, –no-*** in plant-names

Latin, Irish, Germanic and Lithuanian are said to contain forms of this word, e.g. Lat. *combrētum* 'a kind of rush', Ir. *cuinneog* 'Angelica silvestris', OIc. *hvonn* 'Angelica silvestris', Lith. *švéndrai* 'reed, reed-mace' etc.

A. Heiermeier (1980) has devoted an entire book to the study of the forms adduced here and other connections that have been made. She leaves no doubt about the outcome: The equation **ku̯endhro-:*ku̯ondhro-:*ku̯ondhnā* cannot be maintained, because not a single form of this apparent IE plant-name can support it. Some forms simply do not exist, others represent secondary developments. For details I refer to Heiermeier's study.

17. Pok. 806 : as a *dh*-present to the root **pelə-, plā-* 'broad and flat, to extend' (the correct form of which is **plh$_2$-*):

Only Greek forms are adduced here. The verb *πλάσσω (< *plathi̯ō)* 'to form out of weak matter' may be a derivative of a *dh*-present ( cf. *πλήθω* 'to fill'). This category is productive in Greek. According to Chantraine (III: 911), the word has no certain etymology. Besides, the short *a* in *plaC-* is a problem: we would expect *plāC-* for **plh$_2$C-*,



and *palaC-* for **plh$_2$eC-*. The noun *παλάθη* 'flat fruit-cake' is called a «Fremdwort» by Frisk (II: 464).

No PIE reconstruction is possible.

18. Pok. 843 ****pougo-/pougho-*** 'pure, incorruptible'

OIr. *óg* 'pure, entire', *óge* 'integrity, perfection' and Cz. *pouhý* 'pure, single' are the only forms Pokorny adduces.

The Old Czech forms of *pouhý* are *púhý* and *púhlý*. The etymological dictionaries of Czech (Holub-Lyer, Machek) offer two etymologies: either *púhlý* has originated from metathesis of OCz. *hlúpý* (> NCz. *hloupý*) 'barren, empty', which stems from PSl. **glupъ*, or, conversely, OCz. *púhlý* has given rise to *hlúpý* and *hlupiti* 'to shade' by metathesis. In the latter case, the etymology would be **pъlg-*, comparable to Lith. *spil̃gti* 'to die from lack of light (of plants)'. The semantic similarity in the latter case is striking, but Fraenkel does not mention a Slavic correspondence s.v. *spil̃gti*.

At any rate, both etymologies need an *-l-* in the root, rendering the connection with Irish untenable. Moreover, neither in Irish nor in Czech can we determine the original velar. See Vendryes (O-13) for a similar statement.

19. Pok. 1062 ****teleǵh-*** 'to hit' ?

Pokorny mentions Sanskrit *tarh-* 'to smash' and Baltic forms. Mayrhofer (EWAia I: 636), however, reconstructs **(s)tarj$^h$-* for Skt. *tarh-* (cf. ApDhS. *stṛhantī-* 'smashing') and cites Eichner (1982), who connects IIr. **(s)tarh-* with Heth. *ištark-* 'to fall ill', *ištarni(n)k-* 'to make ill', from PIE **sterǵ$^h$-*.

The *-r-* would make it unrelated to Lith. *tel̃žti* 'to urinate, wet oneself; to beat up' (see Fraenkel: 1078/9 for the semantic development). The latter seems to belong to the root **(s)tel-* 'to let flow, urinate' (Pok. 1018), which we have e.g. in ModE. *to stale* 'to urinate, esp. of horses and cattle' and Gr. *σταλάσσω* 'to drip'.

In both roots we have an *s* mobile.

20. Pok. 1067 ****tenǵh-*** 'to pull, stretch', ar. *thengh-*; ****tnghu-*** 'heavy'. Enlargements of the root *1. ten-* 'to pull, stretch'.

Pokorny provides Iranian, Armenian, Latin, Slavic, Lithuanian, Germanic and Tocharian forms.

As regards Av. *ang-* 'to pull, bend the bow', and Osset. *tynʒyn* 'to spread' (cf. Abaev 3: 337/8; < **vi-θanj-* ), we cannot determine whether they contain **-g-* or **-g$^h$-*. Ernout-Meillet (680) remark that it

contains an «élargissement guttural qui se retrouve, notamment, dans des types affectifs et techniques»; this does not exclude the possibility of PIE origin.

Armenian *t'anjr*, gen. *t'anju* 'thick' is the normal development of **tng$^h$iu-*.

WToch. **teṅkä-*, **täṅkä-*, EToch. *täṅkä-* 'to impede' (cf. Hilmarsson 1991: 97) may contain any one of the three velars, as they all merged in the voiceless velar in Tocharian. The semantic connection seems difficult to me.

Slavic **tęgъkъ* 'heavy' etc., Lith. *tingùs* 'slow', OIc. *þungr* 'heavy' etc. are supposed to show the adj. stem **tng$^h$u-*. In the first place, OIc. *þungr* is ambiguous, and may show either **-k-* or **-g$^h$-*. The Balto-Slavic facts must be examined more closely[11]).

In Slavic, there are four forms that have reflexes in the modern languages: OCS *-tęgnǫti* (*-tęgnǫ*, *-tęgneši*) 'to draw, to pull' and OCS *tǫga* 'anxiety, anguish' show acc.par. b (non-acute intonation), whereas OCS *tęžьkъ* 'heavy' and Ch.Sl. *tǫgъ* 'firm, tight' show acc.par. c (ambiguous in regard to the original intonation). This points to original non-acute root intonation in Slavic, which makes the reconstruction **teng$^h$-* the only possibility (Winter's Law).

In Lithuanian, we can compare four groups of words. I) The adjectives *tingùs*, *tiñgas* 'lazy' (= OCS *tęžьkъ*), *tangùs* 'unbendable' (= Ch.Sl. *tǫgъ*) show AP (4). As AP (4) is productive within Lith. *u*-stems, an original AP (3) (acute root intonation) remains possible. II) The denominative verbs *tingéti (tìngiu, tìngi*, pret. *tingéjau*) 'to be lazy', *tìngti (tìngstu)* 'to become lazy' and *tìnginti* 'to make lazy' belong to verb categories that often show metatony. Their acute intonation may therefore be secondary. III) The verb *tiñginti* 'to make lazy', conversely, may have secondary circumflex intonation, if it stems from **tìngus* (AP (3)). IV) The only non-ambiguous form may be *tangýti (tañgo)* 'to eat greedily', an iterative from a non-attested Lith. **teñgti (*tengiù)* 'to pull, draw'; compare for the semantic development Dutch *trekken* 'to pull, draw' and *trek hebben* 'to be hungry'.

Fraenkel connects the Lith. forms mentioned here (apart from *tangýti*, which he does not mention) with Lith. *sténgtis (sténgiuos)* 'to try, seek', *stìngti (stìngstu)* 'to harden', *stángus* AP (3), *stangùs* AP (4) 'elastic, resilient; sturdy'. This is formally difficult (since the latter group has acute root intonation) and semantically not obvious. Furthermore,

[11]) I owe the explanation of the Balto-Slavic accentual facts to René Andries.



it would be difficult to connect the latter group of words with the PIE root **ten-* 'to draw, pull', because no forms with s-mobile occur from this root elsewhere. Baltic and Slavic then both point to the reconstruction **teng$^h$-*.

The stem of Latin *tēmō* (< *tenksmō*)[12]) 'pole' corresponds exactly to OIc. *þīsl* (< **thenxslo*) 'pole'. In both languages, however, the velar may have been neutralized before the *-s*, making it impossible to determine its original form. Kluge-Seebold, s.v. *Deichsel*, reconstruct a verbal root **teng-* 'to pull', as enlarged from **ten-*. The words for pole would then derive from an s-stem **tengos* or **teng$^h$os* 'the pulling'.

Summarizing, this entry gives the following results:

| | | | |
|---|---|---|---|
| Ir.: | possibly | **teng/gh-* | 'to pull, spread' |
| Arm.: | | **tngh-* | 'thick' |
| Toch.: | possibly | **tnk/g/gh-* | 'to impede' |
| Gmc.: | | **tenk/gh-* | 'heavy' |
| Sl.: | | **tengh-* | 'heavy; to pull' |
| Lith.: | | **tengh-* | 'heavy; to pull |
| Lat., Gmc.: | | **tenk/g/gh-* | 'pole' |

We can reconstruct a root **teng$^h$-* 'to pull'.

21a. Pok. 1073 ****terǵh-*** : an enlargement of the root *3. ter-, terə-* 'to rub, pierce'

Here Pokorny adduces only OCS forms, viz. four forms of the verb 'to jerk', two with *-z-* ( *trězati, trъzati*), two with *-g-* ( *trъgati, trъgnoti*). The occurrence of *-z-* next to *-g-* may be explained by analogical expansion of the progressive palatalization (cf. Vaillant 1966: 480). Pokorny reconstructs a palatalized velar **-ǵ$^h$-*, but since this would give OCS *-z-* only, I prefer **-g$^{(h)}$-*.

These forms could be connected with nr. 19 IIr. **(s)tarj$^h$-* (although this is semantically not convincing), but that would be impossible if the short falling pitch of SCr. *tr̀gati, -am* 'to pull, jerk' (Skok 3: 499–500) indicates PIE **-g-*, in which case the entry is irrelevant. The acute ac-

[12]) Eichner (1992: 72[53]) suggests that *tēmō* may be derived from **tensmō* instead of **tenksmō*. He is countered by Isebaert/Seldeslachts (1994: 174[14]), who think that **tenksmō* is possible, basing themselves on the relative chronology of H. N. Parker (1986: *The relative chronology of some major Latin sound changes*, Yale diss.), a dissertation that was inaccessible to me.

cent in Slavic, however, may also be explained by the laryngeal in the root **trh$_1$-* (e.g. OHG *drāen*, Lith. *tìrti*), if these forms stem from the same root (Pok. 1071). And if palatalization is indeed secondary in this word, the velar may theoretically stem from **g$^{w(h)}$* as well.

21b. Pok. 1073 ****treugh-***

Pokorny reconstructs this entry on the basis of Greek and Celtic forms. As regards Gr. *τρύχω (ῡ)* 'to wear out, harass' (note Pokorny's «vielleicht»), compare Frisk s.v.:«fast nur Präs. u.Ipf.» It is most likely a Greek present formation derived from *τρύω*.

OIr. *tróg, truag*, W. *tru* 'miserable' may contain either **-g-* or **-g$^h$-*, and have no certain connection (Vendryes T-154).

This entry cannot be used for PIE reconstruction.

22. Pok. 1080 ***-bh-enlargement*** of the root *tēu-, təu-, teuə-, tuō-, tū-* 'to swell'.

Four branches of IE are said to contain evidence for this root.

From Latin and Greek, two isolated words are adduced: Lat. *tūber, -eris* 'lump, swelling' (and OU gloss. *tūfera*), Gr. *τύφη* (the quantity of the *υ* is unknown) 'plant, used for filling pillows and beds'. Semantically, they are hardly related, neither to each other nor to Celtic/Germanic.

Schrijver 1995: 419, following an earlier proposal by Greene, connects the Celtic forms OIr. *túaimm* 'bend; hillock', W. *ystum* 'bend; shape, posture' with OIr. *túag* (f. *ā*) 'arch' of the root **(s)teug$^{(h)}$-* 'to bend'. For Proto-Celtic he constructs either **steug-sm-*, implying *s*-mobile which is absent in OIr. *túaimm*, or **eks-teug-sm-*; as I see it, we cannot tell whether the *-g-* comes from PIE **-g-* or **-g$^h$-*. See nr. 24 for a possible connection.

In Germanic (OIc. *þūfa* 'knoll', OE *ðūf* 'bundle, tuft') the forms may contain either **-p-* or **-b$^h$-*.

There is too much uncertainty about this entry to assume PIE origin.

23. Pok. 1089 ****trāgh-, trōgh-*** and ***trēgh-*** 'to pull, move oneself; descendants'

Pokorny comments: «entspricht nicht der normalen Wurzelform; ob durch Kontamination von *dherāgh, dregh-* mit *terk-, trek-* entstanden?» Elsewhere (p. 257) he suggests that the form arose by dissimilation from **dhragh- > dragh > tragh-*.

The forms from Latin, Celtic, Germanic and Slavic adduced by Pokorny are discussed by Schrijver (1991: 188–192, 349) in connection with Lat. *trahō* 'to pull, drag, bring'. His discussion suggests a different division of Pokorny's material:



Firstly, OIr. *traig*, W. *troed* etc. 'foot' can be connected with Goth. *þragjan*, OE *þrægan* 'to walk', OE *þrāg* 'time' etc. as **tr(e)h$_1$g$^h$*.

Secondly, OIr. *tráig* 'ebb', W. *treio* 'to ebb' etc. can be derived from **treHg$^h$-, troHg$^h$-* , but stand apart semantically from the first set of forms.

Thirdly, **trog-* may be reconstructed for Ir. *trog(o)* 'offspring' and SCr. *trâg*, Gs. *tragovi* (acc.par. c.) 'footstep, trace', SCr. *traga* (acc.par. a) 'stock, family, race', Slavic *-a-* being due to Winter's Law.

Latin *trahō, trāxī , tractum* 'to pull, drag, bring' is reconstructed as **tr(e)h$_2$g$^h$-* by Schrijver, on the assumption that the *-ā-* in the *trāxī* and the related *trāgula* 'a kind of dragnet' is not analogical. The fact that the *a* in *trahō* is short, may perhaps be explained by a rule **CRHTC* > Lat. *CRaTC* that Schrijver invokes; in this view, *trahō* < *treh$_2$g$^h$-* must continue an older athematic verb.

According to Schrijver, the connection of *trahō* to either OIr. *traig* etc. or Oir. *tráig* etc., however, is unattractive for semantic reasons, and the first one would be formally impossible because of the conflicting laryngeals. We must then reconstruct three different verbs of the structure *TReHD$^h$*, none of which is attested in more than two branches of IE.

24. Pok. 1099 ****tu̯engʰ-*** 'to oppress'

Av. *θβązjaiti* 'gets into a corner' is the only non-Germanic form adduced by Pokorny. It is a *sk*-present, which means that it can be derived from a PIE form **tueng$^h$-sk-*. By way of Bartholomae's Law, this would give **tuengźg$^h$-*, whence by cluster simplification **-ǵzgh-* > **-zg$^h$-*.

Kluge-Seebold reconstruct for ModHG. *zwingen* Gm. **þweng-a-*: if this is related to Lith. *tveñkti* 'to stow', it is a Verner-variant from **-k(w)-*, and to be separated from the Avestan word. The Germanic forms from **þunχian* 'to push, to press' (e.g. OHG *dūhen* id., OE ***ðyn, ðēon*** id.; according to Pokorny, they are derived from the root ****(s)teuk-***) may support this view.

Schrijver 1995: 419f., however, proposes to connect the Celtic root ****tung-*** **'to bend'**, e.g. in B. *stouiñ* 'to bend', W. *estwng, ystwng* 'to cause to bend; subdue' < ****eks-(s)tung-***, OIr. *as·toing* 'to refuse', with the PIE root ****tueng$^h$-***. This Celtic root *tung-* seems to be cognate with the one mentioned under nr.22, with a nasal infix.

Isebaert/Seldeslachts (1994) propose to connect Tocharian AB **tuānkā-* 'to press in' (in PP A *tātwänku*, B *tatwānkau*, subj. (or pres?) A *twānkatär* Med.) (with o-grade) and Greek *σάττω* 'to stuff, etc.', *σακτός (συχνος ?)* (with zero-grade of the root) with the root **tueng$^h$-*, as well as possibly Lat. *tōmentum* from **tuong$^h$-s-mn-to-m*.

As we have seen under nr.22, this root could have either **-g-* or **-g$^h$-* in Celtic. If the Germanic forms of (*þwenga-* etc.) are cognate, we must reconstruct **-g$^h$-*. Baltic is then unrelated.

There is enough evidence to reconstruct a PIE root **tueng$^h$-* 'to oppress'. The Celtic evidence is not strong enough to permit the reconstruction of PIE *s* mobile.

25. Pok. 1102 ****tuībh-*** 'hollow as a tube'

This entry contains some Greek words and one from Latin.

Frisk (II: 712/3) calls *σίφων* 'waste-pipe' onomatopoeic, and *σιφλός* 'hollow, defective' analogical. This isolates Lat. *tībia* 'shin-bone; flute', which according to Ernout-Meillet (691) has no certain etymology.

I conclude that we cannot establish PIE origin for these forms.

## *4. Conclusion*

**4.1** The investigation has yielded the following results:

a) Entries with an unreliable PIE etymology, which therefore cannot be used as evidence:

nr. 1: Pok. **kadh-*
nr. 3: Pok. **ḱēibh-, ḱēigh-*
nr. 4: Pok. **knēbh-, kenəbh-*
nr. 5a: Pok. **kenu-dh-, kneu-dh-*
nr. 5b: Pok. **kenu-bh-, kneu-bh-*
nr. 7: Pok. **keubh-*
nr. 8: Pok. **kumbh-*
nr. 12: Pok. **ḱrebh-, ḱrōbh-, ḱrembh-*
nr. 15: Pok. **ḱudh-*
nr. 16: Pok. **ḱu̯endhro-, -no-*
nr. 17: Pok. *-dh-* present to the root **plh$_2$-*
nr. 18: Pok. **pougo-/pougho-*
nr. 21b: Pok. **treugh-*
nr. 22: Pok. **teu(ə)-bh-*
nr. 25: Pok. **tuībh-*

b) Entries with a possible PIE etymology:

nr. 2a:
As we have seen, a proto-form **kH-g$^h$-* could be posited for Italic, Celtic and Germanic. This is only a restricted area of Indo-European. Furthermore, there is no certain attestation of a full grade of this root.



nr. 2b:
Reconstructible as **kh$_2$g$^h$lo-*, but doubtful.

nr. 9:
The root is **keu-*, but there is no evidence for a suffix *-b$^h$-* or *-d$^h$-* outside Indo-Iranian.

nr. 11ab, nr. 13:
The suffixed root is **kruH-*; an enlargement *-b$^h$-* cannot be assumed on Greek evidence only, whereas *-d$^h$-* is only (possibly) attested in Germanic.

nr. 21a:
The root may be **trh$_1$-*; the Slavic enlargement may represent any out of four PIE velars: **g$^w$, *g$^{wh}$, *g, *g$^h$*.

nr. 23:
Here we have arrived at three possible reconstructions of the structure TReRD$^h$-:
****tr(e)h$_1$g$^h$-*** : Celtic, Germanic 'to walk' etc.; semantically, this would be hard to connect with the root **trh$_1$-* 'to rub' occurring under nr. 21
****treHg$^h$-, troHg$^h$-*** : Celtic, isolated
****treh$_2$g$^h$-*** : Latin, isolated

c) Entries with a probable etymology as **TeRD$^h$-*:

nr. 6: ****(s)kerd$^h$o-*** Indo-Iranian, Balto-Slavic, Germanic
nr. 10: ****kneig$^{wh}$-*** Italic and Germanic
nr. 14: ****kseub$^h$-*** Indo-Iranian, Slavic
nr. 19: ****(s)terǵ$^h$-*** Indo-Iranian, Hittite
****(s)telǵ$^h$-*** Indo-Iranian, Baltic
nr. 20: ****teng$^h$-*** Armenian, Baltic, Slavic, Germanic, possibly Iranian, Tocharian, Latin
nr. 24: ****tueng$^h$-:*** Avestan, Tocharian, Greek, Germanic, Celtic

**4.2** As I have stated in the introduction, forms with *s* mobile are excluded as evidence, because the original character of the following stops cannot be established. The same may be valid for the form ****kseub$^h$-***, cf. supra nr. 14. From the remaining three forms, ****kneig$^{wh}$-*** is not certainly PIE because it occurs in Germanic and Italic only. It may be a 'European' word[13]). We are then left with nr. 20 ****teng$^h$-*** and nr. 24 ****tueng$^h$-*** as the only probable PIE forms of the type **TeRD$^h$-*.

[13]) For a definition of this term see e. g. Kuiper 1995.

**4.3** It is striking that the best examples of the type **TeRD$^h$-* both contain a nasal. Conceivably, the nasal blocked a possible assimilation (cf. § **2.1** above), by neutralizing the articulation type of the *-g$^h$-*, so that these forms escaped the root constraint.

The latter process has a parallel in the Latin development of **dn*, **tn* and **kn*, which have sometimes developed into *-nd-* and *-ng-*. This development was first investigated by Thurneysen (1883). Correspondences such as Lat. *fundus* – Skt. *budhnás* 'bottom', Lat. *pandō* – Greek *πίτνημι* 'to spread, to expand' and Lat. *pangō* – Greek *πήγνῡμι* 'to attach' show that a metathesis has taken place in the Latin words, which have their consonant clusters *-nd-* < **-dhn-*, *-nd-* < **-tn-* and *-ng-* < **-kn-*, respectively.

Thurneysen compared this metathesis with the same process in Old Spanish, for instance 2nd pl. imperative *cortandos* 'cut for us'[14]) from **cortád-nos*. Old Spanish also retains traces of an intermediate phase, in which the stop was contiguous to a nasal on both sides, the original one to its right and the 'anticipatory' to the left: *dandnos* 'give to us' from **dád-nos*[15]). By nasal dissimilation, the form *dandnos* later gave way to the also attested *dandos*[16]). Thurneysen assumed the same intermediate phase to explain the Latin forms. For instance, *pandō* would have arisen as follows: **patnō* > **pantnō* > **pandnō* > *pandō*. It thus seems that the outcome of **t* and **dh* (and undoubtedly also **d*) after a (secondary) nasal in Latin is the same, viz. *-d-*. In other words, the dental stops are neutralized into *-d-* after a (secondary) nasal.

Another instance of neutralization of different types of stops can be found in Slavic. According to Kortlandt (1988: 388–389), the operation of Winter's Law was blocked in the clusters **-ndn-* and **-ngn-*. This would explain the absence of lengthened vowels in some Slavic words and the absence of acute intonation in some Lithuanian forms. Slavic *voda* 'water' has a short vowel, and its vocalism would stem from the oblique cases, e.g. Balto-Slavic Gsg. **(v)undnes*. Lithuanian *ugnìs* and Slavic *ognь* 'fire' would derive from BSl. **ungnis* from PIE **ng$^w$nis*, and Slavic *-sęgnǫti* (e.g. SCr. *ségnuti*) and Lith. *sègti* 'to attach, grab' would go back to **sengn-*. As *d* and *g* were glottalized stops in Kortlandt's view, the absence of Winter's Law in these nasal clusters implies that the stop lost its glottal element between two *n*'s. In this way, at least *d/g* and *d$^h$/g$^h$* merged in the environment *-n_n-* in Balto-Slavic, similar to the same development in Latin.

The Latin and Balto-Slavic neutralizations provide a possible parallel for the assumption that the nasal in the PIE reconstructions **teng$^h$-* and **tueng$^h$-* neutralized the following guttural, so that the root structure constraint did not apply in these forms.

**4.4** Finally, we can compare our explanation of the two exceptions to the root structure constraint in **TeRD$^h$-* with the different explanations of the root structure constraint **TeD$^h$-* discussed in chapter two of this paper. The traditional theory of stop assimilation (cf. chapter 2.2.1) as well as the theory in which the stops impose a tone upon the vowel (cf. chapter 2.2.2 supra) are both compatible with the assumption of a neutralization after *n*.

In the case of a system in which vowels exert tone influence on the neighbouring stop (cf. chapter 2.2.2 infra), one must assume that the nasal did not let through the tone of the vowel, or that the *-g$^h$-* in the two roots in question arose from a low tone in the *next* syllable.

**4.5** Exceptions made for roots with *s* mobile and roots of the structure *TeND$^h$-*, the PIE root structure constraint has been shown to apply to both *TeD$^h$-* and *TeRD$^h$-* roots. There is no reason to assume that enlargements of the type *-D$^h$-* could be affixed to a root *TeR-* in PIE times. Structures of the type *TeRD$^h$-* must have come into being *after* the disintegration of PIE, two root types excepted.

[14]) In the *Poema de Mio Cid*, verse 2728.

[15]) The form *dandnos* in verse 273. Thurneysen adduced only examples in which the nasal stands in an enclitic pronoun. The same metathesis can also occur with stressed syllables, however, cf. the form *ternć* from **tenré* (modern *tendré*) 'I will have' in the same *Poema de Mio Cid*, verse 3049.

[16]) In verses 2081, 2798 and 3468.



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