

## What is the Greek counterpart of Sanskrit *th*?\*

### 1. Status quaestionis.

Some (East-)Indo-European cognates display a *th* in Sanskrit but a *t* in Greek, whereas others have *th* in both Greek and Sanskrit.

### 2. Different explanations.

a) Greek innovated and Sanskrit preserved PIE state:

- Greek reflex of PIE *\*tʰ* is always *t* (Meillet 1910, Frisk).
- Zubaty-Elbourne: Greek lost aspiration after *n, l, r, m* (and their vocalic counterparts) and *s*.<sup>1</sup>

b) Bopp: voiceless aspirates in Sanskrit (and other languages) were caused by a preceding *s*.<sup>2</sup>

c) Juret - Meillet (1937),<sup>3</sup> based on De Saussure (1891): some instances of Indic *th* can be explained by the combination of a *t* and *'*.<sup>4</sup>

### 3. Our explanation.

We believe that the differences can be explained by Indo-Iranian or Sanskrit innovations. The most important one is that several Indo-Iranian voiceless aspirates originate from the cluster *\*THV*,<sup>5</sup> whereas Greek did not participate in the laryngeal aspiration.<sup>6</sup> Consequently, many discrepancies can be explained by the

\* We would like to thank Dariusz Piwowarczyk for informing us about GLIEP, and also express our gratitude to the organisers for accepting our presentation. Special thanks also have to go to the following Professors who were willing to take a closer look at the handout and argument and offer their insights on it: Jozef Van Loon (Antwerpen), Reyes Bertolín Cebrián (Calgary), Paul Elbourne (Queen's University London), Michael Meier-Brügger (FU Berlin), Michael Weiss (Cornell). It goes without saying that we alone are responsible for the errors and shortcomings.

1 We would like to thank Paul Elbourne for sharing the fruit of his ongoing investigations with us.

2 It is necessary to state that he also dismissed the Greek instances of a *th* and the other voiceless aspirates. The scholars following Bopp, did the same. Strictly speaking this is therefore no "explanation" for the differences. He was followed by Schleicher, Fick, Curtius, Roscher, Kühner-Blass and more recently by Hiersche (and Meid who agreed in his review of Hiersche).

3 These two French scholars made their observation in two short sentences (Meillet (1937):91 and Juret (1938):21), and their suggestion was never given much attention, except by Frisk who dismissed it ((1936):42).

4 Unfortunately we only have a summary in *Mémoires de la Société linguistique de Paris* (MSL) of what Ferdinand De Saussure argued in the 1891 session of the *Société linguistique de Paris* and that was reprinted in Bally-Gautier (1922):603. The summary was also printed in the *Recueil*. We therefore do not know for which instances he would have used this explanation. It should be stressed, however, that De Saussure or at least the summary did not state that all Indic voiceless aspirates could or should be removed from Indo-European.

5 *T* stands for any plain voiceless plosive, *H* stands for a laryngeal (there is only consensus on the aspirating effects of *\*h<sub>2</sub>* but there are some indications that also *\*h<sub>1</sub>* could aspirate, as was argued by Beekes (1988) and Olsen (1994)). *V* stands for any vowel. The precise conditions of the aspiration are also unclear, as some argue that *\*THC* was enough to cause aspiration, and yielded *ThiC*. A detailed study of both issues cannot be done here.

6 See Cowgill (1965):171, Beekes (1969):179-181. Nowadays there are more scholars (Peters (1993), Mayrhofer (2005))

laryngeal aspiration, but not all instances can thus be explained and therefore other internal evolutions have to be assumed. In some cases it is not clear which explanation is more likely. We therefore divide the analysis of the "discrepancies" in two parts. The first set of differences is explained by the presence of a laryngeal. The second category has examples where a laryngeal can be accepted but where internal Indic or Indo-Iranian (post-Indo-European) evolutions cannot be ruled out. We also have two cases where it is unclear which words are related, if any at all.

For the agreements between Greek and Indo-Iranian, we argue that an Indo-European voiceless aspirate has to be reconstructed. We also provide some additional (non-Indo-Iranian) cognates to prove the existence of a PIE phoneme *\*tʰ*. The evidence points to the following conclusion: when Greek and Indic/Indo-Iranian agree on a *th*, an Indo-European *\*tʰ* is to be accepted. We consequently believe that laryngeal aspiration and voiceless aspirates are not mutually exclusive.

#### 4. Discrepancies between Greek and Indic: clear examples of the laryngeal effect in Indo-Iranian.

a) πόντος πάτος: Ilr. (see below), *finden* (Gmc.), *Pfad* (German), *path* (English), *hun*, *hni* (Arm.), *pons*, *pontis* (Lat.), *poť* (OCS), *pintis* (Old Prussian)

1. PIE nominative <sup>7</sup>	<i>*pentoh<sub>2</sub>s</i>	genitive <i>*pnth<sub>2</sub>es</i>	instrumental pl. <i>*pnth<sub>2</sub>b<sup>h</sup>is</i>
2. PIr. nominative <sup>8</sup>	<i>*pantaHs</i>	genitive <i>*pathHas</i>	instrumental pl. <i>*pathHib<sup>h</sup>is</i>
3. Sanskrit nominative	<i>pánthāh</i>	genitive <i>patháh</i>	instrumental pl. <i>pathibhih</i>
4. Avestan nominative	<i>pantā</i>	genitive <i>paθo</i>	instrumental pl. <i>padəbiš</i>

Pedersen: other cognates (including Greek) have undergone secondary simplifications.

Latin *pons* can be explained from accusative *pontem* and was originally *\*pontēs*.

who assume that Greek did in fact participate in the laryngeal aspiration, but we believe that the examples are not convincing.

<sup>7</sup> This is one of the most famous paradigms in the entire Indo-European scholarship. The reconstruction (including the laryngeal and the subsequent aspiration) that is used here (and in almost all modern handbooks) goes back to Pedersen (1893) and (1926), and Kuryłowicz (1927). Wackernagel (1907) agreed with the assumption of the schwa but not with the aspirating effect and reconstructed *\*penthə*. De Saussure wrote in 1909 to Pedersen to agree with the reconstruction, as can be seen in Pedersen (1926).

<sup>8</sup> We assume here that the PIE laryngeals merged into one phoneme *H* in Proto-Indo-Iranian, and that that phoneme was still present in both "Proto-Sanskrit" and "Proto-Iranian". As evidence for that one can refer to the laryngeal hiatuses in both the *Rg Veda* and the *Gāthās*. One of the first to argue this was Kuryłowicz.

Schmidt: original  $\bar{d}i$  stems with zero grades in *i*, nominative in *-s* is secondary

Greek replaced \* $\pi\acute{\omicron}\nu\tau\omega\varsigma$  by  $\pi\acute{\omicron}\nu\tau\omicron\varsigma$ , and created new nominative  $\pi\acute{\alpha}\tau\omicron\varsigma$  on  $\pi\acute{\alpha}\tau\omicron\iota\omicron\varsigma$ .

Modern scholarship: root \**pent* with suffix \**oh<sub>2</sub>* in Indo-Iranian.

Bammesberger: no trace of long vowel outside Indo-Iranian, and two full grades=> problematic!

Pedersen's explanation for the paradigm and Schmidt's for Greek seem likely.

Greek  $\acute{\alpha}\pi\alpha\tau\acute{\alpha}\omega$  could be evidence for \**h<sub>2</sub>*, but the evolution and semantics are not satisfactorily explained.<sup>9</sup>

*Pontifex* does not rule out a laryngeal: \**ponth<sub>2</sub>* - *d<sup>h</sup>h<sub>1</sub>-k-s* > \**pontafex* > *pontifex*, and agrees with *pathikrt*.

b)  $\pi\lambda\alpha\tau\acute{\upsilon}\varsigma$ : Sanskrit *pr̥thuh*, *pr̥thivi*. \**h<sub>2</sub>* visible in the place name  $\Pi\lambda\alpha\tau\alpha\iota\alpha\acute{\iota}$ . Key example.

c)  $\acute{\iota}\sigma\tau\eta\mu\iota$ : PIE \**stisth<sub>2</sub>enti* => Sanskrit *tiṣṭhanti*, with generalised aspiration from 3pl.<sup>10</sup> Key example.

#### 5. Discrepancies between Greek and Indic: laryngeal effect possible or internal evolutions within Indo-Iranian.

a)  $\acute{\omicron}\sigma\tau\acute{\epsilon}(\acute{\iota})\omicron\nu$ : Sanskrit *ásthi*, gen. *asthnáh*, *anasthā* "boneless", Latin *os*, gen. pl. *ossium*. The exact reconstruction is debated:<sup>11</sup>

\**h<sub>2</sub>ost-* followed by different suffixes: Sanskrit \* $^{\circ}h_2/n-$ , Greek \* $^{\circ}ei-$ , Italic \* $^{\circ}i-$ ;

\**h<sub>3</sub>esth<sub>1</sub>-i/ōi* (Schrijver-Kloekhorst), with \**h<sub>1</sub>* based on Greek and loss of final \**th<sub>1</sub>* in Latin (Schrijver);

*i/n* stem in Sanskrit and *i* stem in Latin and Venetic, hence PIE \**ost<sup>h</sup>i-* (Zubaty, Ernout-Meillet, Elbourne).

b) Superlative suffix  $-\acute{\iota}\sigma\tau\omicron\varsigma$ : Sanskrit *-iṣṭhah*. PIE \**is-th<sub>2</sub>os*, or \**is-tos* with *th* due to preceding *s*, or \**ist<sup>h</sup>os* with deaspirating effect of *s* in Greek (Zubaty-Elbourne)?

c) Cardinal suffix  $-\tau\omicron\varsigma$ : Sanskrit *-tháh*. Laryngeal certain (Mayrhofer): \**-th<sub>2</sub>os*. Link to superlative? Evidence for laryngeals outside Indo-Iranian? Laryngeal is possible, but the evidence is not conclusive.

d) The verbal ending  $-\tau\epsilon$ : Sanskrit *tha*, Latin *tis*, South Picene *tas*.<sup>12</sup> Different suggestions: \**th<sub>1</sub>e* (Stang); several scholars: \**th<sub>2</sub>e*; other scholars \**te*. Greek excludes \**h<sub>2</sub>*. Aspiration analogical from other 2nd person endings (Gray). A laryngeal cannot be excluded, but is not certain either.

<sup>9</sup> See the contradictory explanations of Pedersen and Walde-Pokorny who accepted the link between  $\acute{\alpha}\pi\acute{\alpha}\tau\eta$  and  $\pi\acute{\omicron}\nu\tau\omicron\varsigma$ .

<sup>10</sup> The discovery of this specific form goes back to De Saussure and has been elaborated by Kuryłowicz.

<sup>11</sup> See the remarks of Kellens (1974):336

<sup>12</sup> We would like to thank Michael Weiss for pointing this out.

e) πρῶτος: Sanskrit *pratama* (adverb) and *prathama*, Avestan *fratama*. Indic *th* from cardinal suffix *-tháh* (Bartholomae-Macdonell), or the suffix *\*-th<sub>2</sub>os* as in other cardinals? First suggestion seems more likely.

#### 6. A problematic case.

τέγος, στέγος, τέγω: Sanskrit *sthagayati* and *sthagati*, Latin *tego*, Lithuanian *stògas*, German *Dach*. Problem (Kuiper): *\*steg-eie-ti* should have become Indic *\*st(h)ajayati*. => Indo-European heritage of the Sanskrit words rejected by many scholars.<sup>13</sup>

Secondary aspiration in Indic not because of laryngeals but because of *s* (Hoenigswald) or already in PIE (Willi).

Why only preserved in Sanskrit?

#### 7. Preliminary conclusion.

The presence of a laryngeal in PIE accounts for some of the differences between Greek and Indo-Iranian, but we cannot exclude internal Indic evolutions either. There is also some doubt as to what laryngeals can aspirate.<sup>14</sup> Some examples quoted above can be explained by the non-laryngealistic solutions, such as Meillet-Frisk and Zubaty-Elbourne, but there is enough evidence to corroborate the laryngeal presence. In addition, we argue that the following examples prove that the suggestion of Meillet-Frisk cannot be sustained and that some of them contradict the rule of Zubaty-Elbourne.

#### 8. Agreements between Greek and Sanskrit: evidence that Greek reflex of PIE *\*tʰ* is *th*.

a) οἶσθα: this verbal form is related to Sanskrit *vettha*, Latin *vīdistī*, and the Germanic forms *waist* (Gothic) and *bairip* (Gothic), and *eorð* (Old Saxon).<sup>15</sup>

Many suggestions were made for Greek,<sup>16</sup> the most important ones are:

- PIE *\*tʰa* (Neogrammarians, Kuryłowicz initially, Meillet 1937, Chantraine, Bammesberger, Szemerényi)
- PIE *\*th<sub>2</sub>e* leading to Pre-Greek *\*ta* leading to *tha* because of the effects of Bartholomae's Law in roots in

<sup>13</sup> Weiss (2009) does not mention the Sanskrit form. Beekes in his new Greek etymological dictionary follows Kuiper in his rejection.

<sup>14</sup> This cannot be addressed in the presentation, but we would like to discuss it briefly in the written version.

<sup>15</sup> For an analysis of the Germanic forms we refer to Kluge (1883), Von Fierlinger (1885), Austerfjord (1979) and Bammesberger (1984a): 96-98.

<sup>16</sup> We hope to address most of them in the written version of this presentation.

aspirate such as \*φτα, χτα<sup>17</sup>

- PIE \**th<sub>2</sub>e* with laryngeal aspiration (*communis opinio*)
- PIE \**th<sub>2</sub>e* with aspiration from ἴσθι (Ruijgh)

Watkins: Greek aspiration cannot be transferred back to PIE state.<sup>18</sup>

The explanation by Ruijgh or the Neogrammarians seems the most likely.

b) μύθος: Skt. *mānthāh* and *manthati*, OCS *motati*, *męsti*, Lith. *mentùre*, Latin *mentula* (?), Walde-Pokorny).

Root \**me/ont<sup>h</sup>*. Most common suggestion is \**menth<sub>2</sub>*. Based solely on Sanskrit. *manthāh* agrees in Indic flexion and origin with *panthāh*,<sup>19</sup> but Greek disagrees in consonatism: key example for original voiceless aspirate!

c) ἐπίρροθος (helper, assistant):<sup>20</sup> Sanskrit *ratha* "charioteer", Latin *rota*, Irish *roth*, German *Rad*, Albanian *rreth*.<sup>21</sup> Kuryłowicz suggested \**rotoh<sub>2</sub>s* in Sanskrit and \**roteh<sub>2</sub>* in Latin. Sanskrit has short *a*, but \**-oh<sub>2</sub>s* would have given *āh*, as in *pānthāh*. Other suggestion is \**roth<sub>2</sub>os*, but evidence for the suffix \**h<sub>2</sub>o* outside Indo-Iranian? If Greek ῥοθέω is related, a root \**roth<sub>2</sub>* seems excluded.

d) Passive aorist ending 2nd p. sg. -θης: Sanskrit middle aorist ending 2nd p. sg. *thās*, (Wackernagel-Behaghel),<sup>22</sup> Celtic *bertha*.<sup>23</sup> This was the original 2nd person ending in the middle athematic aorist and was later reanalysed as a separate ending for passive meaning (middle aorists have middle and passive meanings in Homer<sup>24</sup> and later passive aorists can have middle meaning as well, so the separation between passive and middle in the aorist was not a PIE distinction). Based on the existence of passive (or originally intransitive) η aorists, the ending *θης* was later reinterpreted as being the 2nd person singular ending of a passive *θη* aorist.<sup>25</sup>

17 Kuryłowicz (1935):52; this is one of the few laryngeal hypotheses that he never recanted (see also 1958 and 1977).

18 Watkins (1969):51

19 One can refer to the analyses by Pedersen and Schmidt (see above).

20 For a recent analysis of these forms see Elbourne *etc* (in *Glotta*).

21 The Albanian form could also be a loanword, but it is often unclear if an Albanian word belongs to the inherited lexicon.

22 Behaghel was quoted in Zubaty (1892):3

23 Gray (1930):233

24 See especially Jankuhn's analysis of the middle forms in Homer. A more extensive list of verbs with middle and passive aorists without any distinction in meaning could already be found in Hirt (1900):556-559. One can also refer to the deponent verbs that have passive aorists in Classical Greek but middle forms in poetry. The most complete treatment of verbs is Veitch, but Smyth, Kühner-Blass and Kühner-Gerth also provide extensive lists, both from prose and poetry.

25 Chantraine (1928):14-15 and (1932):88 with reference to Wackernagel, *KZ* 30.

This 2nd p. sg. aorist ending was replaced by a "proper" middle ending, -σθ. This evolution was accelerated by the fact that the ending had an *s* which felt as an active ending to the Greeks.

Hirt: θη suffix comes from τίθημι, with originally active meaning, later middle and only afterwards passive.

Prénot: θη suffix is a specific Greek invention with first passive, later middle meaning.

Most modern scholars: no link between Greek and Indic, Indic and Celtic come from *\*th<sub>2</sub>e*.

### 9. A special case.

πόρτις, πόρταξ πτόρθος, πόρθος· πτόρθος (Hesykhios): Sanskrit *pr̥thuka*, Armenian *ort'*. The Greek words show two different reflexes, and could be put in almost every category quoted above. It is unsure with which words they have to be linked. Greek πόρτις and (especially) πόρταξ can be linked with Skt *pr̥thuka*, and Armenian *ort'* (in the meaning "calf") in which case (East)-IE *\*pr̥th<sub>2</sub>-k-* and *\*pr̥th<sub>2</sub>-i-* are possible, agreeing in meaning as well. It can also be argued that the semantic link between a young animal and the earth caused the aspiration to be transferred, or even that *pr̥thuka* is a derivation from *pr̥thivi*.<sup>26</sup> It could also prove Zubaty-Elbourne that Greek lost the aspiration after a *r*. We, however, agree with Furnée that Armenian *ort'* and Greek πτόρθος, πόρθος in the meaning "wine rank" are from a different source, Helleno-Armenian *\*portʰ-o*, and that πόρθος, πτόρθος and *ort'* were only secondarily linked with πόρτις and πόρταξ and *ort'* because of the meaning (either in Helleno-Armenian already or in the two languages separately). If the link with Hittite *paršdu* is to be kept, as Weitenberg argued, the word might have been from PIE origin. If the link is to be denied, as Kloekhorst argued, this would be a borrowing from a non-Indo-European language into Helleno-Armenian. Furnée assumed that πόρθος was of non-Indo-European origin because of the Anlaut π and πτ.<sup>27</sup>

### 10. Additional evidence outside Indo-Iranian in support of a phoneme *\*tʰ*.

a) ἄσκηθής: the cognates in other languages are *skaði* (Old Norse), *scathe* (English), *Schade* (German), *scaith* (Irish).<sup>28</sup> Even scholars who do not accept voiceless aspirates, generally accept this form as illustration of an

<sup>26</sup> Both suggestions have been made in the different Indo-Iranian etymological dictionaries.

<sup>27</sup> Furnée made his argument before Weitenberg and Kloekhorst.

<sup>28</sup> Rasmussen (1989). These cognates are also quoted in Meier-Brügger (2003):102, Clackson (2007):42

Indo-European *\*tʰ*, but they add that this cognate is too slim to prove an entire series of phonemes. Mayrhofer accepted this as an example to prove the very small series.

b) *πάσχω*, *πένθος*, *πάθος*: *kenčiu* (Lith), *cessaid* (Old Irish), PIE *\*kʷentʰ*. As with the previous example, scholars who do not accept voiceless aspirates, generally accept this form as illustration of an Indo-European *\*tʰ*. This example contradicts Zubaty-Elbourne. Chantraine rejected these cognates because of Greek *th*.<sup>29</sup> Some scholars give other explanations: two different suffixes *\*dʰ* in Greek and *\*t* in Lithuanian (Cowgill).

c) *λανθάνω*: Latin *lātēre*. Ernout-Meillet assumed PIE *\*latʰ-*, but most scholars give other explanations: suffix *\*dʰ* in Greek and *\*t* in Latin, or analogy in Latin with *fatēri*.

### 11. Conclusion.

1. For the discrepancies between Greek and Sanskrit we suggest that the following reasons can be adduced :

a) laryngeal aspiration in Sanskrit (*\*h<sub>2</sub>* and maybe also *\*h<sub>1</sub>*). The presence of a laryngeal is often assumed on the Indic evidence alone, and this can be a circular argument.

b) internal evolutions within Indic, be it phonetic (influence of a preceding *s*), morphological (aspiration in words of similar categories) or semantic (aspiration in words of similar meanings).

2. For the agreements we argue that if Greek and Proto-Indo-Iranian or Sanskrit have *th*, Proto-Indo-European (or at least East-Indo-European) had a *\*tʰ* as well.

In modern Indo-European scholarship it seems that laryngeal aspiration and acceptance of voiceless aspirates as Indo-European phonemes are mutually exclusive for almost all scholars (*communis opinio* accepts laryngeal aspiration and rejects the voiceless aspirates; Szemerényi did not accept laryngeal aspiration and Elbourne hardly accepted it). This does not have to be the case: the distinction between PIE *\*th<sub>1/2</sub>* and *\*tʰ* combined with the acceptance of internal Indic evolutions can explain many instances better than the other suggestions, and has fewer exceptions. We therefore believe that the existence of laryngeal aspiration does not rule out the existence of voiceless aspirates and vice versa.

<sup>29</sup> Given the fact that he accepted the *th* in *ἄσκηθής*, it seems that the entries of *πάσχω* (and also *μύθος*) were compiled by his pupils. His dictionary was finalised after his death in 1974 by his students, who -unlike Chantraine himself- did not accept voiceless aspirates.

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