Indo-European 'heel'

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1. It is well known that the consonant initials of many Indo-European roots show irregular correspondences. Notorious is the so-called *s*-mobile, which appears in some reflexes of a root, but is absent in others. We also find unexpected aspiration, different order of the consonants, unusual "prothetic" vowels, etc. These irregularities are usually treated on an *ad hoc* basis, but I believe that we can account for them in a principled way by assuming heavy initial clusters which were simplified in various ways. The problem is that there are only a few cases where the clusters can be demonstrated, and furthermore, these clusters are usually unique, so that sound changes which we observe there cannot be verified.

A good example is the IE word for 'female breast, nipple', which can safely be reconstructed as **psten-* with the preserved cluster in Iranian (Av. *fštāna-*, Middle Persian *pestān*) and Tocharian (A *päśśäṃ*, B *päścane* du.), but with **pst > st-* in Sanskrit (*stána-*), Greek (Hes. στηνίον), Armenian (*stin*), and possibly in Hittite (if *istanza* /stants/ 'soul' belongs here), and with **pst- > sp-* in Baltic (Lith. *spenỹs*, OPr. *spenis*), Celtic (OIr. *sine < sp-*, cf. *bó tri-phne* 'cow with three teats') and Germanic (ON *speni*). Derivatives of this root reflecting **pstn-* lose the *-t-* in Indo-Iranian (Skt. *viśvá-psnya-*, LAv. *ərəduua-fšnī-*). Although these sound developments can hardly be doubted, they have no parallels. Here we are lucky that the cluster *pst-* has been preserved in Iranian and Tocharian, otherwise we probably would not have ventured to assume the rule **pst- > sp-* in Baltic, Celtic and Germanic.

2. After these preliminary remarks, let us consider the etymology of the Indo-European word for 'heel', which, in my opinion, also contained a heavy initial cluster. This word is usually reconstructed as $*(t)p\acute{e}rsneh_2$, on the basis of the following cognates:

– Skt. *pā́rṣṇi-* f. 'heel';
– PIr. **pāršnā-* 'heel' (LAv. *pāšnā-* f.[1]; Khot. *pārrā-*, Sogd. *pšn'*, Shuγni *pārnak*);

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[1] A few remarks on the Avestan form are in order, because the account in our handbooks is wrong. Bartholomae gives LAv. *pāšna-* n. in his dictionary, which can hardly be correct. The attested forms are: instr. du. *pāšnabiia* (V 2.31, V 23.2: *aiṃhå zəmō pāšnabiia vīspara* 'stamp the earth with your heels') and *pāšnaēibiia* (V 8.70: *hakaṭ nigərəptaēibiia aṇguštaēibiia uzgərəptaēibiia pāšnaēibiia dašinəm hē haxəm paiti.hiṇcōiš* 'with, at the same time, toes down

– Gr. πτέρνη f. 'heel';
– Lat. *perna* f. 'leg, haunch', *pernīx* adj. 'swift';
– Goth. *fairzna*[2], OS *fersna*, OHG *fers(a)na* < PGm. **fersnō-*, OE *fiers(i)n* (also *fyrsn*, *fe(o)rsn*) f. < PGm. **fersnī-* 'heel';
– Hitt. *paršina* (/parsna/) 'buttock, haunch (?)', *parš (a)nāi-* 'to squat, to sit on one's haunches'.

3. Before we proceed, let us first shortly discuss three moot points concerning the reconstruction **(t)pĕrsneh₂*.

(1) The lengthened grade. It is attested only in Indo-Iranian[3], but since in all other languages the long vowel would have been shortened due to Osthoff's Law anyway, it is likely that the long vowel is old in Indo-Iranian. MAYRHOFER (EWAia: 124 with a reference to BENVENISTE 1954: 42) assumes that "IIr. **pārśni-* ist wohl Vṛddhibildung zu ** paršna-* (idg. **persneh₂-*)", but this seems improbable to me. First of all, it is unclear what would be the function of this vṛddhi formation. Secondly, the distribution (short vowel only in those languages that undergo Osthoff's Law) pleads against this explanation. Thirdly, Iranian has an *ā*-stem **pāršnā-*, so that we cannot account for the *i*-stem by referring to IIr. vṛddhi formations in *-i-*. Most probably, the lengthened grade is analogical after the word for 'foot' (PIE **pēd-*), as suggested by DE VAAN (2003: 97). In view of the distribution, the analogical replacement could even be of Indo-European date[4].

and heels up, you should pour (water) onto the right sole' and very similar passages V 8.71, V 9.25, V 9.26). Of these two forms, *pāšnabiia* is clearly a *lectio difficilior*, because *-aēibiia* in *pāšnaēibiia* might be perseverated after the preceding *nigərəptaēibiia aŋguštaēibiia uzgərəptaēibiia*.

The form *pāšnabiia* unambiguously points to a fem. *ā*-stem, since, in spite of our handbooks, the instr. du. ending of Avestan short *a*-stems is always **-aibia* (OAv. *-ōibiiā*, LAv. *-aēibiia* / *-aēβe* as opposed to Skt. *-ābhyām*). Next to *pāšnabiia*, HOFFMANN-FORSSMAN (1996: 120) only mention *dōiθrābiia*, attested in the Yashts (Yt 1.29, 10.107, 19.94), which they, just as Bartholomae, consider to be instr. du. of *dōiθra-* n. 'eye'. However, the word for 'eye' is a feminine *ā*-stem in the Yashts, cf. dat. pl. Yt 10.82 (2x) *ābiiō dōiθrābiiō*, Yt 19.94 *dōiθrābiiō*, and Y 68.22 *nəmō ābiiō dōiθrābiiō yå ahurahe mazdå*. Since the other Iranian languages point to an *ā*-stem in the word for 'heel', too, it is most economical to assume the same for Avestan.

The *bahuvrīhi* compounds *kasu.pāšna-* 'with small heels' (Yt 14.17) and *zairi.pāšna-* 'with golden heels' (Yt 5.38, Yt 19.41) are of course ambiguous as far as the stem of the second member is concerned.

[2] With secondary voicing of the group *-rsn-* or with final accentuation?

[3] It is improbable that OE *fiers(i)n* f. 'heel' contains lengthened grade (*pace* POKORNY 823, MAYRHOFER EWAia: 2.124), because *ē* would have been shortened anyhow in Proto-Germanic due to Osthoff's Law. The OE form shows the regular reflex of PGm. **fersnī-*.

[4] Note, however, that Skt. *tīkṣṇá-* adj. 'sharp' also has an inexplicable long vowel in the root before the same suffix **-sno-*.

(2) The *i*-stem in Sanskrit and in OE. In my opinion, the *i*-stem can easily be analogical after body parts like *aṅgúri-* (AV+) f. 'finger, toe', *áṅghri-* (VS+) f. 'foot', *śúpti-* (RV+) f. 'shoulder', *śróṇi-* (RV+) f. 'buttock, hip', etc.

(3) The initial cluster. The initial cluster πτ- in Greek vs. simple **p-* in the other languages is usually explained by the various reflexes of PIE **tp-*, which was metathesized in Greek and simplified to **p-* elsewhere.

4. The most probable reconstruction of the word for 'heel' is thus $*tp\bar{e}rsneh_2$. Unlike the vast majority of terms for body parts in Indo-European, the word for 'heel' has a transparent structure, containing the well-known deverbative suffix $*-sno-/-sneh_2-$ (e.g. $*louk-sno-/-eh_2-$ 'light' from the root **leuk-* 'to shine', cf. WACKERNAGEL-DEBRUNNER 1954: 927ff). It is therefore worthwhile to look for a suitable verbal root from which this word could be derived. As far as I know, it has not been noticed before that a very likely candidate is the IE root for 'to kick with the foot', which is traditionally reconstructed as $*sp^{(h)}erH-$[5] (Skt. *sphuráti*, Av. *sparaiti* 'to kick away with the foot, to speed', Lat. *spernere* 'to push away, to despise, to reject', Lith. *spìrti* 'to kick, to press to', ON *sperna* 'to kick out with the feet', Arm. *spaṙnal* 'to threaten', etc., cf. MAYRHOFER EWAia 2.776, POKORNY 992-993).

There are two additional arguments in favor of this derivation. First, the usual meaning of the verb is specifically 'to kick with the heel, to spur, to trample with the heel', and many derivatives of this root mean 'heel, shank, spur', cf. OIr. *seir* 'heel', du. *di pherid* (< $*speret-s$, cf. MW and MBr. *fer* 'shank'), ON *spori*, OE *spora, spura*, OHG *sporo* 'spur', OE *spearwa* 'calf (of the leg)', possibly Gr. σφυρόν 'ankle'[6]. Secondly, we find an Avestan expression, already mentioned above, V 2.31 *aiŋhå zəmō pāšnābiia vīspara* 'trample this earth with your heels', which may go back to a *figura etymologica*.

The presence of a root-final laryngeal in $*sp^{(h)}erH-$ (vs. its absence in the word for 'heel') is not a serious objection. In the word for 'heel', the laryngeal may have been lost as a result of dissimilation $*tp\bar{e}rHsneh_2 > *tp\bar{e}rsneh_2$ or due to the fact that this is a compound. Alternatively, we can always assume that the final laryngeal of the verbal root is secondary (see also below). The only real problem is the anlaut of the verb. To my mind, neither reconstructing a PIE voiceless aspirate, nor Siebs' Law ($*sb^h-$ > $*sp^h-$) are likely options. Therefore,

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[5] The color of the laryngeal is difficult to determine, cf. comments in LIV s.v. *sp^herH-*.

[6] It is not obvious that Gr. σφυρόν belongs here because of its υ. It is usually derived from the zero-grade (< **sp^hrHo-*) with irregular reflex, cf. FRISK s.v.: "mit ahd. *spuri-halz* 'hinkend' (eig. *"knöchellahm"?) bis auf den Auslautsvokal identisch", but also -*o*-grade belongs to the possibilities. Since VINE 1999 does not include σφυρόν in his discussion of the so-called ìCowgillís Lawî (**o* > Gr. υ in a labial context), he probably assumes zero-grade in the Greek word or that it is unrelated.

we have to surmise that aspiration in Skt. *sphuráti* and Gr. σφυρόν is due to an inital cluster of some kind. This assumption becomes even more plausible if we accept with our major etymological dictionaries (Frisk, Chantraine, Pokorny) that Gr. (Hom.+) ἀσπαίρω 'to move convulsively, quiver'[7] and (Arist.+) σπαίρω 'to quiver' (of dying fish) also belong to this root[8]. The prothetic vowel of Gr. ἀσπαίρω cannot reflect a laryngeal, since we find no reflexes in Arm. *spaṙnal* 'to threaten' and Hitt. *isparranzi* 3pl. 'to trample under foot'.

I conclude that the verbal root must be reconstructed **TsperH-* (where T stands for one or more stops), under the assumption that simplification of the initial cluster yielded aspiration in Sanskrit and aspiration or a prothetic vowel in Greek (possible conditions will be discussed in the next section). Elsewhere, the initial stop was lost without a trace.

5. We arrive at the following reconstructions:

'heel':	**tpēr(H)-sneh$_2$*
'to kick with the heel':	**TsperH-*

If the word for 'heel' is derived from the verb 'to kick with the heel', as suggested above, the most straightforward reconstruction of the root is **tsper(H)-*. It becomes immediately clear why the word for 'heel' developed differently: in **tspēr(H)-sneh$_2$*, the first *-s-* was dissimilated, whereas in the verbal root it was preserved.

The phonetic developments, which have led to the attested forms, cannot be established with certainty, but we can imagine, for instance, the following scenario. We know that in Greek and Indic, the loss of a sibilant has yielded aspiration. For instance, PIIr. **sć* > Skt. *ch* (cf. LUBOTSKY 2001), original *kś* > Skt. *khy-* (in the root *khyā-* 'to look, observe' vs. MS *kṣā-*, Av. *xsā-*); in Middle Indic, **sk, ṣk* > **hk-* > *kkh*;**st, ṣṭ* > **ht* > *tth*, etc.; Gr. αἰχμή '(point of a) spear' reflects older **αἰκσμα⁺* (Myc. *aikasama* /aiksma/, Lith. *iẽšmas*, OPr. *aysmis* 'spit'). We may assume that in the initial cluster **tsp-*, *t-* first became *tʰ*, and the resulting cluster **tʰsp-* then yielded **hsp-* > **spʰ-* (Skt. *sphuráti*, possibly Gr. σφυρόν).

If Gr. ἀσπαίρω 'to quiver, twitch' belongs to our root, this would mean that the cluster **hsp-* showed various dialectal developments, also depending on the

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[7] In Homer, this verb, which is limited to Epic and Ionic, always refers to the convulsions of a dying person. In Hdt., it further means 'to resist', cf. 8.5ʹ Ἀδείμαντος ἤσπαιρε μοῦνος 'he was the only one who still made a struggle, resisted'. The idea behind the etymology is that convulsions and heavy struggle both involve a tight contact of heels with the ground.

[8] It is indeed difficult to separate the Greek forms from the root **sp⁽ʰ⁾erH-*, cf. also Hes. σπαίρει· ἄλλεται, σκιρτᾷ, πηδᾷ. It is less certain that σπυρθίζω 'to dance' (cf. Hes. σπυρθίζειν· σπᾶσθαι καὶ ἀγανακτεῖν. πυδαρίζειν καὶ σφύζειν) also belongs here.

phonetic environment. Gr. σφυρόν may reflect either *o*-grade **hsporHo-* or zero-grade **hsprHo-*, whereas ἀσπαίρω goes back to zero-grade with six consecutive initial consonants **hsprHi̯-*, and it is a distinct possibility that in the latter position the cluster developed differently[9]. We know from Gr. εἴκοσι (< **ε᾽ικοσι), Dor. ᾽ίκατι 'twenty' that the initial cluster **du̯-* shows various reflexes in different dialects. In Doric, **d-* disappears without a trace, whereas elsewhere **d-* merges with the reflex of **h₁-* (cf. KORTLANDT 1983). In a similar way, it is conceivable that in the cluster **hspr-*, some dialects simply dropped the initial **h-*, whereas in others this **h-* merged with the reflex of **h₂*.

6. At the end of this paper, I would like to add some remarks on the possible origin of the heavy initial cluster in our root. The root **tsper(H)-* looks like a compound of the verb **(s)per(H)-* with a nominal first part. Although there is no IE root **perH-* with the suitable meaning, we do have **per-* 'to beat' (OCS *pьrati, perǫ* 'to trample, press, wash', SCr. *práti, pérēm* 'to wash', Lith. *peřti* 'to beat, lash with a besom (in a bath)', possibly Arm. *ehar* (aor.) 'to beat'), of which **perH-* can easily be a secondary extension. The absence of the root-final laryngeal in the word for 'heel' is an indication that the root was originally *aniṭ*.

Since the meaning of the verb is 'to kick with the foot', it seems reasonable to assume that the nominal part is the word for 'foot' itself, namely **ped-/pod-*. I therefore tentatively reconstruct a verbal compound **pdsper(H)-*. The zero grade of the word for 'foot' is attested in compounds, cf. Skt. *upa-bdá-* 'trampling, noise of going', Av. *⁺upa.bde* 'at the foot of a mountain', Gr. ἔπιβδαι 'on the day after a feast', etc.

Considering the fact that the root **per-* 'to beat' has no initial **s-*, the verbal compound is likely to represent **pds-per(H)-*. Admittedly, the *-s-* of this compound remains enigmatic, and I hope to discuss it on a different occasion. Here I would only like to mention that if this kind of verbal compounds was frequent at some stage of Proto-Indo-European, it might provide a clue to the problem of *s-mobile*. The simplification of the initial clusters could easily lead to pairs of verbal roots with similar meaning (in our case, **per(H)-* 'to trample' and **s-per(H)-* 'to trample (with the foot)'), the only difference between them being the presence or absence of an initial *s-*, which no longer carried any semantic load.

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[9] The different reflexes in σφυρόν and (ἀ)σπαίρω seem to indicate that the former word rather reflects an *o*-grade.

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