

Coherence and preservation in Sanskrit

1. Argument. This paper examines more than 400 Indo-European lexical items denoting, as far as possible invariable things, qualities and activities (bodily parts, relations and actions like breathing, dressing, rising etc). Sanskrit appears to have lost far fewer items and preserves much greater inner organic coherence than the other branches. This supports the general idea that Sanskrit is much closer to Proto-Indo-European and that, since this could happen only in sedentary conditions, the Indoaryan speakers of Sanskrit did not move (much) from the original homeland. Moreover, the criticism that this conclusion does not take into account the large literature in Sanskrit is shown to be fallacious.

2. Introductory In 2003 I published a small collection of words denoting “invariable” items (which is explained shortly). This was in response to J. P. Mallory’s charge (2002) that I was being ‘unscientific’ in claiming that since the Vedic Tradition retained many more theonyms (see Kazanas 2001; 2005) and other linguistic and cultural aspects of proven Indoeuropean provenance, it had moved very little, if at all, and in any case the Indoaryans were indigenous from the beginning of the 5th millennium at least (Kazanas 2002). This I called the P(reservation) P(inciple)¹. Mallory (2002) argued that if the Indoaryans had preserved most because they had not moved (much) then the Iranians who were very close to them in the west should have the second biggest stock of retentions, while the Celts (Ireland), and the Norsemen (Iceland) should have the least having moved most of all. I had not implied that losses were directly proportional to distance away from the proposed homeland and I had explicitly stated that such calculations are not valid (Kazanas 2003) but this was ignored. Mallory further adduced the indices of Gamkrelidze and Ivanov (1995) showing that Greek had 2441 retentions, Baltic 2376 and Indo-Iranian 2139; thus Sanskrit was, in fact, third in preservations. Taking Mallory at his word, I did not think then to check these figures. Instead I examined 50 words, nouns and verbs, denoting things like head, mouth, etc, and actions like begetting, breathing, dressing etc, all of which remain constant however much social conditions change. I abandoned several problematic cases and the stems that were common to all branches and was left with 26. Of these 26, S lacks 3, Gk 10 and B 16. I put these finds in my paper “Final Reply”, kindly published by the *Journal of Indo-European Studies*, 2003, of which Mallory is the editor.

3. More than a year later I had to consult Gamkrelidze and Ivanov’s book. I looked then at the indices only to discover that the figures Mallory had given were utterly wrong. They were right as sum-totals but many words were duplicated, given in, say the gen, voc, etc, sometimes repeated as many as five times! I wrote to Mallory warning him of those misleading and unacceptable figures. We exchanged some email messages on the subject and eventually (Nov 2004) he cited M. Swadesh and his 100 “basic words”, where the Indic branch has 82, Italic also 82, Gk 80, (Irn 76,) Gmc 75, B 71, C 64 and the others below 50%: here again S does not have most retentions. I knew of Swadesh’s work in Glottochronology (i.e. how fast words wear out or disappear and so a language changes) and that the whole subject is now thoroughly discredited. In any event, these numbers do not tally at all with the figures I had obtained in my small test and the general feel I had of the languages. So I began new research.

4. Mallory had added: “I believe basically that we will find the greatest conservatism/retention among those languages that are earlier attested and have the largest vocabularies i.e. Vedic, Greek

¹ **Abbreviations :** adj = adjective(s) ; AIT = Aryan Invasion/Immigration Theory ; Alb = Albanian ; aor = aorist ; Arm = Armenian ; Av = Avestan ; Av = *Avesta* ; AV = *Atharvaveda* ; B = Baltic (=Lth, Ltt, OPr) ; Br = *Brāhmaṇa(s)* ; C = Celtic (=OIr, Gallic, Welsh, etc) ; cf = compare ; cogn = cognate(s) ; cpd = compound ; dial = dialect ; E = English ; exc = except ; f = feminine ; F-U = Finno-Ugrian (=Finnish Hungarian etc) ; gen = genitive ; Gk = Greek ; Gmc = Germanic (=Gth, OE, OHG etc) ; Gth = Gothic ; Hes = Hēsychios (a Gk lexicographer) ; HG = High German ; Ht = Hittite ; IA = Indo-Aryan ; IE = Indoeuropean ; IEL = IndoEuropean Linguistics ; Ir = Irish ; Irn = Iranian ; Ks = Kassite ; L = Latin ; lex = lexicon ; Lth = Lithuanian ; Ltt = Lettish (=Latvian) ; m = masculine ; M = Middle ; Mcn = Mycenaean ; Md = Modern ; Mt = Mitanni ; n = noun ; nt = neuter ; N = Norse ; NIGT = Native Indic Grammmarian Tradition ; O = Old (before other designations, like OIr = Old Irish) ; OC(P) = Organic Coherence (Principle) ; Osc = Oscan (=an Old Italic language) ; pas = passive ; perf = perfect ; PIE = Proto-Indoeuropean ; pl = plural ; PP = Preservation Principle ; Pr = Prussian ; R = Roman ; Rs = Russian ; RV = *R̥gveda* ; S = Sanskrit (and Vedic) ; Sc = Scandinavian ; sing = singular ; Sl =Slavic (= O Bulgarian, Serbo-Croatian, Russian, etc) ; T = Tocharian A or B, or both ; Umb = Umbrian (old Italic) ; V = Vedic ; vb = verb ; voc = vocative ; VT = Vedic Tradition .

and Latin”. Presumably, this prediction is thought to be more “scientific”.² But as the results show, the prediction is quite wrong. Of 404 significant words examined, S lacks 53, Gmc 145, Gk 149, B 185, L (=Italic) 207, C 210, Sl 215. Although Gmc has a comparatively late attestation and a comparatively smaller literature, it is just before Gk and way ahead of Italic both of which have an early attestation and an enormous literature. The matter will be discussed at length below.

Another interesting aspect is the low percentage retained by the Slavic people. The Slavs may not have moved quite as far from Saptasindhu (assuming this was the PIE homeland) as the Irish and Norsemen, but they did move very considerably back and forth in the regions they now occupy, i.e. Poland, Czechia, Slovakia, the Balkans etc, and the vast expanse of European Russia. In contrast, the Old Norsemen remained in Scandinavia for many centuries until a contingent sailed in a very short time to Iceland in the 9th cent CE (during the oppressive reign of Harold Haarfagr). The Celts too kept moving across Europe, then to the British Isles and finally to Ireland (some even to Iceland, long before the Norsemen). So movement does play a significant role in lexical retentions. But it is not a simplistic equation ‘farther distance from homeland, bigger losses’. Once people move, many other factors come into play. The people themselves may be more or less retentive or they may want to reject completely the culture at home; then, they may go through many vicissitudes the worst being subjugation; in any case, as they meander about, they may find other cultures much more attractive and surrender to them completely – as the Vikings did in N-W France (Normandy) or in Kiev, where they had set up their own kingdom.

However it is interesting that Mallory shifted somewhat his position. Although he continued to abjure vigorously lexical counts as unscientific, he was now trying to show that S does not have most retentions. He wrote that according to the Swadesh counts, Indic is at the top “but it is sharing first place with a language [i.e. Italic] that was not seriously attested for about 1000 years later ... and is quite a distance from its putative homeland in India”. This means that he takes my PP a little more seriously. But I must observe that here he slips dangerously. Italic is attested by 500 BC and more seriously c 300. Greek is attested c 650 in epigraphies across the country and more “seriously” by 550 when Homer is thought to have been put in writing by Peisistratos. According to the A(ryan) I(nvasion / Immigration) T(heory), the RV was composed c 1200 BC. But there is no attestation of a written RV before the 14th cent CE (with Sāyana’s commentary), if then ! The first IE writing in India is Aśoka’s *prākṛta* (not Vedic/Sanskrit) Rock Inscriptions after 300 BC but manuscripts survive “seriously” only after the 14th cent CE. So in no way is the Vedic Tradition favoured by writing. These facts were spelled out in the paper published (2003) in the *Journal of Indo-European Studies*.

5. Leaving aside the fact that mainstream scholars (Swadesh and Mallory and just about everybody else) are under the spell of the AIT, there are two serious difficulties with past counts, apart from the wretched AIT which has, since the second half of the 19th cent, coloured every aspect of

² What is scientific? Everybody loves to use the term but I can’t help wondering about its use. Telepathy is a well established phenomenon frequently occurring between twins and sometimes between a mother and her child(ren) or, more seldom, between other persons. Yet, at present, there are no scientific means to verify it, other than ordinary observation and common sense or reason. A modern scientist, J. M. Schwartz, an American neurophysiologist, wrote of “the cult of scientism” as “the fallacy of believing that the method of science must be used on all forms of experience and, given time, will settle every issue” (2002: 6). Five decades earlier another American scientist wrote: “expressions such as ‘scientific truth’ should only be taken in a very limited sense... There is no scientific truth in the absolute sense. The phrase *Ad veritatem per scientiam* [=To truth by means of science] is an absurdity” (du Noüy 1949: 23). Again: “Physicist Wolfgang Pauli once put it that scientists went too far in the seventeenth century when they attempted to make everything understandable strictly as objective science. By denuding the subjective view from any firm ground, much was lost”: a contemporary physicist (Wolf 2001: 6).

In any case, the scientific method like every successful method in any human enterprise requires three ingredients: interest, observation and reasoning. Interest directs attention to the particular field and keeps it there against all difficulties. Observation collects data related to the subject under research. Reasoning discriminates between relevant and irrelevant, accurate and inaccurate premises and data and so arrives at (correct) conclusion(s) (Beveridge 1968). This holds for every discipline in the sciences and arts. The fact that a science like molecular biology uses many and complex instruments does not alter the three basic aspects common to all human enquiry. Because of faulty reasoning or inadequate observations, scientists make as many and big mistakes despite their instruments (Cohen 2001: 32-34) as investigators in other fields. Furthermore, insight or inspiration and luck, all of which are out of one’s control, play important part in sciences (Beveridge, 27ff, 68ff) no less than in the humanities .

Indology and IE studies but scholars do not take this into account.³ The other two difficulties are linguistic.

First, some stems are arbitrary and need not be PIE even though they are found in two or more IE branches. As was observed early in the 20th cent (Bloomfield 1933; see also §9, below) a word is not valid if it is found **only** within the Italic or Romance languages (Latin, Oscan, Umbrian, Italian, French, Spanish, Rumanian, etc) or the Germanic family (Gothic, Old Norse, Old English, Old High German, etc) or Slavic (Old Church Slavonic or Old Bulgarian, Russian, Serbo-Croatian, etc). Even when a cognate stem is found in altogether different branches like, say, Greek and Baltic, it is not necessarily PIE: e.g. Gk *daimōn* and Lth *demonas*, where the Lth word is borrowed from Gk (also in L and other branches).

Then, Italian *giardino*, French *jardin* and Spanish *jardin*, all ‘garden’, come from OHG *garto*. Similarly ON *mūrr*, OE *mur* (rare) and OHG *mūra* come from L *mūrus* (older *moerus*). Another difficulty related to this is that a stem occurring in a branch in a form not easily recognizable may be missed. A. Meillet, e.g., listed many words occurring in the languages of N-W Europe exclusive of Sanskrit, but, while he mentions several only to reject them as invalid, he includes L *homo* ‘man’ and L *vas* (gen sing *vadis*) ‘pledge’ (1922) without mentioning that the first is connected with S *kṣam* ‘earth’ and the second probably with S *vad* ‘speak’. (For more, see §9.)

6. Variables and invariables. The second difficulty is that very many words in the total vocabulary of a language denote things that are *variable*. If the people move to a different, distant region, or if social conditions change, these terms may well change. This aspect was well-described by P. Thieme (1953). But there are also *non-variables*. I use the terms in a relative sense, of course. For instance pots are made from different substances (clay, wood, metal, etc) and in different shapes (bowl, jug, pitcher, urn, etc); the words describing them can over a long period change in meaning and the word for ‘jug’ may come to denote an ‘urn’ or vice-versa. An ear on the other hand, remains an ear without the danger of changing like a pot. Now, there is a difference between “variable” and “basic” vocabulary. Swadesh chose initially 200 *basic* words but later reduced them to a 100. Basic items are not necessarily invariable. Tea is basic to the English way of life and a kilt is basic to Scotsmen but neither is invariable. Swadesh includes words like ‘bark, grease, root, sand, yellow’, etc. These may be regarded as ‘basic’ but although the bark of trees may be used for medicinal purposes, for writing and clothing, it will be so used by specific people in specific conditions (literacy required for writing) and from specific trees; move to a different area, where no bark is useful and the word will be forgotten or changed. The colour ‘yellow’ sometimes fades into white and sometimes into green or lemon. Sand is plentiful on beaches and in deserts, but it would hardly be known in central Turkey, in north Greece, in Slovakia or Czechia. Then, people might well know bulbous roots, dug up for food or medicine, but would hardly know of the roots of other plants. As for grease, this can come from different substances and have different uses so that different terms may well be ascribed to it.

Finally consider the case of a common stem denoting six different tools: S *matya* ‘harrow, roller’; L *mateola* ‘mallet’; Gmc *matto* ‘mattock’ & *medela* ‘plough’; B *matara* ‘pole, rod’; Sl *motyka* ‘hammer, hoe’. This, I trust, shows clearly what I mean by “variable”. Some comparativists made studies of arboreal terms (and Mallory used this in his criticism of my paper) but these are utterly unreliable. Pines often look like cypress-trees and these like cedars or firs and so on. As one moves from one landscape to another and the vegetation changes, (say from south to north), one may well use a particular name for a tree that is only similar. Studies have been made also for fishes and birds. Here again we find variability. Consider L *juni-perus* ‘juniper’, Gmc *fyr* ‘gorse’ and Sl *proso* ‘millet’; if the cognation holds, then we have also Arm *her* ‘bristle, hair’ and S *parṣa* ‘sheaf’! Fishes in rivers, lakes and seas are mostly different and fishes in the Baltic are different from those in the Aegean sea or in the Indian Ocean. Thieme and others argued about the salmon (PIE *laks?) – and

³ Some more on science and mainstream views. An eminent biochemist, Dr C. B. Pert, writes: “Do not accept the conventional [=mainstream] wisdom. Do not accept the idea that something can’t be accomplished because the scientific literature says it can’t... Don’t depend on the literature – it could be right or it could be wrong. Spread all your hunches before you...” (2002: 40). The AIT **is** the backbone of “conventional wisdom” in Indology. Once you examine the “evidence” you find it is “thin” or “hot” air: there is not a scrap of solid evidence for it (Kazanas 2001b, 2002).

trees like the aspen. All these studies are not particularly useful and I disregard them.⁴

7. The Method. I decided to examine what would be *as much as possible* stems denoting invariables. Certain close and common relations in society like husband, wife, mother, son and so on would be invariable: these are roles that men and women play in all known societies in all regions. Invariable are also certain properties of the human being that enable him/her to play those roles – mind, intelligence, love, etc. There are also the parts of the human body – and these are probably the most invariable of all: wherever people go, they have a head, arms, feet, blood, heart and the like; we could never, under all normal circumstances, mistake hair for fingers and an eye for an ear or a mouth (though cheeks could be confounded with jaws and the lower jaw with the chin). Then, there are many invariables in all environments where IEs exist: existence itself of multifarious creatures and things and death, the cessation of that existence; sun, moon, stars; day and night; earth, water, fire and wind; cloud, rain and snow; river (or stream) and lake or sea; mountain, field, forest; cold and heat; the tree, its branches and leaves; fruit and seeds; etc. Certain animals also prove to be quite constant: cow, bull, goat, sheep; dog, donkey, horse; bear, fox, wolf; etc. Birds, being more distant, like fishes, are not easily distinguishable. A good example is the bird *S pika* = ‘cuckoo’; in *L picus* is ‘woodpecker’ and so is *Gmc specht*; but another *L* form *pica* is ‘magpie’ and *OPr pic-le* is ‘fieldfare’. The same stem denotes **four** different birds in different languages. Certain qualities (expressed by adjectives) are quite invariable: bright, dark; light, heavy; long, short; old, young; alive, dead; and so on. Invariable in all conditions are, of course, many acts and conditions of man, denoted by verbs: being, breathing, drinking, eating, dressing, sleeping, waking, moving, thinking, remembering, speaking, carrying, cutting, cooking, etc, etc.

I took many of Swadesh’s words but also used C D Buck’s index (1988) to select invariables (adornment, alive, all, anger, animal, etc). I gathered over 500 stems and looked them up in Buck, Pokorny (1956), Mann (1984-7) and Rix (1998). I also used GEL, Frisk and SGD (Greek), OLD (Latin), MSD and Mayrhofer (Sanskrit). For C, Gmc, B and Sl I relied on Buck, Pokorny, Mann and Rix.

8. Since my purpose was to discover which branch had most retentions, or fewest losses, I left out of detailed consideration all stems common to all branches. Now by “all branches” I mean the seven major IE branches: Indic, represented by S; Gk, including all Greek dialects (but not Mcn); L(atin) representing the Italic branch, but also Osc(an) and Umb(rian) if they have a stem where L fails; C (eltic) with all sub-branches from Gaul to Ireland; Gmc, covering all the Germanic sub-branches – Gth, ON, OE and OHG; B(altic) for Lth, Ltt and OPr(ussian); S(lavic) including even Polish, Serbian etc. In citing the cognate stems I follow the order S, Gk, L, C, Gmc, B, Sl (then Alb, Arm, Ht and T A/ B). Although Alb, Arm, Ht and T AB are not in the race because of their meagre retentions, nonetheless they are cited in many cases for the sake of completeness and in some cases to supply the third or fourth citation that makes a stem eligible as an inherited cognate.

9. Eligibility is determined by the presence of the particular stem in at least three branches. If a stem is found in only two branches it is rejected even if one branch is in the east, say S, and the other in the west, say C. The Avestan, Old Persian and kindred sub-branches of the area are not used because of their closeness to Sanskrit. If S and Av were used as two branches with any other branch as a third, the balance would lean too heavily in favour of S. Av is used in 2-3 cases where S is missing, in order to underline the absence in S. The presence of a stem in two or more sub-branches of one of the main branches counts as one. E.g. the word for a plain or large expanse of ground in Gallic is *-magus*, in Ir *mag*, in Welsh *maes* etc. All these are cognates with *S mahī* ‘earth’ (and, of course, the IE common stem for ‘great, large’ *S mah-/Gk meg-/L mag-*). However, all the variants in the sub-branches of C count as one. In this instance therefore we have two occurrences, one C and one S. This is not included in the list. Obviously, as was mentioned earlier, loanwords do not count. All European cognates of ‘oil’ and ‘olive(-tree)’ come from Gk and L (which borrowed from Gk). Then, the *Gmc rik-r/rice* ‘rich’ meant originally ‘mighty’ and is thought to derive from *C ri-(g)*. All such cases are ignored. I know that *ceteris paribus* the presence of a correspondence between two geographically remote languages is not likely to be an intrafamilial loan and that the presence of a correspondence in 3 or 4 contiguous languages may well be a common loan (cf Bloomfield 1933: 350-60). However, I allowed the latter situation (say L, C, Gmc or C, Gmc, B, Sl) to avoid accusations

⁴ One short old example from A. Meillet should suffice – the tree ‘alder’: *L alnus*; *OHG elira*; *Lth elksnis*; *OSl jelixa*. Even if the cognates could be fully established, we have here only L and North people. This could well be a post-dispersal development. But I don’t accept such cognations because they are so dissimilar and I don’t see why L and Lth have **-n-** while Lth and OSl have **-k/x-**. There are no such regular correspondences.

that I favour S or Gk (or anything), and express my doubt in brackets.

Meaning is another criterion. If a cognate stem has in a particular branch a meaning different from that of the others, or from what seems to be closest to original PIE (though here one can never be absolutely certain), then this does not ultimately count. It is taken into account as a cognate and so helps establish the IE nature of the stem, but it is considered as absent and does not count in favour of the branch. A good example is the cogn for 'bird' (196). The stem appears as S *vis/ves* and L *a-vis*, but a trace of this is found also in the Gk *aiFetos*, 'eagle' and *oiō-nos*, 'augur'. Phonetically the stem is a genuine IE cognate, but I consider Gk not to have the cognate itself; despite the presence of the stem, semantically it is considered absent and so Gk is said to have suffered a loss.

I apply a similar criterion for nominal and verbal stems. If in the examination of a verbal stem found in some branch(es), a cogn stem appears in another branch but only as noun, then the latter does not count for its branch and the branch is considered to have suffered a loss. The same applies when a noun is being examined and only a verbal stem appears in a particular branch. A good example is 'carpenter, fashioner'. The cognate appears as S *takšan*, Gk *tektōn* and Sl *tesar*. A cognate vb appears in L as *tex-o*, 'weave, join' and B *tašyti* 'cut, hew' but these do not count: L and B have a loss. Furthermore, Gmc has *dehsa(la)*, 'axe, chopper' – obviously cogn with S etc, but it is only the instrument, not the agent; so this too doesn't count.

10. As one proceeds in the consultation of the various publications it becomes obvious that all these eminent authorities do not agree among themselves in some cases. Sometimes it is easy to make a decision in favour of one or another. For instance, one lexicographer does not connect C *mliġin* with S *mṛjati*, 'rub, wipe'. The C and S forms are, for me, very obvious cognates. Other cases are not so simple. For 'hide, skin', some make cognates L *corium*, Sl *škura*, 'pelt' and S *carman*. Others ignore this and see as cognates S *carman* 'hide', OHG *scirm*, 'umbrella', OPr *kērmens* 'body, frame' and Sl *čřěmŭ* 'tent'. Although IE phonetic changes often occur according to certain laws within a well defined frame of time and conditions, there are also so many strange unaccountable exceptions that I would not be surprised if all these words turn out to be cognates. I can suppose too that 'skin' could become 'umbrella' or 'tent' (or vice-versa) but can't see why the sound **-sc-** and **-šr-** should be preferable to **-sk-** and **-c-** (or vice-versa). Equally perplexing is the case of the cognates of 'hand': some see Gk *cheir* linked with Alb *dare* and Arm *jern*, others with S *har-* 'take, hold', still others with S *hasta* 'hand' (not *har-*) and yet others only with Ht *keššar*. For the last two options it was necessary for IEL to postulate a (totally imaginary) proto-Greek **chesr-*; this was necessitated only by S *has-ta* and Ht *keššr*. Surely here S *har-* is closer to *cheir* and Ht is either a corrupt form or another stem like *has-ta*. (I would suggest yet another possibility: S *kara* '[the hand as] maker'.) I steer clear of such disagreements.

Apart from the cases mentioned just now, I ignore of necessity all stems where no clear common cognate emerges – always with the criterion formulated in § 9, i. e. a stem should appear at least in three of the IE branches. There are many stems that appear in only two branches (sometimes in several sub-branches): adornment, aid, army, battle, blind, cloth as distinct from 'clothing', dance, enemy, friend, forest, happy, hole, island, neighbour, etc, etc. This is surprising. These entities are invariable – except perhaps army and battle. Even in most ancient societies people used some decoration and clothing, they had friends and enemies and neighbours and they saw a hole, or a forest, distinct from the bare plain. Yet a consideration of 'neighbour' shows enormous divergences. Thus, S *prati-/vāsin/vešin*, 'one who dwells/settles near'; this may be connected with L *vīcīnus*; but not Gk *geiton*, C *comarsa*, Gmc *nēaligibūr* etc, B *kaiminš* Sl *susjed* etc. Obviously, our modern views on such social matters are not the same as those of the early IEs.

A third category of stems not recorded here are pronouns and numerals. From my survey of the publications, it became apparent that on the whole these stems were fairly common to all branches. Some numbers like 'twenty' do show important variations or are not so widespread, but nothing significant is lost by these omissions.

11. The List.

1) Parts of the human body. Here stems for several members of our body are common to all branches: eye (S *akṣi*, L *oculus* etc); navel (S *nabhya*, Gmc *naba-la*, etc); tooth (S *dant-*, L *dens*, etc); udder (S *ūdh-*, Gk *outh-*, Gmc *ūter*, etc); hip/buttock (S *śroṇi*, Gmc *hlaun*, etc); etc. Some have no sure common stem: chest, hand (S *hasta* or *hara*, Gk *cheir* and Ht *keššr* are not necessarily cognates as some claim), finger, lip(s). This is surprising since the parts of the body cannot alter in any environmental or social conditions. We must assume then that at different periods and/or places a member like the 'hand' was regarded as something different according to the function it was thought to perform mainly; for the hand does many things: it takes, gives, holds, touches, makes and so on.

1. **arm** : a) S *bāhu* ; Gk *pēchus* ; Gmc *buog* ; T AB *poke* . Not L, C, B, Sl.
2. b) S *dos* (fore-arm); C *doë* ; B *pa-duse* (; Sl *paz-duha* 'armpit'). Not Gk, L, Gmc .
(The group of cognates S *irma*, L *armus*, etc denote 'shoulder/forepart of animal', exc Gmc *arm* 'arm'!)
3. **beard** : a) S *bhr̥ṣṭi* 'bristle, point'; L *barba* ; Gmc *bart/beard* ; B *barzda* ; Sl *brada* . Not Gk, C.
4. b) S *śmaśru* ; (L *māla*, *maxilla* 'chin, jaw'; C *smech* 'chin'); B *smakra-* 'chin, beard'; Alb *mjekrei* ; Arm *mauru-k* ;Ht *zamangur* . Not Gk, L, C, Gmc, Sl.
5. **belly** : S *udara* ; Gk *hoderos* (=gastēr 'belly' Hes); L (*venter?*) *uterus* ; B *vēderas* . Not C, Gmc, Sl.
6. **blood** : S *asṛk* ; Gk *ear* ; L *as(s)er* ; B *asius* ; Ht *eešr-ḥar* ; Toch A *ysār* . Not C, Gmc, Sl.
7. **body** : S *kṛp* (and 'appearance'); L *corpus* ; Gmc *href* . No Gk, L, C, B, Sl.
8. **bone** : S *asthi* (gen °*thnas*); Gk *osteon*; L *os(s)-* ; Alb *ašt* ; Ht *hastai* . Not C, Gmc, B, Sl.
9. **ear** : a) Gk *ous* ; L *auris* ; C *au* ; Gmc *eare* ; B *ausis* ; Sl *ucho* . Not S !
10. b) S *śrotra* ; C *clua-/clyst*; Gmc *hlyst* (and *hliu-ma* 'hearing') hearing. Not Gk, L, B, Sl.
11. **elbow**: S *aratni* ; Gk *ōl(l)en-* ; L *ulna* ; Gmc *elina* ; Sl *aršin*. Not C and B.
12. **eye brow** : S *bhru* ; Gk *o-phrus* ; C *brūad* ; Gmc *brūn* ; B *bruvīs* ; TA *pārwān*, B *pārwāne* . Not L, Sl.
13. **face** : S *an/prati+ika* ; Gk *pros-ōp-on* ; C *en-ech* . Not L, Gmc, B, Sl.
14. **female breast** : S *stana* ; Gk *stēnion* (=stēthos, Hes); Gmc *spane*, etc; Arm *stin* . Not L, C, B, Sl.
15. **flesh** : S *māmsa*; Gmc *mimz*; B *mesa*; (O Pr *mensā*); Sl *mesa*; Alb *mish*; Arm *mis*; TB *misa*. Not Gk, L, C.
16. **foot** : S *pād-* ; Gk *pous>pod-*, L *pēs>ped-*, Gmc *fōt/fuoz*; (B *pada-* 'foot-wear'); Ht *pata-*; T AB *pe/pai* .
Not C, B, Sl.
17. **hair** : a) Gk *ianthos* ; C *find(a)* ; Gmc *wint-brawa* 'hair-brow (=eyebrow, eyelash)'. Not S, L, B, Sl.
(doubtful PIE)
18. b) S *roma(n)* ; Ir *ruaim-neach* ; Gmc *rogg* (so several scholars); Sl *runo* 'fleece'. Not Gk, L, B.
19. **head** : a) S *śiras* ; Gk *kara*, etc; C *ker-n* 'top of head' (L *cere-brum* 'brain', *cernuus* 'head-first'; Gmc *hirni* 'brain'). Not L, Gmc, B, Sl.
20. b) S *kapāla* 'skull, cup' (cf L *capis* 'cup'); L *caput* ; Gmc *hefuð*, *hafola*, etc. Not Gk (*kephalē* ?), C, B, Sl.
21. **heel** : S *parṣṇi* ; Gk *pternē* ; L *perna* ; Gmc *fiersn* ; Ht *parsna-* . Not C, B, Sl.
22. **jaw** : S *hanu* ; Gk *genus* ; C *gen* ; Gmc *cin/kin* ; B *žan-das(?)* ; TA *śanwem* (fem dual). Not L, Sl.
23. **knee** : S *jānu* ; Gk *gonu* ; L *genu* ; Gmc *kniu* . Not C, B, Sl.
24. **liver** : S *yakṛt* (gen °*knas*); Gk *hēpar* (gen °*patos*); L *iecur*; B *jaknos* . Not C, Gmc, Sl.
25. **marrow** : S *majjā* ; Gmc *mar(a)g* ; Sl *mozzū* 'brains'; T A *māśśunt* . Not Gk, L, C, B.
26. **mouth** : S *ās-* ; L *oas* ; C *ā* (Gmc *ōss* 'rivermouth'). Not Gk, Gmc, B, Sl.
27. **nail** : S *nakha* ; Gk *onux* ; L *unquis* ; B *nag(a)s* . Not C, Gmc, Sl.
28. **neck** : a) L *collum*; Gmc *hals*; B *kaklas*; Not S, Gk, C, Sl where the stem denotes 'circle' (S *cakra*, Gk *kuklos*, etc).
29. b) S *manyā*; (L *monīle* necklace); C *muin(ē)* (; Gmc *men(e)* 'necklace', *mana* 'mane'). Not Gk, L, Gmc, B, Sl.
30. c) S *grīvā* ; Gk *derFā* (Arcadian), *derē* ; B *grīva* 'river-mouth'; Sl *griva* 'mane'. Not L, C, Gmc, B, Sl.
31. **nose** : S *nas-* ; L *nāris* ; Gmc *nasa* ; B *nosis* ; Sl *nosī* . Not Gk, C.
32. **palm of hand** : S *pr̥tha* ; Gk *palamē* ; L *palma* ; Ht *pal-tana* . Not C, Gmc, B, Sl.

33. **penis** : S *pasas* ; Gk *peos* ; L *pēnis* (**pes-ni-*); Gmc *fasal*. Not C, B, Sl.
 34. **shoulder** : S *aṃsa* ; Gk *ōmos* ; L *ume-rus* ; Gmc *ams* ; Arm *us* . Not C, B, Sl.
 35. **sinew, tendon** : S *snāvan* , Gk *neuron* ; L *nervos* ; Gmc *snuor* ; B *snawara* ; Arm *neards* . Not C, Sl.
 36. **spleen** : S *plīhan-*; Gk *splēn* ; L *liēu* ; Arm *plaicaln* ; etc; all exc Gmc.
 37. **testicle** : Av *ərəzi* (dual); Gk *orchis*, C *virige*; (B *erzilas* ‘ungelded horse’); Alb *herde*; Arm *orjik* . Not S, L, Gmc, B, Sl.
 38. **throat** : S *gala* ; L *gula* ; Gmc *ceole* ; B *ger-kle* ; Sl *grūlo* . Not Gk, C.
 39. **tongue** : S *jihvā* ; OL *dīngua* ; C *teng(e)*; Gmc *tuggo* ; B *liežuvis* ; S *jezykū* ; Arm *lezu* ; T *kānto*. Not Gk.
 40. **tooth, molar** : S *jambha* ; Gk *gomphos* ; Sl *zebū* ; Alb *dhëmb* ; T AB *kam/keme* . Not L, C, Gmc, B.

II) Man’s properties and conditions. Here we examine cognates of man’s properties or attributes. Very few properties like ‘name’ (S *nāma*, L *nomen*, etc) and ‘thirst’ (S *tr̥ṣ(ṇ)ā*, C *tart*, etc) have common cognates in all seven branches.

41. **anger, envy** : S *īr̥ṣyā* ; Gk *arē* ‘ruination’, *areiē* ‘invective’; (L *errare* ‘err’); Gmc *irre*, *rasen* ‘rage’; B *ar̥ṣu-* ‘violence’; Arm *her* ‘rage’; Ht *arsani-* ‘envy’. Not L, C, Sl.
 42. **anxiety** : S *aṃhas* ; Gk *agchos*, *achos* ; L *angor*, *anxietas* ; Gmc *ang(u)st* ; Sl *qzos-tū* . Not C, B.
 43. **care, consideration** : S *smaraṇa*, *smṛti* (and ‘memory’); Gk *merimna* ; (L *memor* ‘remembering’); Arm *mormok* . Not L, C, Gmc, B, Sl.
 44. **debt** : C *dlig/dyl-ed* ; Gmc *dulgs* ; Sl *dlūgū* . Not S, Gk, L, B. (Not PIE probably.)
 45. **desire, love** : S *lobha* ‘longing, greed’; L *lu-/li-bido* ‘desire, pleasure’; Gmc *lufu/liubi* ‘love’; Sl *ljubi*. Not Gk, C, B. (There are many other stems for this but all diverse.)
 46. **dominance** : C *flāith* ‘sovereignty’; Gmc *waldan* ; B *valdan* ; Sl *vlada* . Not S, Gk, L.
 47. **energy, force** : S *vayas* ; Gk *is* ; L *vi-res* (pl). Not C, Gmc, B, Sl.
 48. **fear** : S *bhaya/bhīti* ; (Gmc vbs *beofian*, *biben* ;) B *buime/buile* ; Sl *boja-znī* . Not Gk, L, C, Gmc.
 49. **guilt** : S *āgas* ; Gk (*h*)*agos* (and ‘pollution’); Gmc *œce* (vb *acan*) ‘pain, wrong’. Not L, C, B, Sl.
 50. **life(-time)** : S *āyus* ; Gk *aiōn* (and ‘vital power’); L *aevum* ; Alb *eshë* ; T A *āym* . Not C, Gmc (but *aiws* ‘time, eternity’), B, Sl.
 51. **mind** : S *manas*; L *mens*, **ntis*; C *men-me*; Gmc *munr* (ON), *myne* (OE: ‘desire’ and sometimes ‘mind’; cf Goth *muns* ‘thought, intention’). Not Gk, B and Sl. (Interestingly the Greek cogn *menos* means ‘might, force’ showing that the Greeks took only this quality for the stem that originally denoted ‘mind’ believing that might came from mind?)
 52. **power, prevalence** : S $\sqrt{\text{sah}}$ n, vb; Gk *isch-* ‘power’, *e(s)chō* ‘possess’; Gmc *sig-e/or* ‘victory’. Not L, C, B, Sl
 53. **reward** : S *mīḍha* ; Gk *misthos* ; Gmc *mizdō* ; Sl *mīzdha* . Not L, C, B.
 54. **toil, tiredness** : S $\sqrt{\text{sam}}$; Gk *kam-* ‘toil’, *a-kama-* ‘tireless’; C *cuma* ‘grief’. Not L, Gmc, B, Sl.
 55. **vehemence** : S *ūrj-ā* ; Gk *orgē* (and ‘fury’); C *ferc* ‘anger’. Not L, Gmc, B, Sl.

III) Human relations. Here all the closest ones – father, mother, etc – appear in almost all the branches **except Ht which has none!** Surprisingly, on the other hand, we find no sure cognates for ‘compatriot, enemy, friend, guest, neighbour, stranger’ and many others. At that early period, it seems people had different ideas about such social relations.

56. **brother** : S *bhrātr* ; etc; in all exc Gk (*phratēr* only as a member of ‘brotherhood’ *phratrīa*) and Ht.
 57. **chief, king** : S *rāj-* ; L *rex*, *regius* ; C *rī(-x)* . Not Gk, Gmc, B, Sl.
 58. **child, son** : S *putra* ; (Gk *pōlos* ‘foal’); L *puer* (*pullus* ‘young animal’; B *putytis* ‘chicken’; Sl *pta-k* ‘bird’). Not Gk, C, Gmc, B, Sl.
 59. **carpenter, fashioner** : S *takṣan-* ; Gk *tektōn* ; (L *tex-* ‘weave, fit, plait’; Gmc *dehsa* ‘axe’); Sl *tesar* (vb *tesati* and B *tašyuti* ‘cut, hew’). Not L, C, Gmc, B.
 60. **clan/tribe** : S *jana/jāti* (< $\sqrt{\text{jan}}$); Gk *genos* (*phulē*); L *gēns* (*tribus*); Gmc *kyn/cyn(n)* . Not C, B and Sl.
 61. **companion** : S *sakhā* ; L *socius* ‘common’; Gmc *seggr* (ON); Arm and Iran *ašakert* ‘disciple, follower’. Not Gk, L, C, B, Sl.
 62. **daughter** : S *duhitṛ*; etc; for the Italic branch Osc *futir* ; the cogn is not in C and Ht.

- 63. daughter-in-law** : S *snuṣā* ; Gk *nuos* ; L *nurus* ; Gmc *snur* ; Sl *snūcha* ; Arm *nu* . Not C, B (and Ht).
- 64. father** : S *pitr* ; Gk *patēr* ; L *pater* ; C *athir* ; Gmc *fadar* . Not B, Sl and Ht.
- 65. fortified community** : S *pur-* ; Gk (*akro-*)*polis* ; B *pilis/pils* . Not L, C, Gmc, Sl.
- 66. husband/master** : S *pati* ; Gk *posis* ; (L *potis* ‘capable’ only); Gmc *-faPs* (Gth); B *pats* ; Sl *-podī* . Not L and C.
- 67. husbands’s brother** : S *devr* ; Gk *daēr* ; etc; in all exc C (and Ht).
- 68. inspired one, poet** : S *api-vatat-* ‘one understanding’; L *vates* ; C *fāith* ; Gmc *wōd* ‘one possessed’ . Not Gk, B, Sl.
- 69. man** : a) S *nṛ-/nar-* ; Gk *a-nēr* ; Osc *ner-um* ; C *ner* ; ; Alb *njer* . Not Gmc, B and Sl. Cf also S *sūnara* ‘mighty’ and Gk *ev-ēnōr* ‘vigorous’ (where *ēnōr* links with *anēr*, giving another stem).
- 70.** b) S *man-u*; Gmc *man-n*; Sl *možī* ; Not Gk, L, C and B.
- 71.** c) L *homō* ; Gmc *gum-* ; B *žmogus* ; Toch A/B *śom/śaum*; Not S, Gk and Sl.
- 72.** d) S *vīra* ‘hero’; L *vir-* and Umb *v(e)iro* ‘man’; Gmc *wair* ; B *vyras* . Not Gk, Sl.
- 73. mother** : S *mātr* ; etc; in all, exc B (but *mote* ‘wife’), Alb (but *motrë* ‘sister’) and Ht.
- 74. people** : (S \sqrt{tu} > *taviti* ‘has authority’); L *totus* ‘whole’, Osc *touto* ‘populace’; C *tuath* ; Gmc *pinda* ; B *tauto* . Not S, Gk, Sl.
- 75. sage, silent one** : S *muni* ‘seer, silent’ ; Gk *muna-ros* ‘silent one’ (Hes), *mun-dos* ‘mute, silent’; Sl *muña(k)* ‘mute’ . Not L, C, Gmc, B.
- 76. settlement** : S *ā-śaya* ‘place of rest, retreat’; Gk vb *kei-mai* ‘lie, rest, settle’, *kōmē* village; Gmc *haims, heimr* ; B *saime* ‘family’ . Not L, C, Sl.
- 77. sister** : S *svasṛ* ; etc; in all exc Gk (*eor* ‘daughter’ in Hes) and Ht.
- 78. son** : S *sūnu* ; Gmc *sunu(s)* ; B *sūnus* ; Sl *synŭ* ; in Gk *hui-* and Toch B *soy-* both questionably related being decayed forms. Not Gk, L, C and Ht.
- 79. son-in-law** : S *jāmātr* ; Gk *gambros* ; L *gener* (<**gemer?*); B *žentas* ; Sl *zetŭ* . Not C, Gmc (and Ht).
- 80. thief** : S *tāyu* , *stena* ; Gk vb *tētaomai* ‘be in want’, *tēūsios* ‘idle’; C *tāid* ; Sl *tatī* ; Ht *tayezzi* ‘steals’ . Not L, Gmc, B.
- 81. twin** : S *yama* ; L *geminus* ; C *emon* ; B *jumis* . Not Gk, Gmc, Sl (and Ht).
- 82. uncle (father’s brother)** : S *pitr̥vya* ; Gk *patrōs* ; L *patruus* ; Gmc *fetiro* (and ‘cousin’) . Not C, B, Sl (and Ht).
- 83. widow** : S *vidhavā* ; L *vidua* ; C *fedh*; etc ; in all exc Gk (and Ht).
- 84. wife/mistress** : Here again one would expect a stem related to no 66. Indeed –
S *patnī* ; Gk *potnia* ; B *pati* . Not L, C, Gmc and Sl which have mostly disparate stems.
- 85. woman** : now, if the stem for man is *nar/ner*, then it would not be surprising to have a related stem for woman; but only S has this as *nārī* . We find: S *janī* (f of *jana* ‘creature, man’) also *gnā* ‘divine woman’; Gk *gunē* ; Gmc *qinō, cwene*; Sl *žena* ; Arm *kin* . Not L, C and B.

IV) Environment Natural Here again several stems are common to all branches: ‘light’ (S *ruc*, L *lux* etc); *earth* (S *kṣam-*, Gk *chthōn* , etc, but **not Gmc**, where *guma* = man); month (S *mās*, Gk *mēn* etc); snow (L *nix*, Gmc *snēo* , etc, but **not S**, where *sneha* ‘sticky substance, love’); night (Gk *nux*, L *nox* , etc); dawn (S *uśās* , B *ausra* , etc); sun (Gk *hel-*, L *sol*, etc but **not Gmc**). But again many things have no sure common stem – forest, lake, island, medicine, etc.

- 6. apple** : C *aball, aval* ; Gmc *ap(p)el* ; B *ʔāt(u)ols* ; Sl (j)*ablŭko* . Not S, Gk, L. (I doubt this is PIE.)
- 87. ash(es)** : S *āsa* ; Gmc *as-ca, az-go* ; Arm *ač-cum* ; (cf Sl *oz-diti* ‘malt’; TA *āsar* ‘be dry’); . Not in Gk, L, C, B, Sl.
- 88. being, creature** : S *bhūti* ; Gk *phusis* ‘nature, essential being’; B *bu(i)tis* ‘existence’; Sl *bytŭ* ‘being, creature’ . Not L, C, Gmc.
- 89. blade, thorn** : S *tr̥ṇa* ‘blade, grass’; Gmc *ḍaurnus* ; Sl *trŭnŭ* . Not Gk, L, C, B.
- 90. bottom** : S *budhna* , Gk *puthmēn* ; L *fundus*, Gmc *bodam*; Not C, B, Sl.
- 91. branch** : a) S *śakhā*; (C *ceht* ‘forked stick, plough’; Gmc *hoha* ‘plough’); B *śaka*; Sl *socha*; Arm *sax* . Not Gk, L, C, Gmc.
- 92.** b) S *vaya* ; (C *ve* ‘measuring rod’; Gmc *viðir* ‘willow’); B *vitys* ‘osier’; Sl *věja, větev* . Not Gk, L, C, Gmc.

93. **cold, frost, winter** : S *hima / heman* ; Gk *chime-*, *-chimo* 'storm, frost', *cheima*, **mōn* ; L *hiems* ; C *gemrad* ; B *žima* ; Sl *zima* ; Ht *gemi, gimi* 'cold, winter'. Not Gmc.
94. **cloud, fog** : S *megha* ; Gk *o-michlē* ; B *miġla* ; Sl *müġla* ; Arm *mēg* . Not L, C, Gmc.
95. **darkness, dust, mist** : S *rajas* ; Gk *erebos* ; Gmc *rigis* ; Arm *erek* 'evening'. Not L, C, B, Sl.
96. **dawn** : S *uśās* ; Gk *ēos* ; L *au[s]rōra* ; (Gmc *eōstre* 'goddess of spring', OE;) B *aušra* . Not C, Gmc, Sl.
97. **day** : S *dina* ; L (*dies* ?) *nun-dinae* 'ninth/market day'; B *diena* . Not Gk, C, Gmc, Sl.
98. **death** : S *mṛtyu* ; L *mor-s/-tis* (gen); B *mirtis* , Sl *sūmrütü* . Not Gk, C, Gmc.
99. **dust** : S *dhuli* ; (L *fuligo* 'rust'); Gmc *du(n)st* ; B *dul-is/kes* ; Sl *důždü* 'rain'. Not Gk, L, C, Sl.
100. **egg** : Gk *ōon* ; L *ovum* ; C *og* etc; Gmc *egg/ei* ; Sl *aj-ice* . Not S, B.
101. **end** : S *anta* ; C *et* ; Gmc *ende* ; Ht *ḥa-anza* . Not Gk, L, B, Sl.
102. **excrement** : S *gūtha* ; Gmc *quāt* ; Sl *govno* ; Arm *ku* . Not Gk, L, C, B.
103. **expansion, swelling** : S *puṣ-* ; Gk *phusa* 'pustule'; L *pus-tula* 'swelling'; Sl *pyš-nyj* 'laxuriant'. Not C, Gmc, B.
104. **field** : S *ajra* ; Gk *agros* ; L *ager* ; Gmc *akrs* ; Arm *art* . Not C, B, Sl.
105. **fire** : a) S *agni* ; L *ignis* ; B *ugnis* ; Sl *ognü* ; Ht *Agnis* 'Firegod'. Not Gk, C and Gmc.
106. b) Gk *pur* ; Gmc *fōu/fȳr* ; Ht *pahḥur*; T A/B *por/puwar* . Not S, L, C, B, Sl.
107. **flower** : L *flos*, **floris* ; C *blath* ; Gmc *bloma* ; Not S, Gk, B, Sl. (original PIE?)
108. **heat** : S *gharma*; Gk *therm*; L *form-*; Gmc *warm/varm-*; O Pr *gorme*; Alb *zjarm*; Arm *ĵerm*. Not C, B, Sl.
109. **juice, sap** : S *rasa* 'juice, liquid'; L *rōs* 'dew, fluid'; B and Sl *rasa, rosa* 'dew, fluid'. Not Gk, C, Gmc.
110. b) S *sava* ; C *sū-cus* ; C *suthi* ; Gmc *sou (sū-gan)* . Not Gk, B, Sl.
111. **leaf** : Gk *phullon* ; L *folium* ; C *bile* ; Gmc *bla-t* . Not S, B, Sl.
112. **moon** : S *mās* ; Gmc *mona* ; B *menuo* ; Sl *měsic* ; T A/B *mañ/meñe* . Not Gk (*meis/mēn-* only 'month'), L (*mensis* 'month'), C (*mī* 'month').
113. **mountain** : S *giri* ; Gk *deirós* 'hill, mount' (Hes); B *nu-gara* 'mountain-ridge'; Sl *gora*. Not L, C, Gmc.
114. **mud** : S *pañka* ; Gmc *fani/fen* ; B *pannean* 'swamp-land'; Sl *panča* (C *zech*). Not Gk, L, C, Sl.
115. **order** : S *ṛta/rtu* ; Gk *artus* 'limbs (ordered in the body)'; Arm *ard* 'ordered structure'. Not L, C, Gmc, B, Sl.
116. **path** : S *pa(n)th-* ; Gk *patos* ; Gmc *pæþ* ; OPr *pintis* ; Sl *poťü* ; Arm *hun* (?). Not L, C.
117. **poison** : S *viṣa* ; Gk *ios* ; L *vīrus* ; C *fi* ; Not Gmc, B, Sl.
118. **rain** : a) S *varṣa* ; Gk (*h*)*ersē* 'dew, raindrop-s'; C *frass* 'shower' (MIR). Not L (*pluvia* cogn with S *plu-*, Gk *pleō* 'float, sail'), Gmc, B, Sl.
119. b) S *abhra* ; Gk *ombros* ; L *imber* ; Arm *amb* . Not C, Gmc, B, Sl.
120. **sea** : L *mare* ; C *muir, mor* ; Gmc *morei*, etc; B *mares* ; Sl *morje* . Not S, Gk.
121. **season, summer** : S *samā* ; C *sam* ; Gmc *sumar* ; Arm *am* 'year'; TA 'rainseason'. Not Gk, L, B, Sl.
122. **seed** : a) L *se-men* ; C *si-l, had-* ; Gmc *sōed* , *sā-mo* ; B *se-kla* ; Sl *sē-me* . Not S, Gk.
123. b) S *bīja* ; B *mieżys* ; Arm (and Iranian) *mšak* 'seed-sower'. Not Gk, L, C, Gmc, Sl.
124. **shade** : S *chāyā* ; Gk *skia* ; Gmc *scūo* ; Sl *sje-na, cien* ; Alb *hē* ; T B *skiyo* . Not L, C, B.
125. **sickness** : C *serg* ; Gmc *sorg/sorh* 'anguish'; B *serga* 'disease'. Not S, Gk, L, Sl. (S *sarga* < \sqrt{srg} "emanation"?)
126. **sky, cloud** : S *nabhas* ; Gk *nephos* 'mist'; C *nem/nef* ; B *debes-is* ; Sl *nebo* ; Ht *nepis* . Not L, Gmc.
127. **smoke** : S *dhūma* ; L *fumus* ; C *de-*, *dumacha* ; Gmc *toum* (and 'steam'); B *dūmai* , Sl *dymü* . Not Gk (*thumos* 'spirit, passion').
128. **star** : S *star-* ; Gk *astēr* ; L *stella* ; C *sterenn* ; Gmc *stairnō* ; Arm *astl-* ; T A/B *šreñ/šcirye* . Not B, Sl.
129. **stone** : a) S *aśman* (also 'sky'); Gk *akmōn* 'anvil, sky'; C *cefn* (?); Gmc *himins*; B *akmu-*, *āśmen-* ; Sl *kamen* (?). Not L.
130. b) Gk *stia* 'pebble'; Gmc *stein* ; Sl *stijena* . Not S (but $\sqrt{styā}$ 'be stiff'), L, C, B.
131. **stream/river** : S *srotas (sarit, nadī)*; Gk *rheuma* , *rhoos* ; C (*sruaimm*), *sruth* ; Gmc *strōm* ; B *srava*, *sriove* ; Sl *struja*. Not L.
132. **surface** : S *tala* ; Gk *tēlia* ; (L *tellus* 'earth'); Gmc *dilo* . Not L, C, B, Sl.
133. **sweat** : S *sveda* ; Gk *hid-rōs* ; L *sudor* ; OE *swāt* ; B *sviedri* (pl). Not C, Sl.

- 134. top** : S *varṣman* (adj *varṣīyas* 'higher'); B *viršus* ; Sl *vrūchŭ* . Not Gk, L, C, Gmc.
- 135. tree** : S *dru-ma*; Gk *dru-s* 'oak', *dru-mos* 'forest'; Gmc *trē* (ON), *dro-m* 'thicket, forest' (OE); Sl *dre-vo* (?). Not L, C, B.
- 136. water** : a) S *udan* ; Gk *hudōr* ; etc, in all exc L (*unda* 'wave').
- 137.** b) L *aqua* ; Gmc *ahwa/ēa* 'river'; Ht *eku/aku*; T *yok* 'drink'. Not S, Gk, C, B, Sl.
- 138.** c) S *ap-* (*āpas* pl); B *upe* ; OPr *ape* ; T AB *āp* (f). Not Gk, L, C, Gmc, Sl.
- 139.** d) S *vār-i* ; Gk *our-* (and 'urine'); (L *ūrīna* 'urine', *ūrīnor* 'dive'); Gmc *var-/ūr* ; B *jūra* 'sea'. Not L, C, Sl.
- 140. wave** : S *ūrmi* ($\sqrt{\text{val}}$ 'turn'); (Gk *eilō* 'roll, turn'; L *volvo* 'turn'); Gmc *wylm* ; B *vīlnis* ; Sl *vlūna* . Not Gk, L, C.
- 141. wind** : S *vāta* ; etc, in all exc Gk (*ane-mos*, cogn with L *anima* and S *ana* 'breath') and B.
- 142. wound** : Gk *oulē* 'scar'; L *vulnus* ; C *gouli* , Gmc *waol* 'pestilence'; Not S, B, Sl.
- 143. year** : S *vatsa-ra* ; Gk *fetos* ; L *vetus* ; B *vetušas* ; Sl *vetŭchŭ* ; Alb *vit* ; Ht *ŭitt* . Not C, Gmc.
- V) Environment Man-made.** Several stems are common to all seven branches: axle, door, edge/rim, wool, etc. But just as many have no common stem – army, battle, cloth as distinct from 'clothing', etc. Apart from some exceptions, foodstuffs, clothing, tools and various utensils are not examined since they are highly variable.
- 144. awl** : S *ārā* ; Gmc *al*, *āla* ; O Pr *ylō* ; B *yla* . Not Gk, L, C, Sl.
- 145. axe** : Gk *axinē-*; L *ascia* ; Gmc *oex* . Not S, C, B, Sl.
- 146. band** : S *bandh-a/ana* ; Gk *peisma* (?); C *buinne* ; Gmc *bandi* . Not L, B, Sl.
- 147. beam** : Gmc *balca* ; B *balkis* ; Sl *balka* . Not S, Gk, L, C . (Highly doubtful PIE.)
- 148. bed** : Gk *lechos* ; L *lectus* ; etc, all exc S, B.
- 149. belt, girdle** : Gk *zōstēr*, B *juosta* ; Sl *po-jasu* ; Av *yāh-* . Not S, L, C, Gmc.
- 150. board** : S *phalaka* ; Gmc *fjōl* ; Sl *pol* . Not Gk, L, C, B.
- 151. bowl, cup** : S *kalaśa* ; Gk *kalux* ; L *calix* ; OE *caelic* . Not C, B, Sl. (The words 'cup', C *copan* , Gmc *cuppe* etc are thought to derive from L *cuppa* .)
- 152. bread** : (Gk *klib-anos* 'oven for baking bread';) Gmc *hlaf* ; B *klaips* ; Sl *chlebŭ* . Not S, Gk, L, C . (Highly doubtful PIE.)
- 153. buckle, fastening** : S (*ā*)*sañjana* ; C *sēn* 'harbour-net'; Gmc *senkel* 'shoe-fastening'; B *sequ* . Not Gk, L, Sl.
- 154. butter** : S *sarpis* ; Gk *helpos* (Hes); Gmc *salba* ; Alb *gjalp* ; T *sälyp-e* . Not L, C, B, Sl.
- 155. cask, covering** : S *kośa* 'cask (for valuables)'; Gmc *huz-d* (Gth), *hauss* (ON) 'skull', *hosa* (OE) 'husk'; B *kiauše* 'skull (=brain cask)'. Not Gk, L, C, Sl.
- 156. copper, ore** : S *loha* 'red metal'; L *rōdus* ; Gmc *a-ruzzi* ; Sl *ruda* . Not Gk, C, B.
- 157. cord** : S *sināti/sinoti/syati* 'bind' (*sīman* 'hair-parting, boundary'); Gk *himas* , °*mant* ; C *sīm* 'chain, cordon'; Gmc *sim-i/o* ; B *sai-te* 'bond'. Not L, Sl.
- 158. cover, shelter** : S *śarman* ; Gk *kalumma*; (L *celō* 'cover' vb; C *celim* vb;) Gmc *hilms* 'helmet', vb *helan*; Not L, C, B, Sl.
- 159. curve, hook** : S *añka* ; Gk *ogkos* 'hook'; L *uncus* ; C *ēkath* 'hook'. Not Gmc, B, Sl.
- 160. dough** : C *tāiz* , *toaz* ; Gmc *thāesma* ; Sl *testo* . Not S, Gk, L, B. (Improbable PIE.)
- 161. edge, tip** : S *aśani* ; Gk *akōn* 'lance' (*akonē* 'whetstone'); L *agna* 'ear (of corn)'; B *aśnis* . Not C, Gmc, Sl.
- 162. fight** : S *yudh-* and vb; Gk *husminē* ; (L *iubeo* 'command'); C *-iud* 'fighter'; (B *judeti* 'agitate'); Sl *o-jŭminŭ* 'warrior' and *judzič* 'excite'. Not L, Gmc, B.
- 163. floor** : S *tala* 'surface'; Gmc *dil* ; OPr *talus* ; Sl *tĭlo* . Not Gk, L, C.
- 164. flour, meal** : C *blend* ; Gmc *melu* ; B *milti* ; Ht *memal* . Not S, Gk, L, Sl. (I doubt it is PIE.)
- 165. grain, barley** : a) S *yava* ; Gk *zeiai* (pl); B *javas* ; Sl *jevin*, *ovin*; Ht *eṇa* (?). Not L, C, Gmc.
- 166.** b) S *dhāna* 'corn'; Gk *danakē* ; (B *duona* 'bread'); T B *tāno* . Not L, C, Gmc, B, Sl.

- 167. honey** : a) Gk *meli* ; L *mel* ; C *mil* ; Gmc *miliþ* (Gth only); Arm *melr* . Not S, B, Sl.
168. b) S *madhu* 'honey, sweet drink'; Gk *methu* 'wine'; C *mit* , Gmc *metu* 'mead'; B, Sl *medu* 'honey'. Not L.
169. house : a) S *dama* ; Gk *domos* ; L *domus* ; Sl *domŭ* . Not C, Gmc, B.
170. b) C *both/bod* 'dwelling'; Gmc *buð* ; B *butas* . Not S, Gk, L, Sl.
171. c) S $\sqrt{\text{vis}}$; Gk *oikos* ; L *vicus* ; Gmc *weihs* , *wic* ; Sl *višĭ* . Not C, B.
172. incision, line : S *rekhā*; (Gk *ereikō* 'rend'); C *rhwgg*; Gmc *riga* (; B *riekti* 'cut(bread)'). Not Gk, L, B, Sl.
173. metal : S *ayas* ; L *aes* ; Gmc *aiz* . Not Gk, C, B, Sl.
174. mill-stone : C *breuan* ; Gmc *quirn* ; B *girnos* ; Sl *žrŭny*; Arm *erkan* . No S, Gk, L. (Despite its incidence in the 5 branches this stem may well not be PIE. The S *grāvan* has now been shown to mean 'singer' not the stone for pressing Soma: see Thomson 2001.)
175. plough : Gk *arotron* ; L *arātrum* ; C *arathar* ; B *ar-kl-* (?); Sl *radlo* . Not S (vb S *vrka* ?), Gmc (Gth *arjan* 'plough, cultivate').
176. pot : S *caru* ; C *coire* ; Gmc *hwer(r)* . Not Gk, L, B, Sl.
177. price. roof : S $\sqrt{\text{sthag}}$; Gk *steg-*; etc, all exc B, Sl.
178. value : S *vasna* ; Gk *ōnē* ; (L *veno* 'sale'); Arm *gin* ; Ht *uqš-* 'buy'. Not L, C, Gmc, B, Sl.
179. shield : L *scūtum* ; C *sciath* ; (Gmc *scī-d/t* 'board'); B *skydas* ; Sl *štitŭ* (?). Not S, Gk (unless *aspis*, ° *idos*), Gmc.
180. sickle : S *sṛṇi* ; Gk *har-pē* ; (L *serra* 'saw'); B *sirpe*; Sl *sŭrpŭ* . Not L, C, Gmc.
181. soup/broth : S *yūs* ; L *iūs* ; B *jūše* ; Sl *jucha* . Not Gk, C, Gmc.
182. spear : a) S *śula* 'spike'; Gk *kelon* 'shaft'; C *cail* ; OPr *kelian* . Not L, Gmc, Sl.
183. b) S *heti* 'missile'; Gk *chaios* 'staff' (*gaison* < C); C *goaf*; Gmc *gār* . Not L, B, Sl.
184. spindle a) S *tarku* ; Gk *a-trak-tos* ; (L *torqueo* 'twist'); Sl *trakŭ* 'girdle'; TA *tark* 'earring'. Not L, C, Gmc, B.
185. b) S *vartulā* (lex); C *fertas* etc; Gmc *wirtel* ; Sl *verteno* . Not Gk, L, B.
186. thread : S *snāyu* 'si'new, string'; Gk *nēma* ; C *snāthe* ; Sl *niti* . Not L, Gmc, B.
187. wheel : a) S *cakra* ; Gk *kuklos* ; Gmc *hwēol* ; T AB *kukāl/kokale* . Not L, C, B, Sl.
188. b) (S *ratha* 'chariot'); L *rota* ; C *roth* ; Gmc *rad* ; B *ratas* . Not S, Gk, Sl.
189. [piece of] wood : S *dāru* ; Gk *doru* 'shaft, spear (tree)'; (C *daur* 'acorn'); Gmc *triu* 'tree' (Gth); Ht *taru* . Not L, C .
190. work : S *āpas* ; Gk *aph(e)nos* 'wealth', *ompnē* 'livelihood'; L *opus* , *ops* 'aid, wealth'; Gmc *uoba* 'festival', *uobe* 'farmer' (OE *aefnan* 'to work'). Not C, B, Sl.

VI) Animals. Some animals' names present a sure common stem: cow (S *gau* , L *bos* , etc), sheep (S *avis*, B *avis* etc), swine (Gk, L *sū-* etc), dog (S *śvan*, Gk *kuōn* etc), horse (S *aśva* , Gmc *eoh* etc), flea (S *pluṣī*, Gmc *floh* etc), ant (S *vamra*, L *formica* etc, but **not B**). Many, like donkey and camel, have thoroughly disparate stems. Most birds too belong to this category with the notable exception of goose/swan (S *haṃsa*, Gmc *gans* etc) and duck (Gk *nēssa*, Sl *aty* etc; **not C**). Fishes also have diverse stems.

- 191. animal** : a) Gk *zōon* ; C *bea-thach* ; B *gyvolis*; Sl *zīvotŭ* . Not S, L, Gmc.
192. b) (cattle:) S *paśu* ; L *pecu* ; Gmc *fihu* ; O Pr *pecku* , B *pekus* . Not Gk, C, Sl.
193. c) (wild:) Gk *thēr(ion)* ; L *ferus* ; O Pr *swirin* ; B *zver(is)* ; Sl *zvěřĭ* . Not S, C, Gmc.
194. bear : S *ṛkṣa* ; Gk *arktos* ; L *ursus* ; C *art* ; Arm *arj-* ; Alb *ari-* . Not Gmc, B, Sl.
195. beaver : L *fiber* ; C *befēr* ; Gmc *bibar* ; B *bebrus* ; Sl *bobr* . Not Gk and S, which has *babhru* 'red-brown' and *babhruka* 'ichneumon', which is of this colour.
196. bird : S *vis/ves* ; (Gk *aiFetos* 'eagle', *oiōnos* 'augur';/ L *avis* ; Not Gk, C, Gmc, B, Sl.
197. cow : S *ahī* (lex); (Av : *azī-* '(cow/mare) with young'); C *ag* ; Arm *ez-n* . Not Gk, L, Gmc, B, Sl.
198. deer, elk : S *ṛśya* 'male antelope'; Gk *ela-phos* ; C *elain* ; Gmc *elch* ; etc, all exc L.
199. feather, wing : S *patra* ; Gk *petri-* ; L *-piter*, (C *atar* 'bind'); Gmc *fjoðr* . Not C, B, Sl.

- 200. feather, leaf** : S *parṇa* ; Gk *pteron* ‘wing’, *ptēris* ‘fern’; OE *fearn* ‘fern’; B *s-parnas* ‘feather’, *pa-par-tis* ‘fern’; Sl *pero* ‘feather’. Not L, C.
- 201. fish** : L *piscis* ; C *īasc* ; Gmc *fisk* . Not S, Gk, B, Sl.
- 202. fox** : S *lopaśa* ; Gk *a-lōpēx* ; (L *vulpes* ;) C *louarn* ; B *lape* . Not L, Gmc, Sl.
- 203. goat** : S *eḍa* (some prefer *aja*) ; Gk *aix* (gen *aig-os*) ; B *ožys* ; O Pr *wosee* ; Arm *aic* . Not L, C, Gmc, Sl.
- 204. hare** : S *śaśa* ; C *ceinach* ; Gmc *haso* ; O Pr *sasius* . Not Gk, L, Sl.
- 205. horn** : S *śrṅga* ; Gk *keras* ; L *cornu* ; Gmc *hauru* . Not C, B, Sl.
- 206. louse** : S *yūkā* ; Gmc *lūs* ; C *lleun* ; B *ute* , *liule* ; Sl *vůšŭ* . (So several scholars.) Not Gk, L.
- 207. meat** : S *kravis* ; Gk *kreas* . (L *cruor* ‘blood from wound’; C *crō* ‘blood’); OE *hrēaw* ‘bloody, raw (meat)’; B *kruvinas* ‘bloody’. Not L, C, Sl
- 208. mouse** : S *mūṣ* ; Gk *mūs* , L *mūs* ; etc, all exc C, B.
- 209. nest** : S *nīḍa* ; L *nīdus* ; C *net* ; Gmc *nest* ; B *lizdas* ; Sl *gnězdo* , Arm *nist* . Not Gk.
- 210. ox/bull** : S *ukṣan* (*ukṣāti* : ‘moisten’); C *ych/o’chen* ; Gmc *auhsa/ohso* . Not Gk, L, B, Sl.
- 211. pig** : L *porcus* ; C *orc* ; Gmc *feorh* ; B *parśas* ; Sl *prase* . Not S, Gk.
- 212. serpent** : S *sarpa*; Gk *herpeton* , L *serpens* ; C *sarff* . Not Gmc, B, Sl. (In C and Gmc only the cognates *nathir* (Ir) and *naḍr* (ON)/*nadra* (OE).)
- 213. snake** : S *ahi* ; Gk *echi-/ophi-* ; L *anquis* ; B *angis* ; Sl *už/waž* . Not Gmc, C.
- 214. worm** : S *kṛmi* ; C *cruim* ; B *kirmis* ; Sl *črůvŭ* . Not Gk, L, Gmc.

VII) Qualities (adjectives) Many adjectives have sure cognate stems: alive (S *jīva*, L *vīvus* etc); big (S *mah-*, L *mag-* etc, but **not B, Sl**); narrow (S *amhu*, B *ank- śtas*, etc); light (of weight: S *laghu* , Gmc *leihts* etc); right (of direction: S *dakṣ* , L *dex-*, C *dess* etc); new (S *nava* , Gk *neo-* etc); old (S *sana*, L *sen-* etc but **not Sl**); grey/hoary with stem *pal-* (**not Gmc**, where *fal* ‘fallow’). But some common terms like those denoting ‘far’ and ‘near’ have no clear common stems. Colours and the generic term itself are on the whole very unclear: white (not ‘bright-white’ S *arjuna*, Ht *harkii* etc), yellow (often as ‘green’), brown, black, blue etc; exception is ‘red’ (S *rudhira*, Gk *eruthro-* etc). Stems for directions east, west etc are very diverse.

- 215. all/every/whole** : a) S *viśva* ; O Pr *wissa* ; B *visas* ; Sl *vesič* , *všŭ* . Not Gk, L, C, Gmc.
- 216.** b) S *sarva* ; Gk *holos* ; L *salvus* ; C *(h)uile* . Not Gmc, B, Sl.
- 217. bitter, sour** : S *amla* ; L *amarus* ; Gmc *ampfaro* ; B *amuols* ; Alb *ëmblē* ; Arm *amok* . Not Gk, C, Sl.
- 218. bright** : S *bhrāj-a* ; C *berth* ; Gmc *bairhts*, *beraht* ; Ht *parkwis* ‘pure’. Not Gk, L, B, Sl.
- 219. daring** : S *dhr̥ṣṇu* ; Gk *thras* / *thars-us* ; Gmc *gu-dars* ; B *drasus* ; Sl *drůzŭ* . Not L, C.
- 220. dark** : S *tamasa* ; C *temen* ; Gmc *din-star* ; B *tamsas* ; Sl *taman* . Not Gk, L.
- 221. deaf** : S *badhira* ; C *bodar* etc; Gmc *baup̥s* ; Arm *bot* ‘blunt’. Not Gk, L, B, Sl.
- 222. dear, intimate**: a) S *priya*; C *rhydd* (=priya) ‘free’; Gmc *frī* ‘free’, *frijōn* ‘dear’; Sl *prija-je* . Not Gk, L, B.
- 223.** b) S *śeva* ; (L *c(e)ivis* ‘citizen’); Gmc *heiwa-(frauja)* ‘host, master’; B *sieva* ‘wife’. Not Gk, L, C, Sl.
- 224. deep** : C *dwf-n* ; Gmc *dēop* ; B *dubus* ‘hollow’. Not S, Gk, L, Sl.
- 225. dense** : S *√ta(ñ)c-*; C *tēht* ; Gmc *þettr* (ON); B *tankus* . Not Gk, L, Sl.
- 226. difficult, -ill-, mal** : S *duṣ* ; Gk *dus-* ; C *do/du-*; Gmc *tuz/zur-*; Sl *důž-* . Not L, B.
- 227. dirty, black** : S *malina*; Gk *melas*; L *malus* ‘bad’ etc; (Gmc *māl* ‘blemish’ ;) B *melns* ‘black, dirty’ and *melsvas* ‘bluish’. Not C, Gmc, Sl.
- 228. dry** : S *śuśka* ; Gk *havos* ; Gmc *sear* (OE); B *sausas* ; Sl *suchŭ* . Not L, C.
- 229. empty** : S *tucchya* ; (L *tesqua* ‘desert’); B *tuščias* ; Sl *tůštŭ* . Not Gk, L, C, Gmc.
- 230. fast** : S *āsū-*; Gk *ōku-*; L *ocior* ‘faster’ (compar.); C *di-auc* . Not Gmc, B, Sl.
- 231. firm** : S *dhruva*; Gk *droon* ‘strong’ (Hes); Gmc *triuwi* ‘true, staunch’; B *drutas*; Sl *sŭ-dravŭ* . Not L, C.
- 232. first, former** : S *pūrva*; Gmc *forw* – (OE dial); Sl *průvŭ*; Alb *pare*; T AB *pārwat/pārve* . Not Gk, L, C, B.

- 233. foreign, next, other** : S *araṇa, ari*; Gk *allos*; L *ollus* ‘that (other) one’, *alius* ‘stranger’; C *allos*; Sl *lani*. Not Gmc, B.
- 234. good** : a) S *vasu*; C *-vesus* (in names); Gmc *wisu-*. Not Gk, L, B, Sl.
- 235.** b) prefix S *su-*; Gk *hu/eu-*; C *su/so/hy-*; B *su-*; Sl *sū-*. Not L, Gmc.
- 236. green(-ish)** : S *hari(-ta)*; Gk *chlōro-*; B *želvas*, Sl *zelenū*. Not L, C, Gmc.
- 237. heavy** : S *guru*; Gk *baru-*; etc in all exc C, Sl.
- 238. lesser** : S *hrasva* ‘short, weak, unimportant’; Gk *cheriōn*; C *gair, garait* ‘short of life’. Not L, Gmc, B, Sl.
- 239. long** : S *dīrgha*; Gk *dolichos*; B *ilgas* (loss of *d*); Sl *dlūgū*; Ht *dalugaes*. Not L, C, Gmc (unless loss of *d* in stem *lang-*?).
- 240. low** : a) Gk *ch(th)amalos*; L *humilis*; B *zem(a)s*: all from stem for ‘earth’. Not S, C, Gmc, Sl.
- 241.** b) S *nitara-*; Gmc *niþeric*; Sl *nizūkū*. Not Gk, L, C, B.
- 242. many, much** : S *puru-*; Gk *polu-*; L *plus* ‘more’; C *il, ile* (pl); Gmc *filu*. Not B, Sl.
- 243. much, thick** : S *bahu(la)*; Gk *pachu-*; (cf ON *bingr* ‘heap’); B *biezs* thick; Ht *pañkus* ‘whole’. Not L, C, Gmc, Sl.
- 244. paternal** : S *pitrya*; Gk *patrio-*; L *patrius*; C *aithre*. Not Gmc, B, Sl.
- 245. perpetual** : S *nitya*; Gmc *niþris, niðir*; C *nitio-*. Not Gk, L, B, Sl.
- 246. quiet** : S *sama* ‘calm, even’; C *sāim* (*sām* ‘rest’ n); Gmc *sōm* (OE) ‘agreement’. Not Gk, L, C, Sl.
- 247. raw** : S *āma*; Gk *ōmo-*; C *om*; Arm *hum*. Not L, Gmc, B, Sl.
- 248. slow** : (Gk *lēd-* ‘be lethargic’ STG but now deleted in GEL; L *lassus* ‘tired’); Gmc *lat(r)*; B *letas*. Not S, Gk, L, C, Sl.
- 249. smooth** : a) Gmc *gla-t/d*; B *glud(u)s*; Sl *gladūkū*. Not S, Gk, L, C.
- 250.** b) Gk *leios*; L *lēvis*; C *llyf-n*; Gmc *s-lettr*. Not S, B, Sl.
- 251. sparse, thin** : a) S *vi-rala*; L *rārus*; B *ret(a)s*; Sl *řědūkū*. Not Gk, C, Gmc.
- 252.** b) S *manāk*; Gk *mano-*; C *men-b*; B *menkas*; TA *mank* ‘lack(ing)’. Not L, Gmc, Sl.
- 253. sweet** : S *svādu*; Gk *hēdus* (*Fadus*); L *suavis*; Gmc *swēte*. Not C, B, Sl.
- 254. thin** : S *tanu*; Gk *tanu-thrix* ‘thin-hair’; L *tanuis*; Gmc *dunni*. Not C, B, Sl.
- 255. true** : a) L *vērus*; C *fīr*; Gmc *wār*. Not S, Gk, B, Sl.
- 256.** b) S *satya*; Gk *eteos*; Gmc *soð*. All originally ‘existing’. Not L, C, B, Sl.
- 257. wicked** : S *piśuna*; Gk *pikros* ‘caustic’; Gmc *fah* hostile; B *piktas* ‘angry’. Not L, C, Sl.
- 258. wide** : S *pṛthu*; Gk *platus*; C *lethan* (?); B *plat(u)s*; Ht *palhis*. Not L, Gmc, Sl.
- 259. young** : S *yuvan*; L *iuvenis*; C *ōac* etc; Gmc *juggs* etc; B *jaunas*; Sl *junū*; Arm *yavanak*. Not Gk.
- VIII) Actions, processes and states (verbs).** Many verbs (activities and states of being) have common stems: be (S *asti*, Gk *esti*, etc); live (S *vjīv*, Gk *bioō/zō*, L *vivere* etc); stand (S *vsthā*, Gk *histē-*, L *stō* etc); sit (S *sad/sīd-*, Gk *hez*, Gmc *sit* etc but **not C**); spread/strew (S *vstr*; L *ster*, B *stir* etc); turn (S *vṛt*, L *vert* but **not Gk**); bear/carry (S *vbhṛ*; Gk *pher-* but **not B**); lick (S *vliḥ*, Gk *leich-* etc); eat (S *vād*, Gk *ed-*, Gmc *eta* etc); drink (S *pā*, Gk *pi*, L *bi* etc); urinate (S *vmih*, Gk *omich-*, Sl *miž-* etc); break wind (S *pard-*, Gk *perd-* etc). But many more show great diversity: bow, create, dig, fight, gather, halt, hang, etc, etc.
- 260. anoint** : a) S *√añj* > *añjana*; L *unguere, unguen*; (C *imb* & OHG *ancho* ‘butter’). Not Gk, C, Gmc, B, Sl.
- 261.** b) S *√lip* > *lipti*; Gk *aleiphō*, *lipos* ‘fat’; B *lepti*. Not L, C, Gmc, Sl.
- 262. awaken** : a) S *jāgar-*; Gk *egeir-*; Arm *ngrē-he*. Not L, C, Gmc, B, Sl.
- 263.** b) S *budh-/bodh-*; (cf Gk *peuth-*, *punth-* ‘learn’; Gmc *biudan* ‘bid’); B *budeti*; Sl *buditi*; cf T AB *pot/paut-* ‘revere’. Not Gk, L, C, Gmc.
- 264. be excited/angry** : S *kupyati*; (L *cupio* ‘desire vehemently’); Sl *kypěti* ‘be agitated, seethe’; Ht *kap-pila* ‘be angry’. Not Gk, L, C, Gmc, B.
- 265. be faint, stunned** : S *tam-/tāmya-*; (L *temu-lentus* ‘befuddled, drunk’; C *tām* ‘death’); Gmc *dam-lich* ‘stupefied’, *dūm-eln* ‘deaden’; Sl *tom-iti* ‘drudge, oppress’. Not Gk, L, C, B.
- 266. be silent** : S *tuṣṇīm bhū-*; C *toaim*; B *tusnan*; Sl *Tosna* ‘Silent’ name of river. Not Gk, L, Gmc.
- 267. become** : S *bhū>bhavati*; Gk *phuō*, *phuomai* ‘grow, appear’; all others have cogns of *asti/esti* etc ‘to be’ but not of *bhū/phu-* except various forms which have become integral parts of ‘to be’ (e.g. L *fui* ‘have been’ perf; C *buith* or B *būti* ‘to be’; etc): so not L, C, Gmc, B, Sl.

268. **beget** : S *jan-*; Gk *gen- gignomai* ; L *genere* ; C *-genathar/geni* . Not Gmc, B, Sl.
269. **blow** : S *vā* ; Gk *aē-mi* ; Gmc *waian/wajan* ; Sl *vějati* . Not L, C, B.
270. **blow, blast** : S *vdham* ; (Gk *theme-ros* ‘serious’; C *dem* ‘black’; Gmc *daam* ‘odour’;) B *dumti* ; Sl *doti* .
Not Gk, L, C, Gmc.
271. **boil** : a) S *vyas* ; Gk *zeō* ; Gmc *giest, jastr* . Not L, C, B, Sl.
272. b) S *bhur-van* ‘agitated, restless’; L *fervere* ; C *birbaim* ; Gmc *brinwan* ; Sl *bruja* ‘streaming’.
Not Gk, B.
273. **break/shatter** : a) S *vruj* ; (Gk *leuga-* ‘ill-luck-’; L *lūgea* ‘mourn’; C *luch-t* ‘piece’;) Gmc *tō-lūcan* ; B *laužti* . No Gk, L, C, Sl.
274. b) S *vrup* , *√lu(m)p* ; L *rumpo* ; Gmc *reofan* ; B *rup-* ‘be anxious’; *lamp-* ‘break, rob’; Sl *lup-* ‘flog, peel off’ . Not Gk, C.
275. c) S *bhañj* , *bhanakti* ; C *bongid* ; B *bengti* ‘discontinue, end’; Arm *bekanem* . Not Gk, L, Gmc, Sl.
276. **breathe** : S *an* ; C *anāl-* ; Gmc *-anan* ; T *añ-m* . Not Gk (but *an-emos* ‘wind’), L (but *an-ima* ‘air, breath’), B, Sl (but *von-ja* ‘smell’).
277. **burn** : a) S *vdah* ; B *deg-u* ; Sl *žega* ; Alb *djek* ; T A/B *tsak* . Not Gk, L, C, Gmc.
278. b) S *du-noti* ; Gk *daiō* ; C *doim* ; Gmc *týna* , *zuscen* ‘injure, pain, torment’; Alb *dhunë*) ‘pain’ . Not L, B, Sl.
279. **burst** : S *vdṛ* ; Gk *derō* ‘flay’; Gmc *ga-taurnan* ; B *dirti* ; T *tsar-* ‘separate’ . Not L, C, Sl.
280. **buy** : S *krīṇati* ; Gk *priasthai* ; C *cīth* ‘purchase’ n; (B *kricus* ‘money’;) Sl *krūnuti* ; TB *krayor* as C.
Not L, Gmc, B.
281. **care for, rescue** : S *nas-ate* ‘approach, join with’; Gk *neomai* ‘mind/restore (home)’; Gmc *ge-nasjans* ‘rescue’; *genisan* ‘recover’; Alb *knellen* (= *k-nes-l-) ‘restore oneself’ . Not L, C, B, Sl.
282. **cook** : S *pacati* ; etc (with Alb and T AB); all exc Gmc.
283. **cough** : S *vkās* ; C *cas-/pas-*; Gmc *hōsta* etc; B *koseti* ; Sl *kasiljati* . Not Gk, L.
284. **crackle, thunder** : S *vsphūrj* ; Gk *spharag-*; Gmc *spraka* (ON), but (OE) *sprecan* ‘speek’; B *spraḡeti* .
Not L, C, Sl.
285. **crush/grind** : S *pinaṣti* ; Gk *ptissō* ; L *pinsere* ; B *paisyti* ; Sl *pūchati* . Not C, Gmc.
286. **cry(out), weep** : S *√rud-*; L *rudere* ; Gmc *riozan* ; B *raud-* ; Sl *rydatū* . Not Gk, C.
287. **cure** : S *viṣ* ‘invigorate’; Gk *iaīnō* (; Gmc *eisa* ‘dash forward’). Not L, C, Gmc, B, Sl.
288. **cut** : S *krntati* ; Gmc *scrindan* ‘burst, split’; Sl *čřesti* ; Ht *kartai* . Not Gk, L, C, B.
289. **cut free** : S *√lu* ‘cut free/off’; Gk *luō* ‘loosen’; L *luō* expiate, pay off’; Gmc *lun-*, *liusan* . Not C, B, Sl
290. **despise** : S *vnind* ; (Gk *oneidos* ‘disgrace’;) Gmc *ga-naitjan* ‘slander’; B *niedeti* ‘detest’; Arm *a-nican-em* ‘curse’ . Not Gk, L, C, Sl.
291. **die/perish** : a) S *mṛ-/ mar-/ mri-* ; (Gk only *e-mor-ten* ‘died’ Hes; *marai-nō* ‘wither’; *a-m-b-rotos* ‘immortal’;) L *morior* ; B *mirti* ; Sl *mrěti* . Not Gk, C, Gmc
292. b) S *naś-* ; L *necāre* ; T A/B *nak/nek-* . Not Gk, C, Gmc, B, Sl.
293. **direct, govern** : S *√ṛ(ñj)* ; L *regere* ; C *rigim* . Not Gk, Gmc, B, Sl.
294. **dress** : S *vas(-te)* ; Gk *hennumi/hes-sai* ; L *vestire* ; Gmc *wasjan* ; Ht *uēš-* ; TB *was-tsi* . Not C, B, Sl.
295. **dwel, stay** : S *vas(-ati)* ; Gk *aesa* (aor); C *fō(a)id* ; Gmc *wisan/sesan* ; Arm *gom* ‘exist’; Ht *hūiṣ* . Not L, B, Sl. (I ignore the stem *man/men-* since it is common to S, Gk, L and some others.)
296. **enjoy** : S *vbhuj* ; L *fungor* and ‘be busy with’; Alb *bungë* . Not Gk, C, Gmc, B, Sl.
297. **extend/stretch** : S *√tan* ; Gk *tan-*, *tein-* ; L *ten-dō* ; etc; all exc C, Sl.
298. **faith, trust** : S *śraddhā* (also vb ‘showing faith, entrusting’); (Gk *krad-* , *kard-ia* ‘heart, seat of faith’;) L *credo* ‘believe’ (**cret-do* ‘give trust’); C *cretim* ‘believe, trust’ . Not Gk, Gmc, B, Sl.
299. **fill** : S *√pṛ* > *piparti* ; Gk *pimplēmi* ; L *plere* (in cpds *im/com-*); C *linaim* (; Gmc *fills*, B *pilnas* , Sl *plūnū* – all ‘full’ adj). Not Gmc, B, Sl.
300. **find** : S *√vi(n)d* ; Gk *inda-llomai* ‘turn up’; C *ro-finnadan* ‘find out’; Arm *egit* aor ‘found’ . Not L, Gmc, B, Sl. (I suspect Gmc *finna* /ON), *findan* (OE) etc, are related despite the IEL rules that forbid the S v/Gmc f correspondence.)
301. **flow** : S *sru-/srava-* ; Gk *rheō* ; C *sruaimm* ; B *sraveti* ‘ooze out’ . Not L, Gmc, Sl.
302. (The C and Gmc branches have the cognate stems for ‘running’: C *rethim* ; Gmc *rinnan/renna* which are linked with S *√ṛ* > *ṛnoti* , Gk *ornumi*, etc, ‘stir’. The Gmc stems *flowan* etc ‘flow’ are

- linked wit S *plu-*, Gk *pleō* ‘float’.)
- 303. fly** : S *pat-*; Gk *pet-*; C *hed-/eth-*; Ht *pet-*. Not L (*petere* ‘seek’), Gmc, B.
- 304. follow** : S *sac-ate*; Gk *hepomai*; L *sequor*; C *sechitir*; B *sekt-*. Not Gmc, Sl.
- 305. forget** : S *mřš-*; B *miršt-*; Arm *moromam*; T A/B *mārs-*. Not Gk, L, C, Gmc (perhaps *marzjan* ‘vex?’).
- 306. free/release** : S *muc-/muñca-*; Gk *apo-mussō* ‘blow/free nose’; L *ē-mungere* ‘blow/free nose’; B *maukti* ‘strip off/wipe’ and *smukti* ‘slide off’. Not C, Gmc, Sl (but *smyk-ati* ‘crawl’).
- 307. go** : a) S *vī*; Gk *eisi*; L *it*; etc, all exc Gmc.
- 308.** b) S *vyā*; (L *iānus* ‘god of passages’; C *āth* ‘crossing’); B *joti*; Sl *jachati*; Ht *iia*; Not Gk, L, C, Gmc.
- 309. go ahead/after** : Gk *hege-omai*; (L *sāgīre* ‘perceive, discern’); C *saigim* ‘seek’; Gmc *sokjan*, *sēcan*. Not S, L, B, Sl.
- 310. grab, take** : S *grabh-*; Gmc *gr(e)ipān*, *garva*; B *grābt*; Sl *grabiti*; Ht *karp-* ‘take away’. Not Gk, L, C.
- 311. groan, roar, thunder** : S *√stan* (and ‘thunder’); Gk *stenō*; L *tonare* ‘thunder’; Gmc *stēnan*; etc, all exc C.
- 312. grow** : a) S *√ukš*; Gk *auxō*; L *augere*; Gmc *wahsjan*; B *augt*; T A *okšis*. Not C, Sl.
- 313.** b) S *√ruh* (>*rodhati*); (Gk *e-leuthe-ro*; L *liber* ‘free’; C *luss* ‘plant’); Gmc *liudan*; Sl *ljudje*. Not Gk, L, C, B.
- 314. grow, increase** : S *vrđh*; (Gk *ortho-* ‘up-right’); B *radit* ‘beget’; Sl *roditi* ‘help grow’; Alb *rit* ‘grow’. Not Gk, L, C, Gmc.
- 315. grow old** : S *√jr* > *jar-*; Gk *gēr-ō/askō*; (Gmc *karl* ‘old man’); Sl *zūreti* ‘ripen’; Arm *cer* ‘old man’. Not L, C, Gmc, B.
- 316. have sex** : S *vyabh*; Gk *oiphō*; Sl *jebati*. Not L, C, Gmc, B.
- 317. harm, injure** : Gk *skeda-nnumi* ‘grind, scatter’, *a-skēthēs* ‘un-hurt’; C *scathaim* ‘injure, mutilate’; Gmc *skaða*, *scadōn* (; B & Sl borrow Gmc). Not S, L, B, Sl.
- 318. hear** : S *śru/śr-*; Gk *kluō*; L *clueo*; C *clui-/clyw-*; Gmc *hlyđa*, *hlystan* ‘listen’; (B *slu-dinat*, Sl *slu-ti*, T AB *klāw-* last three ‘inform, make known’). Not B, Sl.
- 319. heat** : S *tapati*; L *tepeo*; C *tē* ‘heat’; Sl *top-lū* ‘hot’. Not Gk, Gmc, B.
- 320. increase, thrive** : S *√sphāy*; (L *pro-sperus* ‘favourable’); Gmc *spuon*; B *speti*; Sl *spěti*. Not Gk, L, C.
- 321. join, yoke** : S *√yuj* > *yunakti*; Gk *zeug-nu-mi*; L *iungo*; B *jungiu*. Not C, Gmc, Sl.
(n : S *yuga*; Gk *zugon*; L *iugum*; Gmc *juk*; Sl *igo*. Not C, B.)
- 322. jump, mount** : S *skand*; (Gk *skandalon* ‘trap’); L *scando*; C *se-scaind*. No Gk, Gmc, B, Sl.
- 323. know** : S *vid-/ved-*; Gk *oida* (perf); C *fet-ar*; Gmc *witan*; Sl *věděti*. Not L (but *vidēre* ‘see’), B. (The stems S *jñā-*, Gk *gnō-*, etc, is common to all.)
- 324. lead** : C *fedim*; B *vedu*; Sl *veda*, *vod-*. Not S, Gk, L, Gmc.
- 325. lessen** : S *mināti*; Gk *minu-thō*; L *minu-ere*. Not C, Gmc, B, Sl.
- 326. lie down** : Gk *lecho-mai*; C *leigim*; Gmc *ligan*; Sl *ležati*; Ht *laki*. Not S, L, B.
- 327. lift** : S *√tul*; Gk *tlēnai*; L *tollo*; Gmc *þulan*. Not C, B, Sl.
- 328. march, walk** : S *√stigh*; Gk *steichō*; C *tiagn*; etc, all exc L.
- 329. milk** : Gk *amelgo*; L *mulgere*; etc; all exc S, where *mřj-* ‘rub/stroke’ (cf Gk *o-morg-numi* ‘rub/wipe off!’).
- 330. overpower** : S *√ji* > *jay-/jinā-*; Gk *biao* (*bineō?*); Gmc *kveita* (ON). Not L, C, B, Sl.
- 331. plait/twine** : Gk *plek-ō*; L *flectere*; Gmc *flechtan*; Sl *plesti*. Not C, B and S (which has *prašna* ‘turban’).
- 332. praise** : S *gr-nāti* (and ‘call, invoke’); C *bar-dus* (Gaul) ‘bard, praiser’; (Gmc *queran* ‘sigh, moan’); B *giriū*; Sl *granŭ* ‘verse, form[-ula] (of praise?)’; Alb *gri-sh* ‘call, summon’. Not Gk, L, Gmc.
- 333. pull** : Gk *helkō*; B *vilkt*; Sl *vlěsti*; Arm *helk*. Not S, L, C, Gmc.
- 334. push** : S *√tud*; (L *tundo* ‘strike, pound’); Gmc *stautan*; Alb *štum*. Not Gk, L, C, B, Sl.
- 335. put** : S *√dhā-*; Gk *ti-thē-mi*; C *dodi/dede*; B *dėti*; Sl *děti*; Ht *dāi*; T A/B *tās/tēs*. Not L (but *con-dere* ‘found’), Gmc (but *tuon* ‘do’).
- 336. question** : S *prach/prch-*; L *posc-/prec-*; etc; all exc Gk.

- 337. rage** : S $\sqrt{ru\dot{s}}$; Gk *alu(cc)ō* ‘be beside oneself’; Gmc *rūsen* ; B *rusti* . Not L, C, Sl.
- 338. reach** : S $\bar{a}p$ -*noti* ; L *ap-īscor* , *ad-ip-īscor* ; Arm *unim* ‘possess’; Ht *ep-mi* ‘take’; (TA *oppāssi* ‘fit, able’.)
Not Gk, C, Gmc, B, Sl..
- 339. remember** : S *sm̄r*/*smar-* ; (Gk *mer-/imna/mēra* ‘care for’;) L *memor*; Gmc *geminor* . Not Gk, C, B, Sl.
- 340. rest** : S \sqrt{ram} ; (Gk \bar{e} -*rem-a* ‘calmly’) -C *fo/fui-r(i)mim* ; (Gmc *rimis n*;) B *rimti* ; Not Gk, L, Gmc, Sl.
- 341. rip, tear** : S \sqrt{dr} ; Gk *derō* ‘flay, tear away’; Gmc *teran* ; B *dir-* ; Sl *dirati* . Not L, C.
- 342. ride** : C *riadaim* ; Gmc *riða(n)* ; B *raid* . Not S, Gk, L, Sl. (I dubt this is PIE.)
- 343. rise** : S *ut-thā* ; Gk *an-istha-*; Gmc *us-stand-*; Sl *vŭ-stan-*. Not L, C, B.
- 344. roast** : S *bhr̄jj-* ; Gk *phrugō* ; L *frigo* . Not C, Gmc, B, Sl.
- 345. satisfy** : S \sqrt{trp} ; Gk *terp-ō* ; B *tarpti* ‘thrive’ . Not L, C, Gmc, Sl.
- 346. say/speak/talk** : a) S \sqrt{vac} -; Gk *eipon* ‘spoke/said’; (L *vox* ‘voice’, *voc-are* ‘call’; C *foccul* ‘word’);
Gmc *gi-wah-annen* ; O Pr *en-wack-ēmai* . Not L, C, Sl.
- 347.** b) S \sqrt{vad} -; Gk *aud-aō* ; B *vadinti* ; Sl *vaditi* ; (cf Ht *uttar* ‘word, speech’); T AB *wátok* ‘bid, tell’.
Not L, C, Gmc.
- 348.** c) S $\sqrt{bhā-ṣ}$ (also *bha-ṅ/n*) ; Gk *phā-/phē-mi*’; L *fārī* ; Gmc *boian* ; Sl *ba-jati* . Not C, B.
- 349. see** : a) S *dr̄s/dars-* ; Gk *derk/drak-* ; Umb *terk-antur* ‘should foresee’; C *e-drych* ‘look’, *adcin-darc* ‘have seen’ perf *adcin-*); Gmc *ga-tarhjan*. Not B, Sl.
- 350.** b) S *lok/loc-* ; Gk *leusso* ; C *llyggad* ; B *laukti* . Not L, Gmc, Sl. (There are other stems for ‘seeing’; *vid* – in L *vidēre* is primarily for ‘knowing’ and even L has no other cognates. Then S *
[s]paś- ; Gk **spek-t-* for *skept-* ‘visualize, think’; L *spec-* ‘see’; Gmc *spehōn*.)
- 351. sew** : S \sqrt{sviv} ; L *suo* ; Gmc *siujan* ; B *siuti* ; Sl *siti* . Not Gk, C.
- 352. shine** : S \sqrt{svit} ; B *šviesti* ; Sl *svŭtĕti* . Not Gk, L, C, Gmc.
- 353. show** : S *diś-ati* ; Gk *deik-numi* ; L *in-dico* ; Gmc *zeigōn* ; Ht *tekku-* . Not C, B, Sl.
- 354. slay/strike** : S \sqrt{han} ; Gk *thein-o* ; etc; all exc Gmc.
- 355. sleep** : a) S \sqrt{svap} - ; C *sūan-*; Gmc *swefan* ; Sl *sŭpati* : Ht *šup-* . Not Gk (but *hupnos m* ‘sleep’), L (but *sopor* ‘sleep’, *sopire* ‘put to sleep’), B (but *sapnas* ‘a dream’).
- 356.** b) S *drā-*; Gk *e-dra-thon* ‘slept’; L *dor-mŭre* ; Sl *drĕmati* ; (Arm *tartam* ‘drowsy’);. Not C, Gmc, B.
- 357. slide** : Gk *olisthanō* ; C *llithro* ; Gmc *slidan* , B *slysti* . Not S, L, Sl.
- 358. smile** : S *smi-/smay-* ; Gk *mei-deaō* ; B *smiet* ; Sl *smijati* ; T *smi* . Not L, C, Gmc (but ME and Norweg. *smi-l-* ‘smile’).
- 359. sneeze** : S \sqrt{ksu} ; Gmc *hnjosa* ; B *ciande* ; Sl *si/ky-chat* . Not Gk, L, C.
- 360. soar** : S \bar{d} -*yati* ; Gk \bar{d} -*neō* ; (C *dian* ‘fast’); B *diet* ‘dance’ . Not L, C, Gmc, Sl.
- 361. strike** : S \sqrt{tuj} ; C *tuagaim* ; Gmc *stozan* . Not Gk, L, B, Sl.
- 362. suck**: a) S *dhayati* ; Gk *thē-sato* (aor); Gmc *dadjan* ; B *deju* ; Sl *dojo* ; Arm *diem* . Not L, C.
- 363.** b) L *sugo* ; C *sūgam* ; etc, all exc S, Gk.
- 364. swim** : Gk \bar{n} -*nā/-chō* ; L *nāre* ; C \bar{n} -*(i)m* . Not Gmc, B, Sl and S, which does have *snā-ti* ‘bathe, wash’.
- 365. taste** : S $\sqrt{ju\dot{s}}$ ‘enjoy’; Gk *gev-omai* ; L *gust-*; Gmc *kausjan* . Not C, B, Sl.
- 366. think, reflect** : S \sqrt{man} ; C *do-moin-iur* ; Gmc *munan* ; B *manyti* ; Sl *mŭnĕti* . Not Gk (only ‘remember’ *mnāo-* and ‘be enraptured, enraged’ *maino-*), L (only ‘remember’ *me-min-esse*).
- 367. tie up** : a) S *nah-yati* ; L *nec-tere* (*nodus* ‘knot, bond’) ; C *nascim* . Not Gk, Gmc, B, Sl.
- 368.** b) S \bar{s} -*sī-*; B *siety* ; Ht *hišhi-* . Not Gk, L, C, Gmc, Sl.
- 369. vomit** : S *vam-iti* ; Gk *emeō* ; L *vomere* ; B *venti* . Not C, Gmc (but ON *vama* ‘sickness’), Sl.
- 370. wash** : S \sqrt{nij} > *nenek-ti* ; Gk *niz-ō* ; C *nig-id* ; Gmc *nih-* . Not L, B, Sl.
- 371. weaken** : S *vra(n)d-* (only in RV); Gk *rhada-naomai* ‘be weak, unsteady’; Sl *vrĕdu* etc ‘harm’ . Not L, C, Gmc, B.
- 372. weave** : S $\sqrt{u(m)bh}$, *ve* ; Gk *huph-ainō* ; C *figim* ; Gmc *wefan*, *weban* , B *aust* ; Alb *ven* . Not L, Sl.

IX) Indeclinables. Here are 20 adverbs and prepositions. Some few stems are common to all branches, like that for ‘round, about’ (S *pari*, Gk *peri(x)*, etc) or the base for ‘how, when, who?’ (S *ka-*, B *ka-* etc). Some claim that L *com/con/cum-*, (and C *com-* etc) ‘together with’ is linked with Gk *kata* ‘downward, against, according to, during, almost’: it is obvious there is neither phonetic nor

semantic proximity but IEL invented PIE **kmt* and **kom* as sources. Just as unacceptable is the proposed link between Gk *dia* ‘right through, by means of’ and L *dis* and Gmc *twis/z(w)is* ‘in, between, two’, where again there is neither phonetic nor semantic affinity. I ignore all such cases.

- 373. above, over** : S *upari* ; Gk *huper* ; L *super* ; etc, all exc B, Sl.
- 374. against, toward** : S *prati*; Gk *proti*, *pros* ; B *pret* ; Sl *protivŭ* . Not L, C, Gmc.
- 375. also, upon** : S *api*; Gk *epi*; (L *ob* ‘against’); C *oi-* intensifier in *cpds*; Gmc *if-* as with C; B *api*; Arm *ev* ‘and’. Not L, Sl.
- 376. and, further** : S *ati* ; Gk *eti* ; L *et* ; C *eti* ‘also’; Gmc *ip* ‘but’; OPr *et* . Not Sl.
- 377. before, near, opposite** : S *anti* ; Gk *anti* ; L *ante* ; Arm *and* ; Ht *hanti* . Not C, Gmc, B, Sl.
- 378. down, off** : S *ava* ; Gk *av* ; etc, all (including Ht *u/wa*) exc Gmc.
- 379. farther, beyond** : S *para-* ; Gk *pera(n)* ; Osc *perum* ; Arm *heri* ; Ht *parā* . Not C, Gmc, B, Sl.
- 380. forth, before** : S *pra-* ; Gk *pro* ; etc, all exc Gmc *fra-* = intensifier as in MdG *ver-* . Not Gmc.
- 381. here** : S *iha* ; Gk *itha-*; L *ibī* ; C *id* . Not Gmc, B, Sl.
- 382. in, between** : S *antah* ; Gk *entos* ; L *inter* ; C *eter* ; Gmc *unter* . Not B, Sl.
- 383. near to, from low** : S *upa* ; Gk *hupo* ; L *sub*; C *fo* ; Gmc *uf* ‘onto’. Not B, Sl.
- 384. off, away** : S *apa* ; Gk *apo-* ; L *ab-*; Gmc *af-*; Ht *apa* ‘again, behind’. Not C, B, Sl.
- 385. thus** : S *iti* ; L *ita* ; C *yt* ; B *it* . Not Gk, Gmc, Sl.
- 386. to, toward** : S *abhi* ; Gk *amphi-*; etc, all exc B.
- 387. together, with** : S *sa-*, *sam*; Gk *ha-*, *sun*; B *sam*, *san-*; Sl *sq/su-* . Not L, C, Gmc.
- 388. tomorrow** : S *uṣar*, *uṣra* ; Gk *avrion*; (Gmc *eastre* ‘goddess of spring’, OE;) B *aušra*. Not L, C, Gmc, Sl.
- 389. up(ward)**: S *uṭ-*; Gk *hu-*; L *us-*; (Gmc *ūt* ‘outside’); B *už* ; Sl *vŭz* . Not C, Gmc.
- 390. where, how** : S *ku-* (*tra*, etc); Gk *o-pui* (Cretan) etc; Osc *puf* ; B *kur* ; Alb *ku* . Not C, Gmc, Sl.
- 391. without** : a) S *rte* ; (Gk *erēmo* ‘solitary’ adj.); L *rāro* ‘rarely’; (B *irti* ‘to separate’); T AB *arts* ‘any’(?). Not Gk, C, Gmc, B, Sl.
- 392.** b) S *niḥ-*; Gk *a-nis* ; Sl *nis-tŭ* . Not L, C, Gmc, B.
- 393. yesterday** : S *hyas* ; Gk *ser-*, (*e*)*chthes* ; L *her-i/e* ; C *in-de* ; Gmc *ges-*, *i-gar* ; Alb *dje*. Not B, Sl.

12. The Results. The list contains numbered stems examined in detail. But there are a few more in the introductory paragraph to each section which show absences in one or other branch. So the total with significant differences is 404. Obviously, stems common to all seven branches have not been counted; so also stems that have no clear common cognate (§ 8-10) or do not yield a clear central meaning.

Of these 404, S lacks 53; Gk 149; L 207; C 210; Gmc 145; B 185; Sl 215. Thus, in a descending sequence: S -53; Gmc -145; Gk -149; B -185; L-207; C -210; Sl - 215.

Obviously, Gmc and Gk are very close but quite far from S. The difference is enormous. B is on its own but nowhere near Gk and Gmc. These two large gaps between S and Gmc/Gk and Gmc/Gk and B would not be bridged even if 50 or 100 more words were to be examined. There is only a good possibility that Gk might overtake Gmc by a short head (and L might creep close to B or even ahead of it).

Here clearly Mallory’s notion that early large literatures (Vedic, Greek, Latin) preserve more is not borne out by these results (§4). Other factors are more important, the main one being a secure oral tradition which can be established only in conditions of settlement not movement. To forestall many empty or idle arguments I take the Hittites as a prime example. The language of the Hittites has very few IE retentions and their culture scant IE elements. Yet this people produced many texts very early c1600. Why the discrepancy then?... To this question Mallory replied “Obviously Anatolian [=Hittite varieties] documents are so riddled with Sumerian... [etc] ... that it is reasonably obvious that it is not comparable”. I wouldn’t disagree in the least. But there is no point in repeating this very condition as an answer to the question which asks for an explanation of the problematic condition. Why is Hittite so riddled with extraneous, non-IE elements?... Obviously this is an anomaly: it is not at all accommodated by the prediction. Why is Hittite in such a sorry state regarding IE retentions?... (An answer is given in §15.)

13. Objections. It may be objected that someone else with a different choice of items would produce different results, with S after Gk. I do admit that it is possible that I omitted some items: the list is not complete by any means. Even if I had rigged the choice of items in favour of S and 50-60 stems were replaced, the gap between S and Gmc/Gk would remain quite large. From the general feel I obtained about the languages through constant consultation of the publications mentioned in §7, end, I can state with certitude that a significantly different choice could not be made without a gross violation of the simple principles set out in §§ 6-10. After all, I could have included Av(estan) and taken Av with a third branch (Gk, L, C, Gmc, B or Sl): e.g. S *apara*, Av *aparō*, Gmc *afar* ‘farther, later, next’; S *navya*, Av *nāvaya*, Gk *naio* - ‘navigable, of boat’; S *śyāma*, Av *sāma*, Lth *šemas* ‘dark-coloured’; etc, etc. This would enlarge the gap in favour of S enormously. I could also have taken only S and another branch; even without the pairing of S and Av, S would gain an incalculable advantage. Consider: – S *aṇu* ‘fine, minute’, Gk *alinos* ‘barely visible’; also S *dramati/drāti*, Gk *dramein* ‘run’ or S *dhavati/dhāvate*, Gk *theō* ‘run, flow’ (cogns in Gmc mean ‘stop, trample’). There are many more: S \sqrt{arh} , Gk *alphein* ‘be worth, deserve’; S *jaran*, Gk *gerōn* ‘old’; S *daṃsa* ‘wondrous power, act’, Gk *dēn-ea* (pl) ‘strategems’; etc, etc. See also: S *maha-yati*, L *mac-tare* ‘glorify’; S *akṣa*, L *alea* ‘die (dice)’; S *vaṣṭi*, L *vē(n/s)ica* ‘bladder’; etc. Or take S *śak-ti* and C *cēcht* ‘force, power’; etc. Then, S *aru* ‘wound’, Gmc *orr* ‘scar’; S *druh-yati* ‘harms’ and *drogha* ‘false, harmful’, Gmc *triogan*, ‘deceive’ and *draugr* ‘ghost’; S *pīyati* ‘revile’, Gmc *fiēn*, *fijan* ‘blame’; etc, etc. Moreover: S *aśru*, Lth *ašara* ‘tear’, S *vāra*, Lth *vāla* ‘horsehair’; etc. Also, S *pitu*, Sl *piš-ta* ‘nourishment’; S $\sqrt{kliś}$ ‘torment’, Sl *kleštiti* ‘jam, press’; etc. And S *dūra*, Ht *tūua* ‘far’; etc. And of course one could take S and Av only: *atharvan/aθravā* ‘priest’, *īse/ise*, ‘is master’, *godhūma/gantumo* ‘wheat’, *dasyu/dahyu-* ‘demon’ etc, etc. Had I done this, the gap between S and the second, whether Gk or Gmc, would increase astronomically. And, in any case, I have included stems found only in 3 European branches that we know inter-borrowed – like L, C and Gmc or Gmc, B, Sl: such stems I suspect are not PIE.

Nothing could be more certain and invariable in all conditions than the parts of the human body. Of the 40 stems examined, S lacks 4, Gmc 12, Gk 13, L 19, B 20, C 23 and Sl 29. Thus, apart from the positions of L and B which are very close with L slightly ahead, the percentages seem to be very similar to the overall picture with the 404 stems. There is a large gap between S and Gmc/Gk and between Gmc/Gk and L/B. (Yes, 2 or 3 cognations – no more – might be disputed but this would not alter much the general situation.)

14. Another objection may be (and has been stated by Mallory) that S, Gk and L have very large literatures from early on; to those should be added Hittite. This is true, of course. It is true also that social or religious changes (subjugation or the advent of Christianity) affected seriously the language and culture of many European communities – as Zarathustra’s religious reform affected ancient Iran. These may account for some of the decays and losses in some branches but they are not alone responsible for all the observable disparities in preservation.⁵ The Greeks stayed under the not very enlightened rule of the Ottomans for 4 centuries but they did not lose their religion in the slightest and, although several words were borrowed from Turkish, changes in the language had begun long before the Ottomans. Mallory wrote that S, Gk and L would, because of their early and large literatures, show more retentions than the other branches.⁶ He should have included Ht also which appears much earlier than Gk, L and S; but because **Ht disproves most flagrantly this notion**, it is never mentioned, or it is mentioned only to be covered over with irrelevancies. However, Mallory’s prediction is most obviously wrong, as is shown by the figures in §12 where Gmc, despite its late literacy, is slightly ahead of Gk and leaves L far behind, both so rich linguistically. So let us look at this rationally.

All IE branches had an oral tradition before the adoption of writing. The Indus-Sarasvati culture had writing c3000 but we don’t know for certain whether it was Sanskritic or some other language. In India, writing in recognizable IE (or Middle Indoaryan) appears in 260-250 (or perhaps a little earlier), particularly in Ashoka’s Rock-Edicts. We also have ample evidence that the sacred texts (*RV* etc) were being transmitted orally in the 7th cent CE and even in the early 20th cent: generation after generation of brahmin families specialised in this task (Winternitz I, 29-32, 51-2). Caesar reported a similar practice among the Celts who “learnt by heart many verses” studying under a teacher “for twenty years” and, although they made use of Greek letters, in most other matters, the Druids did not “think it fit to put these utterances into writing” (*De Bello Gallico* VI, 14). The Greeks too had an oral tradition and some esoteric cults maintained it well into Roman times

⁵ For details and references see Kazanas 2003: 209-210; also especially 2005 (in press).

⁶ This in the private communication to me, Nov 2004: see §4, above.

(Kingsley 1995: 332ff; Murray 1993:100). Indeed all IE branches maintained an oral tradition, otherwise we would not know about their early period, before the advent of literacy.

Hittite texts written on tablets survive from c1600 BC. Mycenaean texts come from c1500 BC, also on tablets; Greek epigraphic material appears from c700 BC on stone and pottery and various (fragmented) texts on golden plates and even papyrus from c400 BC – while manuscripts become plentiful the first cent CE. Roman written material is just as plentiful from the same period and epigraphic material (Oscan, Umbrian have only such) goes back to c 500 BC (O Latin). Literacy in the other branches, Gothic, then other Germanic, Slavonic and finally Baltic came some centuries later (though some Gmc runes appear from c 100 BC). In India writing is attested seriously only c 260-250 BC in Aśoka's Rock-Edicts which are in *prākṛta*. No doubt writing was used perhaps extensively in the state administration, literary compositions and commerce. But the sacred Vedas (from which more than 90% of the Indic material has been drawn) were transmitted orally even in the 7th cent CE. Although there was writing (on palm leaves and birch bark), very few manuscripts survive from before the 14th cent CE. So in this respect, even if the Vedic sacred texts had been committed to writing (Sāyana wrote his commentary on the RV in the 14th cent CE), the Indians are no better off than any other branch (except the Balts) and are certainly worse off than the Hittites, the Mycenaeans and Greeks and the Romans with their early literacy.

15. Yet, despite its early and vast literature, Gk lost the IE stems for flesh (15), mouth (26), nose (31) and tongue (39), desire/love (45), man (70b and 72d), twin (81) and widow (83), to mention few stems that are retained by non-literate Gmc and in some cases even 'poor relatives' like B, C and Sl! How does a language lose its own words for mouth, nose and tongue? Surely no religious or social change can account for this. Only a weak oral tradition and a long trip away from the homeland would be responsible here. Then the Greeks changed the meaning of their own IE stem for mind (51) to 'force', for brother (56) to 'member of a brotherhood', for sister (77) to 'daughter', etc. Again, these stems are preserved in branches that acquired literacy much later (eg C, Gmc, B and Sl – except 'mind' in the last two). Then, despite its early and large literature (consider too the expanse of the Roman Empire from Persia to Britain), L lost the IE stems for arm (1,2), eyebrow (12), flesh (15), fear (48), vehemence (55), sage (75), son (78), woman (85), etc – stems retained in many cases by C, Gmc, B and/or Sl.

As for Hittite, it lacks both stems for arm (1, 2) and for ear (9, 10), head (19, 20), knee (23), mouth (26), nose (31) etc. It also lacks the stems for the eight closest human relations: brother (56), daughter (62), father (64), husband (66), mother (73), sister (77), son (78) and wife (84) – almost all common to most branches. Please note certain facts. The Hittites are mentioned in near-Eastern documents by c1900. So they were in Anatolia somewhat earlier and established a kingdom which by c1600 expanded to form an Empire; this threatened peoples as distant and mighty as the Egyptians and lasted down to the 12th century (Dunstan 1998). They were dominant conquerors. Thus they had not been coerced into abandoning their IE heritage and adopting new cultural features. They did this because they found the new culture(s) just as good, if not better than, the one they had brought. They had travelled far from their homeland and obviously were not numerous enough to impose their own culture on the indigenous people some of whom were already literate and highly cultured. I would add that they were an *elite dominance* group and had brought no families or not many (wives and children) with them; so they lost the terms for these intra-family relationships and adopted the corresponding words of the local languages. They preserved very few IE theonyms (Agnis, ^DSiu= Zeus/Dyaus, and perhaps Inara = Indra/Andarta) and adopted deities prevalent in the area. No other explanation will fit the data that we have.

Now all the words examined in this section denote well-known bodily parts that every human has everywhere (arm, flesh etc), common feelings (fear, love) and concrete figures (man, sister, son, woman). It is not likely that Gk, L and Ht had them but somehow failed to record them; for they have other, non-IE substitutes. The stems were lost before literacy. Now, undoubtedly, the presence of literacy and a large literature will support the continuity of language and culture, but the examples just quoted are not really affected by such factors. The non-literate languages preserved most of these stems and Gmc preserved about as much as Gk and certainly more than L and incomparably more than Ht with its very early literacy. Therefore, apart from late literacy and small literature, there must be additional and stronger causes for lexical break-downs, decays and losses. We touched on this in §4 and will return to it later. Now we need to look at an aspect other than the Preservation Principle.

16. Just as important, is the principle of O(rganic) C(ohere)nce of a language, something which IEL

usually overlooks. It is doubtful whether any language can exist without it. Take as example the non-inflected English language. When we see scattered through a text the words *acted*, *activity*, *action*, *active*, *actionless* and *actively*, or *enacted* and *reactivates*, we know that there is a root stem to which all of them are related: *act*, both noun and verb. Moreover we know that all these forms have been generated by the addition of various endings and prefixes to the root *act*. Thus, we also have *created*, *creativity*, *recreates*, *pro-creation*, *creative*, *creationless*, *creatively*, from the root stem *creat-e*, which is only verb. Being non-inflected and largely consisting of loans from other languages (both *act* and *create* come from Latin), English has no elasticity and great generative ability: thus it has *inaction* and *procreation* but not *increation* and *proaction*. Nonetheless, it has some generative power which gives it OC, however limited. Thus, in a limited frame, *fear-less-ly*, *hope-less-ly* and *mind-less-ly* are organically coherent with root-stems *fear-*, *hope-*, and *mind-* (which will generate further *fear-ful-ly*, *hope-ful-ly*, *mind-ful-ly* and some other forms). The important point is that in the language we find clusters (or families) of words, nouns, adjectives, verbs and adverbs, which are all related together, having been generated from a root-stem. A word becomes thus an integral part of a lexical family and of a lexical family and of the language.

17. However, a language has also isolated words, not related to a root-stem. In English, we have several such words: *aegis*, *again*, *can*, *canabis*, *den*, *denim*, *javelin*, *lady*, etc. They too are integral parts of the language, but some are loans from other languages, others are changed forms of older words that belonged to a family and had other - now lost - connections. E.g. *aegis* comes from a Gk word that denoted the terror-striking shield of Zeus. Then, take *lady*: it is a decayed form of an OE word *hlāfdige*: this is a cpd *hlāf+dīg* and means 'one kneading (=dīg-) the loaf-of-bread': that is what a 'lady' did in old times. In Sanskrit too we find many words that stand isolated, evidently unrelated to *dhātus* or even other isolated words: *ambā* (mother), *ulkā* (sky-fire), *khara* (rough), *jūṭa* (hair), *pika* (cuckoo) etc, etc.

To illustrate this further, let us take the common stem for 'light'. S has a root \sqrt{ruc} 'shine' and derivatives *ruci*, *rocis* 'light'; also *ruk-ma* 'what shines, golden ornament' and *ruk-min* 'wearing gold ornament', *f ruc* 'brightness', *ruca* 'bright', *roka* 'lustre', *roca* 'radiant' etc. This root has also a full conjugation – pres *rocate*, perf *ruoca*, causative *rocayati*; etc. This is Organic Coherence. In contrast, Gk *leuko* and L *lux* have no apparent root; any cognates in their respective language are secondary derivatives produced from themselves. Here, Gk and L have no OC. Let us explore this further.

18. The POC operates revealingly in the old languages. L *serpēns* 'serpent' (212) is a present participle of vb *serpō* 'I crawl'. L *repō* 'creep' also may belong to this family (an older **srepo*?), but it merely duplicates the verb *serpo* which has no other derivatives. Gk has a slightly larger family with vb *herpō* (I creep), *herpeton* (serpent: 212), *herpēs* 'shingles' and secondary vb *herpuzō* (I crawl), which could generate more forms. S has a much larger family with ($\sqrt{sṛp}$) *sṛpra* 'oily, smooth', *sarpa* 'serpent' (212), *sarpana* 'the act of crawling', *sarpin* 'creeping/gliding', *sarpis* 'clarified butter (what glides)', etc. The L cogns tell us that (some) verbal forms end in -o and (some) present participles in -ens. The Gk cogns have a regular m ending in -ēs, adjectival noun in -to- and secondary vb in -uzō (or -izō): thus *nau-t-ēs* 'sailor' cogn with *naus* 'boat'; *lu-to-* 'loosened' < *luō*; *plo-izō* 'navigate' < *ple-ō* 'sail'. The S family shows more endings for primary derivatives and the regular change of the root-vowel $\sqrt{}$ → guṇa **ar**: thus $\sqrt{sṛp}$ → *sarp* and common endings -a m (\sqrt{chid} 'split' > guṇa *ched-a*; $\sqrt{tṛp}$ 'enjoy' > guṇa *tarp-a*), the n -ana, the adjectival -in, the n -is (*hav-is* 'oblation' < $\sqrt{hū}$) and the less common -ra, added directly to roots (*chid-ra*, *tṛp-ra*). Note that except *sarpin* (in Br) all other S words are in the RV.

19. With 'bearing' (VIII, Introductory) we find that the pattern repeats. L has a very small family: vb *ferō* 'I bear/carry', adjs *ferāx* and *fertilis* 'fertile, fruitful' and *fūr* 'thief (one who carries off)'. Gk has a slightly bigger family: *pherō* 'I bear', *pharetra* 'quiver', *phernē* 'dowry', *pher-ma* 'what is borne', *pher-tron* 'what bears, bier', *phora* f 'the action of bearing', *phor-os* 'tribute', secondary vb *phoreō* 'usually bear, wear' and *phōr* 'thief'. S has a very large family: ($\sqrt{bhṛ}$) -*bhṛ-t* 'one bearing', *bhṛti* 'action of bearing', *bhṛ-tya* 'to be borne/supported, a retainer/servant', *bhṛ-tha* 'offering, borne and given'; *bhar-a* 'bearing, gain', *bhar-ana* 'act thereof', *bhar-tṛ* 'one who supports, a husband, master', *bhar-man* 'support, care'; *bhār-a* 'burden, load', *bhār-in* adj 'carrying', *bhār-man* 'support, table', *bhār-ya* 'to be supported' and *bhār-yā* 'wife'; also *bhrā-tṛ* 'brother (one who supports secondarily)'. In S, except for *bhār-in* (post-V) and *bhāryā* (in Br) all the others are in the RV.

We learn a little more from the Latin group but it is difficult to see how the stem *fer-* becomes *fūr* 'thief' (*e* > *ū*). Just as difficult is the Gk *phar(-etra)* and *phōr* 'thief' from '*pher-*'; otherwise the endings and the other vowel changes are regular for Gk: n -ma (*der-ma* 'skin', *pneu-ma* 'breath,

breeze'); n -tron (aro-tron 'plough'); f -a after r- is usually f -ē (bor-a 'prey' but men- > mon-ē 'a stay'); m -os (leg- > log-os 'proportion, word'). These terminations are recognizable relatives of S ones: Gk n -ma, -tron, f -ā/-ē and m -os correspond to S -man, -tram (in bhar-i-tram), f -ā/-ī (bhāryā, bhariṇī) and m -as (bhār-as). In S we see again the endings -ana denoting 'act of' and -in adjectival, etc.

S has also -tr (bhar-tr) which with the guṇa gradation gives an agent-noun. The n -tra commonly gives the instrument of the activity (state or condition) denoted by the dhātu: thus √as 'throwing' > as-tra 'instrument of throwing, a missile'; √r 'moving' > ar-i-tra 'instrument promoting movement, an oar'; √nī 'leading' > netra 'instrument leading, the eye'; etc. The agent nouns are even more numerous: as-tr (tar, voc) 'thrower'; ar-i-tr (-tar) 'mover, rower'; ne-tr (-tar) 'leader'; e-tr 'goer', kar-tr 'maker', je-tr 'conqueror', etc. To this S ending corresponds Gk -tēr, -tōr and L -er, -or: thus S dā-tr (-tar, voc) 'giver' (<√dā) has Gk correspondences do-tēr and dō-tōr and L dater, all 'giver'; cf also S pi-tr (-tar), Gk pa-tēr and L pa-ter, all 'father'.

Apart from bhar-tr 'master, supporter', S has also bhrātṛ 'brother'. This (i.e. -r > -ra) is not a very common formation and IEL does not (fully) accept that this noun comes from √bhr; again, Whitney has it in the derivatives under √bhr but with a question-mark (p 114). NIGT accepts it, however, and since IEL can offer no explanation and, in any case, most of these S relation nouns (pi-tr 'father', svasṛ 'sister' etc) entail something anomalous in their formation. I think it is mere pedantic quibbling not to accept √bhr > bhrātṛ. Cf √kr > kra-tu 'power, will', grbh, grh/grabh-/grah- 'taking, grabbing', √dṛs > draṣ-tr 'seer' etc. (Perhaps the implication is that the brother is the secondary supporter of his sister(s), the primary one being the father or the husband).

20. As a further example, we take 'dressing' (293). Here L has only the vb vestio 'I dress' and vestis 'attire'. Gk has the vb ennumi and several words for garment eima/emma, es-thēs (< es-thiō 'I dress') and gestra (Hes). The S family of √vas is again larger: vasa, vasana, vasti(lex), vastr, vastra, vāsas, vāsin, etc. Here, apart from vasti (lex), vastr (post-V) and vāsin (in Br) all others are in the RV. We recognise all the endings we have already met: -a, -ana, -tr, etc. We also see -as (=n; cf oj-as 'strength') and -ti (m/f; cf bhr-ti, above, also kr-ti 'a creation', etc). Note that Gth (=Gmc) has only the vb wasjan and the noun wasjos 'cloth(es)'. Hittite and Tocharian are very poor- and we shall see many such cases further along. But here we have another interesting aspect to consider. It is unanimously agreed that the PIE root here (*wes ?) is akin to S √vas, Gk stem es (*es-nu-) and Ht uaš. How then does it become L vest- and Gth wasj- ? How does it become Gk *es-nu-mi (> en-nu-mi)? I think there is only one explanation. L and Gth have not retained the pristine root-form but made a new verb-form from a PIE oblique form, derivative of the root, as in S vast-i, vast-r, vast-ra and vas-y-a. √ The Gk vb with -nu- is also derivative.⁷ This we shall meet in other cases too. One clear, simple example is L cas-tr-āre 'clip, castrate', which is cogn with Gk keaz-ō 'split, cleave' and S śas- 'cut, slaughter', neither of which has -tr-; but S has śastra (< śas+tra, i.e. instrument) 'knife, sword' and the L verb most probably comes from some such a stem.

21. So far we see two interesting aspects. One, even basic verbal forms in some branches are not the pristine PIE stem, as clearly reflected in other branches, S being the most conspicuous. Two, while S displays fully OC having a large range of lexical items, in verbs, nouns, adjectives and adverbs, other branches show a lack of these and often tend to have either the verb with very few nominal forms or the reverse, or mere traces of the stem. This too shows that S is closer to PIE. Let us see more cases.

22. We now turn to 'mind'(51). S has manas, a neuter like ojas 'strength', tamas 'darkness, inertia' etc, from √man 'think, reflect' (366). S has also the causative vb mānayati and desiderative mīmāṃsate 'wish-to-think-on' and nouns manana 'act of thinking', manu 'man' (70) and Manu, the sage, mantu, 'counsel', manṛ 'thinker', mantra 'verse, word-for-reflecting', manman 'concept', manyu 'ardour, mood', māna 'idea, opinion', mānin 'having opinions', etc. Consider now the poverty in the other branches, not excusable cases like B and C but Gk and L with their early and rich literatures. Consider also that except manṛ and mānin (in Br) all the S words are in the RV.

⁷ The Gk thematic -nu- may be inherited but no other branch has any trace of this and although S certainly has -nu/no- for class V dhātus, -n- for VII and -nā/nī- for IX, the √vas does not belong to these classes. Gk does the same with deik-nu-mi 'I show' while, again, neither S nor any other branch has any trace of -nu- in the cogn verb (S √diś > dideṣṭi/diśati, L -dicare 'indicate, show' etc). These forms in Gk are not therefore original but subsequent Gk developments by analogy or contamination.

B has the vb *manyti* (366) but no cognates for ‘mind’ or other mental aspects. Sl too has only the verb. C has the vb in *do-moin-iur* and n *menme* ‘mind, spirit’ but little else.

L has *mens* with stem *ment-* (cf S *man-tu*, etc); also *com-men-tor* ‘contriver’ (cf S *man-tr/tar*). But the L cognate vb is *me-min-isse* ‘remember’ (cf S *mī-mān-sate*) showing semantic change while ‘thinking’ is expressed by *cogitare, putare, arbitrare*. Thus in this case, the descent from PIE has resulted in a considerable breakdown and losses.

Gk is in no better position. Its word for mind is *nous* (unconnected with any IE stems unless perhaps S \sqrt{nu} ‘praise’), while its IE cogn *menos* means ‘force, might’ (also *mania* ‘frenzy’, *mantis* ‘prophet, seer’ and some other secondary formations). It has several cognate vbs none of which means exactly ‘think’: *main-o-* ‘be enraged/enraptured’, *memona* (perf with pres sense) ‘desire’, *mi-mnē-skō* ‘remind’ and *mna-o-* ‘remember’ (cf S $\sqrt{mnā}$ ‘hand down [by memory]’), etc.

Gmc is, despite its later literacy, in a happier condition. ON has *munr* for ‘mind’; OE has *myne* ‘desire, mind’; Gth has *muns* ‘purpose’ and *man* ‘opinion’. Both OE and Gth have vb *munan* ‘think’, Here we witness slight divergencies but both noun and verb.

23. How are these phenomena to be explained? ...

We could suppose that S innovates and by analogy generates all its numerous forms in contrast to the very frugal C and Gmc. But cognates of some of the S nouns are found also in other branches, Gk, L, etc: cf S *manas* /Gk *menos*, S *mant-u* /Gk *mant-is* / L *ment-*, S *māna* / Gth *man* ‘opinion’, etc. Thus we cannot resort to this supposition about innovations. Rather we must take it that S plainly retains many descendants from PIE while the other branches suffered losses – as was evident with ‘creeping, dressing, bearing’ above. The full explanation for this will be given later, after we have examined more cognations.

24. A different case is that of ‘son’ (78) – yet confirming our finds. It appears in S, Gmc, B and Sl roughly as *sūnu-* (*su-* in Gmc, *sy-* in Sl). The S word is obviously the $\sqrt{sū}$ and the ending *-nu* > *sūnú* – like *grdh-nú* ‘greedy’, *bhā-nú* ‘shining, sun’, etc. No other cognate appears in the European branches. C has *suth* ‘birth, fruit’ (cf S *sūtu-*) but no cognate for ‘son’!

S $\sqrt{sū}$ gives vb *sūte* ‘engenders’ and is obviously linked with \sqrt{su} > *suvati* ‘energises, vivifies’ as well as *su-no-ti* ‘presses out’. No such cogn verbs appear in the other branches to link with and explain the stems for son. C has *sō(a)id* and B *sukti*, both ‘turn, twist’; these are linked rather with *sunoti* or *suvati* and really indicate nothing except the fact that there is a breakdown. Gk has (like the T AB *soy-*) the decayed form *hui-* but, again, no other cognate. Considering how common and important the son has been in any society, irrespective of religion and other conditions, we must wonder that some IE branches do not have the cogn stem at all (e.g. L, C and Ht) and, in any case, none has any other cognates. In contrast, S has a very large family, as usual: apart from the verb and its compounds (*pra-sū-* etc), it has *sū, sūti, sūtikā, sūtu, sūtrī, sūnu-* all from the RV and AV. Consequently, we must conclude, here also S displays the PP and OCP, while the other branches suffered big and varied losses.

With this should be connected S *sū-kara* ‘hog, swine’. Like ‘son’ this word also stands isolated in the IE languages: Av *hu-*, Gk and L *sus*, Gmc *su(-gu)*, etc. Some scholars claim that *sūkara* is onomatopoeic, meaning ‘the animal that makes the sound *su*’. This may be true but to me it sounds like one of the numerous explanations that scholars give in like situations in order not to face the obvious or to cover up the fact that they don’t know. Swine do not hiss (*s-s-s* or *su-su-su*) but grunt. So, in this case, the obvious is that S *sū* is cognate with the stems in the other branches. They all come from some original $\sqrt{sū}$ (and only S has *-kara* ‘making, producing’). So the swine is the ‘begetter’ *su-*, since it gives birth to more litter than any other domesticated animal, like cattle, goat or sheep. Thus S again provides a solution to the linguistic problem of the apparently isolated stems for ‘son’ and ‘sow’.

25. With the cognates of ‘mother’ (73) we meet difficulties at the very start thanks to IEL. The cogn stem is common to all, except that in B *mote* is ‘wife’: thus Gk *mētēr*, L *māter*, C *māthir*, Gmc *mōðir* / *mōðor* (ON,OE), Sl *mati*. The NIGT recognizes that S *mā-tr/-tar* is a regular formation: $\sqrt{mā}$ (> *mimāti* / *mimīte* / *māti*) ‘measuring’ and the common *-tr* giving the agent ‘measurer’. Other similar formations *attṛ* (< \sqrt{ad} ‘eat’), *etṛ* (< \sqrt{i} ‘go’), *kartṛ* (< \sqrt{kr} ‘do’), *goptṛ* (< \sqrt{gup} ‘guard’), *dhātṛ* (< $\sqrt{dhā}$ ‘put’) etc, take, like *mātṛ*, the uddāta accent on the ending (though some very few others take it on the stem – *āstr* ‘thrower’, *gāmṛ* ‘goer’). The IEL doubts this formation *mā+ṛ* for no obvious sensible reason – but

with much sophistry. To his credit Whitney did include *mātī* (>*mātā*) under $\sqrt{mā}$ (p 119 with question-mark). I find nothing peculiar in the concept of mother being the ‘measurer’, i.e. the one who holds and gives measures to the household. As far as I have seen and can still see that is exactly what a mother does with her home, children and husband – most of the time. I suppose the reason our modern scholars reject the Indic tradition is because the equivalent to the S verbal forms are not found in any of the IE branches except L *mētior* ‘measure, survey’ (and T AB *me/mai* ‘measure’) and, in any case, there is no obvious cognation between the nouns for ‘mother’ and the verbs for ‘measuring’. E.g. how is L *mētior* related to S $\sqrt{mā}$? Where has the **-t-** come from (**not present in T AB**)? And how does it relate to L *māter*? How does the equivalent Gk *metreō* relate to S $\sqrt{mā}$ or to Gk *mētēr*? The difficulty in Gk is greater because apart from the **-t-** we have a short **-e-** in the stem of the verb. The same holds for Gmc where ‘mother’ is *mōðir/mōðōr/muotar* (preserving the long stem-vowel) and ‘measuring’ is *māla/metan/mezzan* (with different vowels and consonants).

I submit that L *mētior*, Gk *metreō* and Gmc *metan/mezzan* are secondary degenerate forms that derive not from the PIE root itself (as S $\sqrt{mā}$ does) but from a PIE derivative noun or verbal form like S *māt-ī* (or *māt-rā* or verbal *māti* (or *-mīte*) etc. IEL posits here two PIE roots: **mē* (> S $\sqrt{mā}$) and **met* (Gk *met-reō*). This again enables scholars to ignore the obvious facts, indulge in their complicated conjectures and secure their “reconstructions”. But, of course, this hypothesis leaves unexplained the short and long radical vowels in the L, Gk, Gmc verbs and the intrusion of **-t-** in Gk, of **-l-** in ON and of **-zz-** in OHG. In fact, here too S presents a more reasonable picture while the stems in the other branches seem to come from derivatives containing **-t-** and show break-downs and losses.

26. What of S *pitṛ* (64) and the cognates in the other branches? The short **-i-** contrasts strongly with the **-ā-** in the others; even Av has the stem *patar-* (and *pitar*). The stem *pi-* in S can only be connected with that of *pi-bati* ‘drinks’: this does not mean much. The evidence of the other stems, Gk and L *pa-*, Gmc *fa-* etc, suggest an original stem **pa* for S too⁸. Indeed, NIGT accepts this in saying that father is the ‘protector’ and that the noun has changed from **pā-tṛ* the root being $\sqrt{pā}$ ‘protect’. In the absence of any other evidence, I accept this. For unknown reason, S **pā-tṛ* ‘father’ decayed into *pitṛ*. Perhaps *pitṛ* prevailed in one dialect and subsequently became dominant. Strangely, *pātr* as ‘drinker’ and ‘protector’ survives in Vedic texts. Note also that apart from Av *pitar*, the **-i-** vowel is found in L *jū-pīter* cognate with Gk *Zeus-pater*. S *Dyaus-pitar*. We don’t know. But while the stem in the other branches is not linked with anything else, in S we find a plausible connection. There is nothing strange in regarding the father as guardian and protector with all that this entails. The mother gives measure and the father protection. In this case, S suffered decay in the form of the noun but it has a verb conjugation for $\sqrt{pā}$ and nouns connected with it in full OC.

27. The cognates of ‘daughter’ (62) are not connected with any other stem in any branch. Only S has \sqrt{duh} ‘extract milk’. The formation here is also very clear: *duh+i+tṛ*. The intrusive **-i-** is not unusual: see *aś-i-tṛ* < $\sqrt{aś}$ ‘eat’, *tar-i-tṛ* < \sqrt{tr} ‘pass across’, *math-i-tṛ* < $\sqrt{ma(n)th}$ ‘agitate’ etc. The S vb \sqrt{duh} > *dogdhi* has no equivalents in the other branches. Attempts have been made to link S *duh/duh-* with Gk *teuchō* ‘make, build’ and *tughanō* ‘meet, happen’, C *dual*, Gmc *daug* and B *daug*, all meaning ‘be suitable’. Even if these cognations are right, it is obvious that, e.g., Gk *thugatēr* ‘daughter’ cannot be cognate with Gk *teuch-ō* or *tughan-ō* – neither semantically nor phonetically. (Incidentally if *tughanō* is cogn with S *duh* > *dogdhi* where has the Gk **-n-** come from?) It is easier to link phonetically Gth *daug* ‘to suit’ and *dauh-ter* but not so with OHG *toug* and *tochter* or B *daug* and *dukte*. Semantically, of course, the connection is even more difficult, since it is not easy to see how the daughter ‘is suitable’ when in very ancient societies the son was far more desirable and suitable. Then, again, C has the vb *dual* ‘it suits’ but no cognation for ‘daughter’ (= *ingen/merch*, which are unconnected) and Sl has *dūšti* ‘daughter’ but no other cognate. Osc has *futir* ‘daughter’ but L has no cognates at all.

The idea of the daughter being ‘the-girl-who-milks’ may sound strange to us but it is not strange for those far-off times; even we had ‘milkmaids’ not so long ago. Further, if Gk *tughan-ō* be accepted as cogn with S \sqrt{duh} , then it could only come from a secondary PIE form like the V *dohána* ‘act of extracting’: so, ‘that which befalls’ in Gk would be that which is extracted from the run of life and is suitable (?).

28. Scholars are not clear about S *pur* ‘stronghold’ (65) and \sqrt{pr} ‘fill’ (299). S *pur* is universally

⁸ IEL says that the PIE stem for ‘father’ had the sound **ǵ**; this developed into *i* in S and *a* in the other branches. This could be true, of course, but in languages of historical times **ǵ** turns out to be a degeneration of *a* and perhaps other vowels; so while this IEL supposition seems quite clever, it is groundless.

accepted as cognate with Gk *polis* and B *pil(i)s* ‘fort, town’ (65). This may well be so and the later use of *pur* > *pura* > *puri* certainly justifies the cognation. However in the RV *pur* denotes simply ‘defence’ or ‘defensive field of force’ with magical and occult connotations (Kazanas 2002 and Forthcoming) and only later came to mean ‘fort, town’ (*pura, puri*). Mayrhofer rightly rejects the connection of *pur* with *piparti* (and causative *pūraya-*) ‘fill’ but he is not justified not to link *pur* with *piparti* ‘protects, saves’. The *Dhātupāṭha* gives \sqrt{pr} *pūraya-pālana-yoḥ* ‘in the sense of filling and protecting’. In S we find numerous relatives of \sqrt{pr} and *pur*: *paraṇa, parṭr, pāra pārin, pūraya* etc. When we look for cognates of *polis* and *pil(i)s* in Gk and B (or other branches) we find none. Scholars give some verbs as cognates of *piparti* in the sense of ‘filling’ and similar: thus Gk *pim-plē-mi*, L *plēre*, C *linaim* – all ‘fill’ (299); C, Gmc, B and Sl have stems for ‘full’ (*ful-, pil-, plū-*); also *perrō* ‘pass through’, L *portare* ‘convey, lead’, Gth *faran* ‘travel, pull’ (all the latter questionable for me). But clearly there is no cognation for ‘defend, protect’. It is difficult to connect the concept of Gk *polis* ‘fort, town’ with ‘filling’ in *-plē-*. True, a town is full of people but the very ancient *polis* was not so thickly populated. In any case, a forest (full of trees and vegetation) or a lake (full of water) would qualify better for the term *polis*, if we cling to this meaning. But in S the idea of ‘defence, safety’ in \sqrt{pr} and *pur* has no difficulty.

Incidentally, it is worth noting that although Gmc, B and Sl do not have the IE vb stem for ‘fill’ (329), they have the corresponding adj Gmc *fulls*, B *pilnas*, Sl *plūnŭ*, all ‘full’. Here we have loss of the vb. But B has vb *pil-dit* and Sl *plūniti / puniti*. The first may be an extension with dental like Gk *plēthō* ‘be full, many’ and the second severely decayed forms. Or both could be of non-IE provenance.

29. Very instructive is the case of ‘foot’ (16). S has the stems *pad/pād-* (weak/strong) ‘foot’ and also \sqrt{pad} > vb *padyate* ‘falls, befalls’. Since the foot is the bodily part that constantly (rises and) “falls” we have semantic as well as phonetic agreement. Gk has *pous* (gen *pod-os*) and L *pes* (gen *ped-is*), Arm, Ht and T similar cognates, but none has a cogn vb similar to S *pad-*. Only Gmc shows *ge-fetan* ‘fall’ (OE) and has cogns for ‘foot’ (*fōt, fuoz*). Corresponding to S *pada* ‘step, site’, Arm has *het* ‘foottrace’, and Gk has *pedon* ‘ground’ but Gmc does not have this. Then Sl has *pada/pasti* ‘falls’ but no cogns for foot. Lth has the vb *peduoti* but its noun *padas* is ‘sandal, shoe’ (not ‘foot’). Ht and TA/B have the noun but not the verb. S has also adj *padya* ‘of foot’, so Gk in *pezo-* ‘on foot’ and Lth *lengua-pedis* ‘light-footed’.

Thus Arm, Ht, T, Gk and L have the cogn noun but not the vb while B and Sl have the vb but not the noun. C has neither noun nor verb. Only Gmc shows some OC while S, as usual, has a large cluster of derivatives: *pat-ti, pat-tr, padana, -padi, pādin, pāduka* ‘shoe’, etc.

30. The stem for earth is another interesting case – with some problematic variants: S *ḡsam-*, Gk *chthōn* (dialectal *gdan-, dam-, ?sem-*), L *humus*, C *dū* (OIr: ‘place’ rather than ‘earth’), B *žeme*, Sl *zemlja*, Alb *dhe*; perhaps with metathesis, Ht *tegan* and TAB *tkaḡ/kem*; not Gmc. S has the adj *ḡsamyā* and Gk *chthonio-*. S has *ḡsamā* too for ‘earth’ which means also ‘endurance, patience’. That the earth abides, endures and is patient is a very old idea, of course, found in the earliest traditions. In Hesiod’s *Theogony* Mother Earth endures all the ill treatment of Ouranos (ll 159-160). In the *Old Testament* one of the Psalms says that ‘the earth abideth’ (119:90) and Ecclesiastes affirms that ‘the earth stands for ever’ (I,4). However, IEL decided that *ḡsamā* ‘earth’ is one word of uncertain origin (other than *ḡsam-* ‘earth’) and *ḡsamā* patience (attested in the epic) is a different one, derived from $\sqrt{kḡsam}$ ‘being patient, enduring’. Again, $\sqrt{kḡsam}$ > *ḡsamate* etc ‘endure’, found in the RV, is not found in any of the other branches. The obvious conclusion is, as Whitney and the MSD recognize, that $\sqrt{kḡsam}$ generates all the others *-ḡsam/ḡsamā* ‘earth’, *ḡsama* ‘enduring’, *ḡsamā* ‘patience’, *ḡsamtr* ‘one who endures’, *ḡsāman* ‘soil’, etc and the vb conjugation(s).

31. The curious development of cognates like L *humus* ‘earth’ may constitute another difficulty for the thinking of IEL. For in parallel, we find L *homo* ‘man’ and cogns in other branches: Gth *guma*, B *žmogus* and TAB *śom/śaumo*, all ‘man’ (71). This is indeed curious since there is no early IE text presenting man as springing out of, or being generated in some other fashion by, Earth. This notion is prevalent in the Near East: in Mesopotamian *Atrahasis*, IV-V, Mother Earth or Womb-goddess, wise Mami Belet-ili fashions humans out of lumps of earth (but mixed with the substance of a god killed for the purpose: Dalley, 14-7); in the Judaic *Old Testament* early in ‘Genesis’, God makes man out of earth and breaths life into him; in Egypt, potter-god Khnum fashions men out of mud on his wheel. In a Greek myth, the survivors of the Flood, Deukalion and Purha, throw stones behind them and these become human beings; in the Vedic Tradition, the baby-girl *Sītā* is discovered in a furrow in a field: neither myth suggests the spontaneous generation of mankind from earth. So it is difficult to see why the same lexical entity refers both to ‘earth’ and ‘man’. We must assume that this occurred

when people thought that man was constituted only of earthly materials. Here S perhaps suffered the loss of this stem for ‘man’. But there is another curious aspect. T A/B have for ‘earth’ *tkam/kem* which are not necessarily cognate with ‘man’ *śom/śaumo*. Gmc has not the IE stem for ‘earth’, only *guma* for ‘man’. Lth *žēme* ‘earth’ and *žmogus* ‘man’ may not be cognates. The case is not at all clear. Be that as it may, this aspect does not nullify the generation from $\sqrt{k\acute{s}am}$ of the other nouns (including *kṣam-* ‘earth’) and the vb conjugation or the fact that the other branches lost their cogns of vb *kṣamate* and other derivatives.

32. Of the animals, a most revealing case is the mouse (208). The cogn stem does not appear in C and B; S has *mūs*, Gk *mūs*, L *mūs*, Gmc *mus*, Sl *myšū*, Alb *mī* and Arm *mu-kn*. These stems hang isolated in all these languages. In S again we find a full vb $\sqrt{mu\acute{s}}$ > *muṣ-nā-ti* ‘steals’ and a large family of related words: *mūṣ-aka* ‘stealer, mouse’ (cf \sqrt{car} ‘move’ > *caraka*; $\sqrt{yāc}$ ‘ask’ > *yācaka*); *muṣ-īvan(t)* ‘robber’, *muṣka(ra)* ‘testicle’; *muṣṭi* ‘clenched fist’; etc. Again S displays OC whereas the others show break-down and heavy loss(es).

33. The European branches fare worse with ‘rain’ (118). Only S, Gk and C have a cogn stem with a sibilant \acute{s}/s before the final vowel. Some would include ON *ur* ‘fine rain’ but this should rather link with *vār/our-* ‘water’ since it lacks the sibilant. Only S has a cogn verb $\sqrt{vr\acute{s}}$ > *varṣati* and other forms (with *pra-*) and words like *vrṣṭi* ‘rainfall’, *vrṣan* ‘(impregnating) strong, bull’, *vrṣṇi* ‘manly’, *varṣuka* ‘full of rain’, *varṣṭr* ‘rain-maker’ etc. Here, the loss is total in L, Gmc, B and Sl and quite severe in Gk and C where the nouns for ‘rain’ stand quite isolated.

34. Consider also ‘wind’ (141). Apart from Gk, all branches have the common cognate: S *vāta/vāyu*; L *ventus*; C *gewynt/awel (avel)*; Gmc *wind-s* (Gth, OE); B *vej-(a)s*; Sl *větrū*. Yet Gk does have the cogn verb *aē-mi* ‘I blow’, as do S, Gmc and Sl (269). But some details are worth examining further. The stems in L, in C *gewynt* and in Gmc have **n** unlike S, B and Sl and C *avel*. It may be argued that the **-n-** is original and was lost in the other stems. But the four stems of the vb, S *vā-*, Gk *aē-*, Gmc *wai* (Gth)/*waw* (OE) and Sl *veja-* have no **-n-**. So it is much more probable that the original root had no **-n** and that this is intrusive. Frankly, I suspect that the L *vent-*, C *gewynt* and Gmc *vind/wind* are not true or immediate descendants of PIE. It is possible that this stem (with **-n**) came from a non-IE language and was adopted because of its similarity to the IE one. Be that as it may, Gk has no IE stem for ‘wind’ although it has the IE cognate vb ‘blow’ with which is linked with *aēr* ‘air/dampness’; L, C and B have the IE stem for ‘wind’ but not that of the vb ‘blow’. Here again, while C and B lacked an early literature, L certainly did not. S *vā-yu* is a regular formation, like *pā-yu*, *man-yu* etc; so is *vā-ta*, of course, with the participial *-ta* (as in *āp-ta*, *kṛ-ta*, *mṛ-ta* etc etc).

35. Latin shows a similar loss in ‘curve, hook’ (159) and the vb ‘bend, curve’ – and so does Gk. Gmc, B and Sl lack the common cognate, but not the others: S *aṅka*, Gk *ogkos*, L *uncus*, C *ēkath*. Here only S has a cogn verb ‘bend, curve’ in $\sqrt{a(\acute{n})c}$ > *a(\acute{n})cati*. Ignoring other branches we see that L has additional cognates *ancora* ‘anchor’, *ancus* ‘servant (= one who bows)’, *angulus* ‘angle’; Gk too has additionally *agkalē* ‘crook of arms (for embrace)’, *agkōn* ‘elbow’, *agkos* ‘valley (=hollow in ground)’, *agkulo-* ‘curved’. But neither has a verb related to these stems. The S vb $\sqrt{a(\acute{n})c}$ has an early Vedic pedigree and is quite productive: *aṅkasa* ‘horse-trapping’, *aṅkura* ‘sprout, swelling’, *-aṅc* ‘turned toward’, *aṅcala* ‘garment-border’ etc. No cogn verb appears in any other branch.

36. The act of ‘seeing’ (349) reveals much the same. A stem *darś/derk/tarh-* is common to all except B and Sl. Of the five, S has *dṛṣṭi*, Gk *derxis* and C *ro-darc* for ‘sense of sight’. Some branches have a participial adj but with differentiated meaning: S *dṛṣṭa* ‘seen’ fully coherent with the root; C *an-dract* ‘dark, not lit’ (obvious deviation from vb and ‘sight’); Gmc *torht* ‘bright’ (also deviation and different from C); Alb *drite* ‘light’ (deviation); C has also noun *derc* ‘eye’. Again only S has a large family with consistent meaning ‘seeing’: apart from *dṛṣṭi* it has *dṛś*, *dṛśi*, *darśa(na)*, *didṛk-ṣu* ‘desiring to see’, *dṛaṣṭr*, etc, and cpds like *tā-dṛś* ‘such-like’. On the other hand, S does lack the present tense of *dṛś-* having *paś-yati* instead. (This situation is very much commoner in other branches, as we have seen.)

37. In this cognation we observe again the phenomenon of vowel gradation. The S medial *-ṛ-* develops into *-ar-*, *-ār* (*guṇa* and *vṛddhi*) and sometimes into *-ra-* (see §19, end). The *-ra-* may seem unexpected in place of **darṣṭr* (like $\sqrt{kṛ\acute{s}}$ ‘ploughing’ > *kar-ṣṭr*, $\sqrt{vr\acute{s}}$ > *varṣṭr* etc, but it is an alternative formation (perhaps different dialect) as with \sqrt{bhr} > *bhrāṭr* ‘brother’, \sqrt{srj} ‘emit’ > *sraṭr-tṛ* ‘creator’, $\sqrt{spr\acute{s}}$ ‘touch’ > *spraṣṭr* etc. However, there is no regularity in the Gk *derk/dork/drak-* or C *darc/derc/drac*. The changes in these branches are in fact haphazard and don’t merit the term gradation which should properly apply only to S vowel-changes. (This is an issue discussed at length in

Kazanas 2004, §§28-31.).⁹

38. The nouns denoting ‘stream’ (131) and the cogn verbs ‘flow, stream’ (301) show a similar picture. The nouns S *sro-*, Gk *rheu-*, *rho-*, C *srma-*, *sru-* *th* and Lth *srav-*, *sriov-* are truly cognate. Gmc *stro-* and Sl *stru-* may be related to the others but they have the intrusion of **-t-**. Which of the two groups is right and represents the original stem? This is not difficult. S \sqrt{sru} > vb *sravati*, ‘flows’, Gk vb *rheō* (and *rheiō*) ‘I flow’ and Lth *sraveti* ‘ooze out, run’ have no **-t-**; moreover, no other branch has a cogn verb with **-t-**: So the Gmc and Sl stems of the noun should be discounted. It lacks the cognation totally. But here S, Gk, C and Lth support one another fully.

Here we note again the disparities in gradation. C, Gmc and Sl have no other cogn nouns or vbs to provide evidence. Lth also provides no evidence of gradation. But Gk, apart from vb *rheō* and m *rhoos*, has the n *rheuma* and *rhuax*. Since the Gk usual gradation is verb-stem vl **-e-** → noun-stem vl **-o-** (e.g. *leg-ō* ‘say’ etc → *logoos* ‘word’ etc; *nem-ō* ‘apportion’ → *nomos* ‘custom, law’; etc), one wonders how we got **-eu-** and **-u-**. The perfect of this verb has also **-u-** in *errhuēka*. We meet such developments with Gk *cheō* ‘pour (in sacrifice)’: n *cheuma*, *chuma*, m *chutēs* and f *chutra*; this vb also has its perf with **-u-** in *ke-chu-ka*. I suspect that this **u** (and the Lth **av** in *srav*) represents like S \sqrt{sru} a truer line of descent than all the other forms which must be decayed or distorted. In the circumstances this vl **u** would seem to have no other good or lawful reason for being there: it is there as an inheritance from PIE.

39. It is difficult to see how from an original PIE **sreu* (as IEL gives this stem) came S \sqrt{sru} > *sro-*, *srav-*, *srāv-*, C *sru*, Lth *srav-* and *srau-* and Gk *rhe-*, *rheu-*, *rho-* and *rhu-*. On the contrary, it is very easy to envisage a process as in S \sqrt{sru} > *sro-*, *srau* (the regular gradation) devolving gradually into all the other related stems including Gk *rheu-* (by corruption of *au* or by analogy with m *log-<* vb *leg-*. The same holds for S \sqrt{hu} > *ju-ho-ti* and Gk *cheō*. IEL gives as PIE the “root” **gheu*. But apart from the *che* (*u-*) no other branch has, or needs, **e** or **eu**. S has *hu-/ho-*; L has *hū*; Gth has *giu-* and Arm *jo-*. Now, as was said, apart from nouns with **-u-** in their stem, the Gk *rheo* and *cheo* have their perf in *errhuēka* and *ke-chuka*. The vl **-u-** appears generally in the perf of vbs with **-u-** in their present stems: *lu-ō* ‘loosen’ > *le-luka*, *phu-ō* ‘grow’ > *pe-phu-ka*, etc. Gk verbs in **-eō** form their stem differently. Thus *deō* ‘tie’ > *dedeka* and *deō* ‘lack, need’ > *dedeēka*; *neō* ‘swim’ > *neneuka*; *pleō* ‘float, sail’ > *pepleuka*¹⁰; *pneō* (and *pneiō*, like *rheo/rheio*) ‘blow, breathe’ > *pepneuka*. All these vbs (and others) have no derivative stems with **u**. Only *rheō/rheiō* and *cheō* show the **-u-** development. Is this corruption or innovation? Neither. It reflects the true original stem as in S \sqrt{sru} and \sqrt{hu} (the **-u-** or other labial vl being present in the cognates of other branches).

These Gk relics, retained by accident contrary to the tendencies of the language, show clearly that the original roots were not **sreu* and **gheu*, and that the S dhātus *sru* and *hu* are much closer to PIE.

40. A most interesting case is that of ‘smoke’ (127). All branches have the IE common stem but in Gk *thumos* means ‘spirit, soul, passion’ and Gmc *toum* is ‘steam’. Apart from S $\sqrt{dhū}$ and Gk *thú-nō* no other branch has a cogn verb. The L *suf-fīre* ‘fumigate, scent’ is supposed to be a cognate but this shows a phonetic (*fūmus* and *fīre*) and semantic (‘smoke’ and ‘fumigation, perfuming’) deviation.

⁹ The gradation in Gk goes as follows with the vb (pres) *derk-omai*, aor *edra-kon*, perf *de-dork-a*. Vb *perthō* ‘besiege, sack’ similarly has aor *e-prath-on*, perf *pe-porth-a*. But *perd-omai* ‘break-wind’ has aor *e-pard-on*, perf regular *pe-pord-a*. Then *terp-o* ‘delight, satisfy’ has aor *e-terp-sa* and passive aor *e-tarp-ēn* (no perf attested). Vb *sterg-ō* ‘care for, love’, aor *e-sterg-*, (later) perf *e-storg-a*. But we find a similar perf with vb *tiktō* ‘produce’, aor *e-tek-on*, perf *te-tok-a* – and I can’t but wonder at the gradation of **-e-** in the aorist! Now, this is not at all regular because *rhipt-ō* ‘throw’ has aor *er-rhip-sa* and perf *er-rhiph-a*, where the **-i-** is maintained and the **-t-** is lost. Then *pinō* (*pōnō* in Aedic) ‘drink’ has aor *e-pi-on* and perf *pe-pō-ka* – where the **-n-** vanishes (the **-ō-** of the perf may come from the Aeolic stem). For *klin-ō* ‘incline’ has aor *e-klin-a* and perf *ke-kli-ka*. Then again *deid-ō* ‘be fearful’, aor *e-dei-sa*, perf *de-doi-ka*; but *ktein-ō* ‘kill’, aor *e-ktan-on*, perf *ek-ton-a*; *klei-ō* ‘close, shut’, aor *ekleisa*, *ke-klei-ka*; *leip-ō* ‘abandon’, aor *e-līp-on*, perf *le-loi-pa*; *peith-ō* ‘persuade’, aor *e-pith-on*, *pe-peika*; *speir-ō* ‘sow’, aor *e-speir-a*, perf *e-spar-ka*. Consider too: *sphall-ō* ‘err’, aor *esphēla*, perf *e-sphalka*; *thall-ō* ‘flourish’, aor *e-thal-on*, perf *te-thēl-a*! There is so much confusion here that only a terrible loss of memory can account for it and, of course, we cannot talk of gradation except as a farce.

¹⁰ Gk *pleō* ‘float, sail’ is cogn with S \sqrt{plu} > *plavati*, Lth *plauti*, etc. This vb has no derivative stems with **-u-** (unlike *rhe-* and *che-*). It follows fully the pattern of *neō* and *pneō*. Some claim *pneō* is cogn with ON *fnýsa*/ OE *fnēosan* ‘sneeze’ but I doubt this cognation because of the **-s-** in both Gmc stems.

However, S *dhūma* comes from $\sqrt{dhū}$ 'shake (off)'; another derivative is *dhū-pa* 'perfume, scent' and vb *dhūpa-ya-* 'fumigate': so S covers the L *fūmus/-fire* (if this cognation is valid). The Gmc *toum* 'steam' is also covered by S *dhū-māya-* 'steams' (as well as 'smokes'). It is not difficult to see how $\sqrt{dhū}$ generates in S all these derivatives. Smoke is shaken off by something burning and people often burn herbs or powders to fumigate or create a pleasant scent or a medicinal inhalation. Gk, be it noted, has a secondary derivative *thu-mia-ma* denoting '(the smoke of a) burnt offering'. What is intriguing at first sight is the Gk meaning which refers to man's psychological make-up.

Now the MSD gives also 'a saint' for *dhūma*, as well as 'smoke'. This surely touches on man's inner make-up. The adj *dhūmra* means 'smoke-coloured' but also 'dim (of intellect)'. And *dhūnóti/dhūnuté* can, and at times does, mean 'shake off, remove, liberate oneself from' (MSD under *dhū*). Thus Gk *thumos* 'spirit' is not a deviation – provided we stop thinking all the time of smoke. But Gk preserves another tell-tale detail. It has two verbs *thuō*, or one verb with two different semantic lines: one 'sacrifice' the other 'rush, attach, etc'. It has also *thu-mia-ō* 'burn offering(s)' (>*thu-mia-ma*) which may correspond to S *dhūmāya-*. One would think here are enough verbs. But no, prolix Gk gives us another one, *thunō/thuneō* 'dash, attack'. These forms retain the [-n-] which is also the mark of S dhātus of class V, VIII and IX. $\sqrt{dhū}$ is both class V and IX (and VI). So the S $\sqrt{dhū}$ covers all the different developments in Gk and Gmc.

41. Let us look more closely at the cognates of 'dying'. We have death (98) and the vb dying (291). The cogn noun for 'death' is found in S, L, B and Sl – S *mṛtyu* etc. The vb 'to die' is in S *mṛ-/mar-/mri-*, in Gk *e-mor-ten* only (in lex), L *morior*, B *mirti* and Sl *mřeti*. Gmc know nothing of this stem. The 'one dead' is in S *mṛta*, L *mortuus* and Sl *mřtūũ*; Gk has only *brotos* and *ambrotos* 'mortal, immortal'. Gk, despite its early and redoubtable literature, has preserved only a few and mostly decayed traces (see also *mar-ain-ō* 'wither'). Sl, despite its late and not all that rich literature has preserved the full gamut and here displays Organic Coherence. B (which here is Lth) has preserved both noun and verb but not the participial adjective. L too here displays OC. But, again, neither L nor Sl retain the range of verbal and nominal derivatives found in S (all Vedic forms): *mara-ti/te*, etc; *mara(-ṇa)*, *marayu* 'perishable', *marta* 'mortal, (Gk *mortos*)' *māra* 'death, pestilence', *mārin* 'killing', *mumūrṣu* 'wishing, about to, die'.

42. Much more revealing is the examination and comparison of the survivals of the root for 'freeing' (305). S has the vb $\sqrt{mu(\tilde{n})c} > mu(\tilde{n})cati$ and Lth *maukti* 'strip off, wipe'. Gk and L preserves the stem only in a compound and have no other cognates; moreover, the compounds in both languages denote the cleaning or wiping of the nose. In contrast S has its usual range of derivatives, all Vedic: *-muc* 'freeing, sending'; *mukti* 'liberation'; *mumukṣu* 'eager to free'; *mocana* 'deliverance'; *mokṣ* 'liberator', *mokṣa* 'release'; etc.

43. The cognates for 'shield' (179) provide much food for puzzlement. S does not have this cognate (and Gk *aspis,- dos* gen sing, may not be acceptable, which is unimportant). We have L *scutum*, C *sciath*, Lth *skydas* and Sl *štitũ*. Lth *skydas* comes from the Gmc *sci-d/t* 'plank', which comes from Gth *skaidan* 'to cut'. The Sl stem seems to be related to C *sciath* (despite the difficulty of *sc-* and *št-*). But now the C and the L stems come from a proto-Celtic **scoito-m* or a proto-Italic **scouto-m* which in turn came from a PIE root **sken-* as in S $\sqrt{sku} > skunāti/skunoti/scauti$ 'cover'. Indeed, a shield offers cover against missiles of all kinds. There are other theories too, but we can skip them. Therefore, is 'shield' really PIE?

Now, the fact is that no sort of weapon has a common cognate. So the shield is hardly likely to be so lucky. We have only some pairs: S *aśani* 'tip, bolt', Gk *akōn* 'javelin' (cf Lth *aśnis* 'blade, edge'); S *iṣu* and Gk *ios* 'arrow'; S *dāru*, Gk *doru* 'piece of wood, club, spear'; C *gae* and OE *gar* 'spear'(?); S *paraśu*, Gk *pelekus* 'axe' (probably a loan from non-IE?). Little else worth discussing. There are not clear inherited cogn stems for knife, sword, axe, javelin, bow and arrow, sling, breastplate or corslet and helmet. Most of the cognates of these items are intra-familial loans.

All this is quite extraordinary because the evidence we have from the Celts, the Italic and Germanic people, the Greeks, the Hittites and so on, indicates fairly warlike, rapacious people. So one would expect some at least of the stems denoting weapons to be common to 4 or 5 branches if not all (and here I include Alb, Arm, Ht, Iran and Toch). Yet, apart from 'spear' (182-183) and the questionable 'shield', not one stem is common to 4 branches (only one third of the total)! Were the PIEs really bellicose fellows? We know the IEs in late proto-historic times when they had already dispersed. What of the common condition before the dispersal? Well, we don't know but the evidence of the cognates for military matters is decidedly negative.

44. Another field where there is great divergence of stems is religion. Apart from the stem for 'god' which is common more or less in all branches (S *deva*, L *deus*, B *dievas* etc)¹¹ no other entity idea or item can be found in three or more instances. The cogn 'altar' found in L, C, Gmc, B and Sl is, in fact, the L word. Close to forming a cogn group is on the one hand L *precārī* 'pray, beg, beseech' and Sl *prošiti* 'ask for' and on the other S *prach-/prc-* and Gmc *fraiñnan* 'question'. But, of course, 'ask' in the religious sense of 'ask for, beg' in prayer (< *precārī*) is very different from 'ask=question'. For 'beg' and 'beseech' S has *prārthaya-*, *bhikṣ-* and *yāc-*. (And Gk *arFa* 'prayer', L *orare* 'plead', a legal term primarily and secondarily 'pray', and S *āryati* 'acknowledges, praises' are not really related, as some have claimed.)

Here too we find some pairs only that are true cognates: S *yaja-te/ti* 'worships, sacrifices' and Gk *hazo-mai* 'I worship'. From these we have S *yajña/yajñīya* 'holy, sacrificial' and Gk *hagno-* 'holy' and *hagio-* (cf S *yāga-*) 'holy, sacred'. Then there is S *ūh/ohate* 'praises' and Gk *eucho-mai* 'I proclaim' > *pros-eu°* 'I pray (to god-s)'; also Arm *uzem* 'I intend, will': But note here the great semantic differences. With the stem is connected S *vāghat* 'sacrificer, supplicant' and L *vovere* 'pledge, vow'. We also find for 'heaven' (in the sense of 'paradise') C *nem* and Sl *nebo* from the cogn stem as in S *nabhas* 'sky (cloud, mist)'. In other cases the apparent cognates turn out to be loans or derivatives. Thus the cogn stem for 'devil', found as *deoful* and variants in Gmc, *dijavolu* and variants in Sl, *diabul* in C and so on, they all eventually come from Gk *diabolos* 'slanderer, distorter'. The C *sacart* 'priest' is a loan from L *sacerdote* and the Sl *ierejī* from Gk *hiereus* 'priest'.

Generally, there are disparate terms for 'altar, anchorite, demon, devotion, heaven, hell, prayer, priest, religion, sacrifice, ritual, saint and sanctity, worship' and the like. This diversity shows that the religion and rituals we find in the branches were developed after the dispersal and that the original PIE religion was quite different from what we know of pagan polytheisms. That there was polytheism and henotheism (=worship of one deity above others in a specific place at a specific time) is undoubted: we find, e.g., the common name S *Aryaman*, Mcn *Areimene*, C *Ariomanus* and Gmc *Irmin*, or S *Parjanya*, Sl *Perun(u)*, B *Perkunas* and Gmc *Fjorgin*, or S *Dyaus*, Ht *Siu*, Gk *Zeus/Dia-*, L *Ju[s]-*, Gmc *Tiwaz*. This shows multiplicity. On the other hand, there must have been a kind of monotheism, since many IE traditions make some effort to define or at least indicate a Primal Source for all cosmogony or a Progenitor for theogonic generations: in Greece, in Homer it is *Ōkeanos* 'ocean-water', in Hesiod *Chaos* and in Orphism *Chronos* 'time'; in the Scandinavian *Edda* it was a Chasm-of-nothing; and so on. In the *RV* it is stated explicitly that all gods are expressions of That One, which is before all creation and all creation evolves from It (*RV* I·164. 46; III· 54. 8; VIII· 58· 2; X· 129). Here too, the Vedic Tradition probably retained more faithfully the PIE religious views.

45. I could certainly continue with many more IE stems like those for heating (S *tap-* etc), fainting (S *tām-* etc), tying (S *nah-* etc), moving (S *mīv-* etc), growing (S *vṛdh-* etc), remembering (S *smṛ-* etc) and so on. In all these cases we shall observe what was established much earlier (§ 21): one, S reflects more clearly the pristine PIE roots than any other branch; two, while S has OC in most cases with the full gamut of lexical items in verbs, nouns, adjectives and adverbs, the other branches show severe break-downs and losses in one or more categories.

Of course S is not perfect and I stress this. It, too, has break-downs and losses and innovations. Very curious is the case of S *praśna* 'turban' which is thought to be connected with plaiting (331), Gk *plekō*, etc. It is curious because *praśna* is also 'question' and is a derivative of *√prach* (*prch*) 'ask'. Of old, Meillet would not accept Gk *plekō* and S *praśna* as cogn with L *plect*, Gmc *fleht-* and Sl *plest-* (1908:37), but this doesn't explain S *praśna*. Just as curious are S *snih-* and *mṛj-*: the former means 'be moist, be fond of, attached' while in all the other branches the cogn stem means 'snowing'(!); in S the latter denotes 'rubbing, polishing' while the others refer to milking! I give no answer here to

¹¹ The Gk stem *theos* is doubted and has been rejected by most scholars; this is based on the notion that Gk *theta* (θ) corresponds only and invariably to S *dh-*. It is true that almost invariably Gk *-th-* = S *-dh-* but there is also S *dvār* 'door' which appears in Gk as *thura*. Then, the conjectural postulate **thesos* as source of *theos* is based only on *thes-phatos* which is hardly a secure basis. The linking with L *fēs-tus* (note the long *ē* as opposed to the short *e* in Gk and an additional conjecture of a PIE root *dhēs* cannot be taken seriously. So *theos* is not impossible. After all Gk has several aberrant cogns like *hippos* 'horse' (S *aśva*, L *equus* etc, fairly 'lawful' correspondences) or *o-noma* 'name' (S *nāman*, L *nomen* etc), etc.

the question which meaning is original¹². As S (or Vedic) is not *the* PIE language, it is natural that it too should suffer losses (and show innovations). But these are comparatively few.

46. The S $\sqrt{dr̥ṣ}$ is a good example. It lacks the forms of the present which are supplied by *paśyati*. (IEL regards *paśyati* as a decayed form of **spaśyati* and connects it with L *specio*, Gmc *spehōn* ‘espy, watch’ and Gk *skept-* (<**spekt-*) ‘view’. This may be correct but the *Dhātu-pāṭha* gives both $\sqrt{paś}$ and $\sqrt{spaś}$ so that the Vedic perf *pa-spaśe* (as $\sqrt{spr̥ṣ}$ ‘touch’, perf *pa-spr̥ṣe*) may be from $\sqrt{spaś}$ which has the same meaning. Then Tocharian AB have *pāk-* ‘intend’ not **spāk-*. So there probably were two dhātus in S – but only one elsewhere. In any event, $\sqrt{dr̥ṣ}$ lost its present tense.

47. The case of ‘ear’ is instructive. We have two stems. One is the Gk *ous*, L *auris*, etc. Here S probably suffered the loss of this stem. It has the \sqrt{av} which includes among its meanings that of ‘grasping, perceiving’ and also ‘hearing’. But surprisingly, in no branch where this stem is found, are there any cognates. In each branch, the vb for ‘hearing’ (see 318) is unconnected with this stem. Gk has beside *kluō*, the vb (*akouō* and) *akroasthai* ‘listen’ in which some see the cpd *akro* (edge, end) + **ous* (ear) + *thai* (vb-ending), which, being a derivative, does not explain *ous*. L fares no better: it has *audire* ‘hear’ and *aus culture* ‘listen’. Here some take *audire* < **aus-dh-* with **aus* as the origin of *auris* ‘ear’; in *auscultare* they see again **aus-* and *cult-* as with metathesis from *clu-t*, (=S *śru*). But again we have no explanation or cognate for ‘ear’. (All these conjectures seem true, and it is interesting that scholars seriously toy about with such complications yet refuse to see the simple formation *mā+tr̥* > *mātṛ* ‘mother’, §25.) On the other hand, C has both the cogn *au* ‘ear’ and *clua/clust*; its vb ‘hear’ is *clui/clyw-*, unrelated to *au* but related to *clu-*! Gmc has *auso* (Gth) and variants *eyr/ōra* (ON, OHG) but also *hlyst* (ON); its vb ‘hear’ is OE *hýran* and OHG *hōran* and its vb ‘listen’ is ON *hlýðan* and OE *hlystan* – neither group connected to *ausō/eyr-* but connected to *hlyst*.

What do we learn from these data? Obviously the *ous/auris* stems derived from a root like S \sqrt{av} and developed in parallel with the stems *srotra/clyst/hlyst-* in some branches then took over. As the S stem *śrotra* indicates, the ear was the instrument (*-tra*) for hearing (*sru* > *sro-*), as *ar-i-tra* ‘oar’ is the instrument (*-tra*) for propelling (*r* > *ar-*) a boat, or *vas-tra* ‘garment’ is the means whereby one dresses.

S supplies the probable explanation (not entirely unnoticed by IEL). S has the indeclinable *āvis* ‘evidently, manifestly, observably’ related to Au *āvis* and Sl *avě/javě* ‘evidently’. IEL suggests that the cognates *ou-s/au-ris* etc are related to this *āvis*; so also the prefix in L *au-dire* ‘hear’, in Gk *ais-thanomai* ‘observe, take notice’ and Ht *uḥ-ḥi* ‘I see’. S *āvis* is related to \sqrt{av} which has several meanings: one group is ‘favour, promote, protect’, the other ‘observe, notice’ (Mayrhofer). The *Dhātupāṭhā* gives a long list including *rakṣaṇa* ‘protecting’, *prīti* ‘favour’, *vṛddhi* ‘increase, promotion’, also *avaḡama* ‘perceiving, understanding’ and *śravaṇa* ‘hearing’. It is very likely that the stem in *ous/auris* etc appeared before the IE dispersal and many branches retained it (in one or other form), while others retained the ‘instrument for hearing’ like S *śrotra*. C retained both *au* and *clua-*. S probably reflects the true primitive situation with \sqrt{sru} > *śrotra* for hearing and \sqrt{av} > *āvis* for general perception.¹³

There are several other decays and losses in S but as was said these are few in comparison. After all, the numbers in §12 are quite eloquent. Of the 404 stems examined, S lacks 53; next is Gmc with 145, Gk with 149 and so on.

48. Oral Tradition and the AIT. How did the Indoaryans manage to maintain an oral tradition of such quality that their culture retained more cultural elements (eg names of deities) and many more lexical items (and grammatical features as any text on IE philology testifies: see Kazanas 2004)?

¹² Leaning in favour of Sanskrit after all the items examined, I could opt for this language and show speculatively how from the meanings in Sanskrit the other meanings were derived. But this is not the point. To say that the majority is right and therefore Sanskrit meanings are subsequent innovations it too facile; ‘democratic’ majorities are not necessarily true. So I leave it.

¹³ Indian philosophy states that the first manifestation is in *ākāśa* ‘ether, space’ and this is a vibration of sound in silence. Clearly the bodily sense connected with this phenomenon is hearing. Is this idea so ancient as to belong to PIE thinking? For this is suggested by the S \sqrt{av} > *āvis* and the ramifications in the other branches. How old is really Indic philosophy (and its systems) – after putting aside later developments and the AIT chronology?...Tantalizing questions.

The only explanation I can think of regarding the superiority in retentions of Sanskrit is that the Indoaryans moved very little or not at all. We saw earlier that they had developed an oral tradition that now seems definitely to have been far more efficient than any of the other branches (§14), since, even as late as the 7th cent CE and even in the 20th, the sacred texts were transmitted orally from one generation to the next within brahmin families. It was an incomparable systematic tradition as we saw in §14, above.

The Aryan Invasion/Immigration Theory has the Indoaryans enter Saptasindhu (which was allegedly populated by Dravidians, Mundas and/or, other speakers of South Asian languages) c 1700-1500 BC. But they did not arrive after a few months' travel from the PIE homeland: they made, according to some recent theories, stops at the Urals where they indulged in cultural exchanges with the Finno-Ugrians, and in Iran in common with the Iranians from whom they had not as yet separated. Let us now assume that, as most Indoeuropeanists claim, the homeland was the Pontic or South Russian Steppe – even though there is no evidence of any kind for this. The Indo-Iranians move eastward to the (southern) Urals and stay there for three or four generations (or ten: who knows?) in proximity to the Finno-Ugrians, then move south, either over the Caucasus west of the Caspian (less likely since Vedic has no evidence of lexical loans from Caucasian languages) or down along the eastern shores of the Caspian, to Iran. Then, after some decades again, the Indoaryans alone move further south-east (in waves?) and settle in Saptasindhu, whence, since by general agreement there was desiccation, they moved eastward to the Ganges basin following the natives who were at the time (c1700) doing just that.

Now, it should be obvious to any unprejudiced mind that a people in continual move over thousands of miles could not maintain the unique systematic oral tradition associated with the Indoaryans. On the other hand this tradition could not have developed *after* they reached the Ganges basin because the *RV* mentions far too often the 7 rivers (I.32.12; 34.8; 35.8; etc, etc) – and even M. Witzel admits that the *RV* was composed round the river Sarasvatī area (2001 §3). So when did it develop since the *RV* already contains the references to the area and all those inherited cultural treasures in religion and language?

It is a well known fact of history that people on the move for a long period tend, especially if they are non-literate, to lose elements of their culture, while their language suffers decay and losses. much more than a people remaining sedentary, as several indoeuropeanists have stated (Hock 1991: 467-9; Burrow 1973: 10; Lockwood 1969: 43); and this because they have little leisure to pass their lore to the new generation and/or they meet with, and absorb elements from, alien cultures. Therefore, either we hold onto our habitual notions and deny the fact that the PP and POC favour the Indoaryans, or we accept the fact that the Indoaryans preserved (in that astonishing *RV*) much more than any other branch and therefore moved very little or not at all.

49. It could be argued that the IAs developed their complex but secure system of oral transmission while on the move. In fact, Mallory did so (Nov 2004 : see §4 above) – and cited as example the Jews. But these people were literate certainly when they first appear in history (11th cent BC: Dunstan 1998) or from the time of Moses c1200 BC(?). But, if that were so, what would the IAs (or Indo-Iranians, since they were one people, according to the AIT) be transmitting and thus preserving? Their sacred *RV* was composed in the Saptasindhu. If they had developed their superb system while on the move, then they would have at least a few tales of their adventurous trekking and these would have been embodied in the hymns of the *RV*. The Jews indeed wandered about for many centuries in the Near East, from the time when Abraham and his clan left Ur, c1900 BC (if all this is historically true: opinions are divided for and against), until they finally settled in Judea: so their scriptures tell us. (But note here that Ur in Mesopotamia had literacy for 1000 year earlier, so the Jews probably have had it also.) Not so the *RV*: in the hymns there is not even a hint of this hypothetical travel and its (mis-)adventures. We can therefore forget this empty argument.¹⁴

50. It may also be argued, as was done by Mallory (2002), that if the Indoaryans retained most and their historical seat (or its environs), is the PIE homeland, then the people who moved a little distance, like the Iranians and the Tocharians, should have retained more than other branches, and those who moved farthest, the Celts and the Germans, should have retained the least. This is not the case, of course, and I certainly mean no such thing by the Preservation Principle. Once a people

¹⁴ A much more valid parallel would be the Gypsies who left India in the early centuries CE, moved north-westward through Persia and spread in the Near East, to North Africa, the Balkans and Europe (Hock 1996; Fraser 1995; chs 1-2). Now, they have legends of their travels (at least in Greece) but their language has only just sufficient elements to indicate its Indic origin (like the older one of the Kassites and Mitannis).

starts moving away, many other factors come into play and we cannot apply the simplistic formula “more distance, fewer retentions” enacting the ‘scientist’ (whatever this means). The Tocharians provide a good example. They moved comparatively little but their retentions are meagre. Their written records show that they adopted Buddhism. There is no trace in them of the IE polytheist religion, and therefore of IE elements other than linguistic ones. One can only speculate that even before Buddhism came there the people had already forgotten much of their culture.

People leave their native land in large numbers for various reasons. The Pilgrim Fathers left Britain seeking mainly religious freedom. In pre-classical Greece, people left and formed colonies for economic and political reasons. Sometimes some few people may leave for exploration and adventure while others seek to spread their (superior as they think) culture – like buddhist and christian missionaries. Thereafter other factors will influence all these categories (the devoted missionaries to a lesser degree). They may be subjugated; they may meet a very attractive alien culture; they may be very sensitive and may succumb easily to a foreign culture; and so on. Nobody now can know what the Celts, the Germans, the Balts or the Slavs met in their travels across Europe before they settled in their historical homes. Nobody knows why they left in the first place. The pre-historical archaeological researches that trace various movements of people in Europe like the Kurgan ones from the Pontic steppe, as is commonly claimed (i.e. before say 1800 BC) cannot really identify any IE people. Any so called identifications are conjectures in a world of speculation – no more. (It is curious that mainstreamers do not apply ‘scientific’ standards here also.)¹⁵

Here let me use an analogy. If one stands precisely on the North Pole of our planet, then one can only move southward: there is no other direction. But once a few steps south are taken, then one can move in many different directions. The simplistic formula “more distance, fewer retentions” does not hold. But, in the circumstances, the PP, exemplified in the Vedic tradition, does hold: most retentions, least or nil distance travelled. So, of course does the POC.

Conclusion

51. Here I rest. I have shown with a large number of lexical items that Sanskrit has many many more retentions of PIE than the other branches. This confirms what my earlier studies had already disclosed. There may be some errors or omissions in my examination of all these cognates but my survey of the Dictionaries and the comparative tables in various publications suggests that if I added more items the gap would widen in favour of Sanskrit. The difference between Sanskrit and the second and third branch is so great that it cannot be ascribed to chance, nor reasons like early literacy. The only plausible explanation for this that I can think of is a strong, systematic oral tradition. Such a tradition could not flourish nor be maintained by a people on the move. So the Indoaryans are indigenous, certainly at the beginning of the 5th millennium and possibly very much before that. I have discussed at length many other aspects that support this conclusion in many publications since 1999.

52. I should add two more arguments. They will not mean much to the prejudiced minds of mainstream scholars (indologists, indoeuropeanists, archeologists or whatever) but I think these details also add strength to the view against the invasion/immigration theory. I am referring to the absence of clear common cognates regarding military matters (see §43). This suggests to me that the PIEs were not at all bellicose (though dissensions and even fights should not be ruled out) – at least not as the IEs appear after dispersal in (proto-)historical times. This view is very different from that of other indoeuropeanists who saw war and weapons as an important aspect of PIE culture (e.g.

¹⁵ Not without good reason, Mallory wrote to me (§3,4) that we need a time-machine to go back and check the total vocabulary for Vedic, Greek, Latin, Germanic etc, at a given date and then draw conclusions about retentions. This would of course be ideal! But he makes no similar suggestions for so many other AIT areas where arbitrary conjectures with hardly any evidence are rampant. For instance, archaeological evidences regarding identifications of ancient peoples, their movements and languages are very fragmentary and highly dubious. The fact that through mechanical repetition these conjectural identifications are generally accepted (see, e.g. §54, n 16!) means nothing in fact. Surely, here also the time-machine is necessary.

Then there is the other grand conjecture taken as proven fact by indoeuropeanists and indologists of the AIT persuasion – the common or primitive Indo-Iranian period (§48). Apart from linguistic conjectures and theories of convenience there is not a scrap of evidence that the Indo-Iranians came as a unified (or closely related) people with a single or common culture from the Steppe, through the southern Urals to Persia and (the IndoAryans) to Saptasindhu. On the contrary, the **actual** linguistic evidence (not conjectural reconstructions) shows that the Iranians had lived in Saptasindhu and moved north-west. See §54.

Hencken 1955:44; Childe 1926: 85). A relevant peaceful region for 6 millennia is the area in today's Afghanistan where the culture of Mehrgarh developed and gradually spread south-eastward to Saptasindhu and became there the Indus-Sarasvati Civilization. Archaeologists specialising in the region like M Kenoyer, G.L. Possehl and J. Shaffer, have emphasized its unbroken continuity and its peaceful character – so much so that J R McIntosh termed her study of it *A Peaceful Realm* (2002).

53. Another argument comes from the field of religion. The Veda has more common IE theonyms than any other branch and fills lacunae in the other branches. V *Agni*, Ht *Agnis*, Sl *Ogon*; V *Aryaman*, Mcn *Aremeine*, C *Ariomanus* (and *Eremon*), Gmc *Irmin*; V *Parjanya*, Sl *Perŭnŭ*, B *Perkunas*, Gmc *Fjorgyn*; V *Dyaus*, Ht ^D *Siu*, Gk *Zeus*, L *Jupiter*, Gmc *Tiwaz*, Sl *divŭ* V *Ušas*, Gk *Ēōs*, L *Au[s]rora*, Gmc *Eos-tra*; V *Bhaga*, Sl *Bogu*, Phrygian *Bagaios*; Gk *Phoibos* (where S *bh* = Gk *ph* and S *g* = Gk *b* are frequent correspondences). These 6 correspondences show the situation adequately; in fact, only the *Dyaus* cognates are found in 6. (For a full discussion of this matter see Appendix, here, and Forthcoming Kazanas 2005 in press.) Moreover, as I have argued elsewhere following K Werner (1989), the all-inclusiveness of the RV (in contrast to the other branches which have only polytheism) contains also a kind of monotheism or monism (Kazanas 2001: 288-9): this universe with its multifarious manifestations came from an original unity (RV X, 129) which is no different from the upanishadic Absolute: 'It being One has variously become this All (and Everything) – *ékam vā idám ví babhuva sárvaṃ* (VIII, 58, 2). Then, while wise poets speak of It, being One, in many ways and name It *Agni*, *Indra*, *Yama* etc (I 164, 6; X 114, 5), the different gods are gods by virtue of a single godhood or god-power, as the refrain in III 55 reminds us clearly: *mahád devānām asuratvám ékam* 'Single is the great god-power of the gods'. It was, I suspect, this religion, containing the One and the many as expressions of the One, as indicated in the RV, that was fragmented into the many different polytheist cultures of the Indo-Europeans after their dispersal.¹⁶

54. One may still entertain doubts about my thesis. But, while the Kurgan culture of the Steppes as the PIE source is a mere nebulous supposition, held on tiers of conjectures, no other early IE tradition contains so much evidence in its language and culture as to surpass the Indoaryan claims for the more faithful inheritance of the PIE civilization¹⁷.

Another aspect mainstream indoeuropeanists and indologists (of the AIT persuasion) often stress is the common Indo-Iranian period (§48 and n 15). This too is based on tiers of IEL conjectures. On the contrary, the **actual** linguistic evidence (not conjectural reconstructions) shows that the Iranians had lived in Saptasindhu and at some date moved away, north-westward. The *Avesta*, as has repeatedly been pointed out (e.g. Kazanas 2002), refers to a region formerly inhabited by the Iranians by the name *HaptaHəndhu*. Now this is as close to the Vedic *Sapta-sindhavaḥ* '7 rivers' as one can get – and there are many occurrences of this phrase in the RV (I. 32.12; II.12.3; IV.28.1; VIII.24.27; etc). V *sindhu* is a common term for 'river' and for the river Sindhu which even Greeks named *Indós*; but in Avestan 'river' is denoted by *θraotah-* and *ravau-* (perhaps from the PIE root seen in S $\sqrt{sru/sr}$, Gk *rheō* etc; VIII.301 in §11) thus it is not likely that the IAs left the Iranians taking with them this isolated name *Hapta Həndu* which then they foisted onto the 7 rivers in Punjab and the second component onto the Indus itself. Rather, the Iranians left the region of the 7 rivers and held the name in their memory. Something very similar happens with the V river-name *Sarasvatī* and Av *Harahvaiti-*. Avestan has no other cogn with *harah-* whereas S has \sqrt{sr} > *sarati/sisarti*, *saraṇa*,

¹⁶ E. C. Polomé made a survey of 'Indo-European Religion and the Indo-European Religious Vocabulary' (1991). In it he examined many studies on this subject by G. Dumézil, J. Gonda, P. Chantraine, H. Hubert, Gamkrelidze & Ivanov, et al, but could not come up with more than 3 or 4 sure cognate stems like those for faith, fire, and prayer, already examined in this paper.

¹⁷ "Archaeologists have not in fact succeeded in locating the Indo-Europeans and prehistoric Eurasia offers an abundant choice of culture areas" (Watkins 2000: XXXIV). This factual statement is followed, as is usual with mainstream indoeuropeanists, by a long series of conjectures presented as historical facts identifying waves of Kurgan expansion as PIE movements, and then: "We must be content to recognize the Kurgan peoples as speakers of certain Indo-European languages and as sharing a common Indo-European patrimony. The ultimate 'cradle' of the Indo-Europeans may well never be known" (ibid XXXV). Why should we be content since there is a choice of other areas? Of course, since the Kurgan people had no writing we don't know what language(s) they spoke and, in any event, no indoeuropeanist has come up with any evidence of any people (Kurgan or other) moving into Saptasindhu after c4500! Thus Saptasindhu has as far as I am concerned the best claim so far – if not the only good one. But I am not certain and don't press it though I shall continue to argue in its favour against the Steppe (which **may have been a locus of secondary dispersal**).

saras, sarit, etc, etc and of course cognates are found in other IE branches: (Kazanas 2003: §43e): here again it is the Iranians that took with them the memory of the Indic river and gave it to a river in their new habitat. Then, we have the alleged loans from the Finno-Ugrians: one of them is V *chāga* ‘he-goat’. But it is curious that Avestan does not have this stem: its own stem for goat is only *būza*-. Are we to suppose that somehow the IAs, in departing from the Iranians, managed alone to retain apart from the alleged loanword *chāga* the words *aja* and *eḍa* ‘goat’ – cogn of course with Gk *aix*, Lth *ozys* and Arm *aic* and also the first component of Av *iz-aēna* ‘leathery’, but that the Iranians, even though now settled, mysteriously lost these stems having only this *būza*-?¹⁸ Surely, here too the movement is the reverse – from Saptasindhu to Iran. Moreover, Vedic retains the PIE **s** but this becomes **h** in Avestan. All this actual linguistic evidence and the conclusion it forces upon us has some archaeological/geographical support. G Gnoli, who is a normal AIT adherent and by no means an indigenist, showed very clearly that the early portions of the *Avesta* hardly know northern and western Iran and he analyses migrations there from south to north and east to west but not north-west down to south-east (1980). Thus while the conjectural Indo-Iranian movement south-eastward contains many anomalies, the Iranian movement from Saptasindhu north-westward accommodates all facts.

Finally we must remember that, as Thomas Kuhn ably demonstrated (1970) and thus angered many scientists, mainstream (‘orthodox’ or ‘normal’) doctrines forming the prevalent ‘paradigm’ have philosophical and/or psychological constituents as well; therefore scholars, who usually like to think of themselves as reasonable people and authorities in their fields, resist, ignore or cover up anomalies that undermine the mainstream doctrines and act almost invariably so as to preserve the paradigm within which they operate. The classic example is found in the 16th and 17th mainstream scholars who not merely resisted the Copernical heliocentric model of our solar system while themselves adhered to Ptolemy’s geocentric model, but actually persecuted their opponents – Bruno, Kepler, Galileo (Cohen 2001; Kuhn 1970; Koestler 1964). The partly self-contradictory remarks of C. Watkins in n 15 demonstrate this in the IE field; also J. V. Day promotes the ‘Kurgans’ even though in his voluminous study he states that “the ancient cranioskeletal evidence in Europe for expansion by Kurgan groups is **surprisingly meagre** in places” (2001: 317; emphasis added). I should refer also to the field of biological sciences and the enormous resistance mainstreamers display against new ideas. It is not only philosophical and psychological elements (=prejudices) that engender this resistance but also threats to one’s reputation, scrambling for position in the hierarchy or ports prestigious and remunerative, access to funds and the like (Pert 2002: 73, 161-2, etc; Dembski 1998: *passim*).

In Indology and Indoeuropean studies the received doctrine has for over a century been the Aryan Invasion/Immigration Theory while the IE diffusion spreads from the Pontic Steppe. On this, Edmund Leach, Master of King’s College, wrote that after the discovery of the Indus-Sarasvati Civilization, indoeuropeanists should have scrapped their theories and linguistic reconstructions “and started again from scratch. But this is not what happened. Vested interests and academic posts were involved” (1990). This may sound harsh but prejudice and self-interest still continue today and are no less rampant in the humanities than in the sciences.

¹⁸ Some connect this *būza*- with OE *bucca* (OHG *boc*) and C *boc(e)*: this surely is highly dubious. But in any event we must wonder at the disappearance of *chāga* from AV. There is also the stem *kūpa* ‘hole, well’ (Borrow 1973: 27) which is not found in AV but retained by Vedic; this has cogns in other IE branches like Gk *kupē* ‘hole’, L *cūpa* ‘cask’, Gmc *hūf-r* ‘ship’s hull’, etc. Whether the word came from Finno-Ugrian or PIE it is curious that Av lost it remaining with the non-IE and non F-U *xāu-* and *čāt-* for ‘well’; for the Indo-Iranians must have commonly used wells (and must have had ‘holes, pits’) in their common habitat before they Indoaryans moved onward. The S word *kapha* ‘phlegm (foam, froth)’ is found in Av as *kafō* (Persian *Kaf*) and in various forms in F-U like *hab*, *khowu* etc (ibid). But the S *śālākā* ‘splinter, twig’ (cf *śāla* ‘staff’) has again cogns in F-U but is not found in Av (or Persian or other related language). These phenomena are unexplainable by the common Indo-Iranian period” and travel south-east. On the contrary they can be explained quite rationally by the movement of Aryans away from Saptasindhu first to Iran and thence to the Urals (and further West).