

The “Saussure effect” in Indo-European Languages Other Than Greek¹

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The “Saussure effect” is a sound law that has been proposed to explain the loss of a laryngeal in the vicinity of an *o*-grade in Proto-Indo-European. The present article is a critical analysis of the material that is supposed to have undergone the “Saussure effect” in Indo-European languages other than Greek. It is concluded that the facts do not support the assumption that the “Saussure effect” has taken place in these languages.

1. The “Saussure effect”

In 1905, Ferdinand de Saussure observed that a root-final vowel was dropped if the root had *o*-grade: “Le type *τόρ-vos* en regard de *τέρεθρον* n’a pas à passer pour *fortuit* ou *anormal*, mais pour *RÉGULIER*” (511, fn. 2). The focus of de Saussure’s formulation is of course Greek, since that was the language which provided evidence for the root-final vowels which we now know to be reflexes of the laryngeals. In laryngealist terms, de Saussure’s observation was described by Nussbaum as follows: “**H* shows a vocalic outcome in neither the environment #*R**o* nor in the environment *oR*_*C*. ” (1997: 182). In a very thorough article on the subject, Nussbaum coined the term “Saussure effect” for this phenomenon (further “SE”). Since Meillet, it has been observed that the rule might apply to Indo-European languages other than Greek as well. Today SE is applied throughout Indo-European whenever we expect a trace of a laryngeal in the vicinity of an *o*-grade but do not find one.

¹This article was presented in earlier forms as a paper at the annual Leiden-Münster Colloquium, June 3, 2008 in Münster, and at the Conference “The sound of Indo-European”, April 16-19, 2009 in Copenhagen. It owes much to numerous discussions with Lucien van Beek.

It is immediately obvious that the conditions for the application as formulated by Nussbaum are peculiar at best. He discusses other sequences containing a laryngeal and an *o*-grade and concludes that in these sequences no regular laryngeal loss can be observed. One does wonder, though, if the **o* caused the loss of the laryngeal, why then is the laryngeal preserved adjacent to **o* in, e.g., Greek ἐγώ < **h₁eǵ-oh₂*, Greek πῶν ‘herd’, Sanskrit *pāyú-* ‘guard’ < **poh₂-i-u-*, *gáya-* ‘life’ < **g^woih₃-o-* etc.?⁷ The only phonetic explanation given for this laryngeal loss that I am aware of is Rasmussen’s theory of the consonantal **o*. In his discussion of SE, Rasmussen concludes the following: “Es scheint also ein Laryngal nach dem Infix-*o* zu schwinden, wenn er der mittlere von drei Konsonanten war. Dieser Schwund ist offenbar von der schweren Konsonantenanhäufung hervorgerufen: Vor der Vokalisierung des konsonantischen Infixes hatten alle Beispiele mindestens fünf Konsonanten im Anlaut” (1989: 180). Accordingly we find Greek τόρμος ‘nave’ < **torh₁-m(n)-o-*. In similar initial clusters without an **o*, however, the laryngeal appears to be generally retained, cf. Sanskrit *śírṣnáh* gen.sg. ‘head’ < **kṛh₂sn-*, *aritra-* (with secondary *a-*), Lith. *irklas* ‘oar’ < **h₁rĥ₁tro-*, Gr. *νόωνυμος* ‘nameless’ < **nh₃nh₃mno-*. Rasmussen’s formulation therefore ultimately still depends on the presence of an **o* in the root, as far as I can see and, as a consequence, does not explain how the SE worked phonetically.

The phonetic improbability of the effect thus invokes skepticism about its reality and warrants another look at the data. This is especially important in view of the readiness with which SE is applied in the literature. SE provides us with a very powerful tool to explain alternations and should therefore be based on a number of rock solid examples. Such examples should in principle have the following features: A. they should contain an *o*-grade which can be traced back to Proto-Indo-European with some confidence. B. the presence of a laryngeal in the root should be beyond doubt. In the following I will show that there are in fact few such examples, and that there is an acceptable alternative for all adduced examples of SE outside Greek. The Greek material will be ignored here and is treated by Lucien van Beek in this volume. It is clear that there are cases of

laryngeal loss in Greek that appear to be related and require an explanation. I adhere to van Beek's view that the laryngeals were regularly lost between a liquid and a nasal, rather than in the vicinity of an **o*, but this is irrelevant for the present discussion. I will first discuss the most convincing or widely accepted examples of SE in Indo-European languages other than Greek, and then discuss the Latin material which is supposed to show the effect best. More dubious examples will be left out of the discussion, and I will also omit most cases in which the loss of a laryngeal in a form without an *o*-grade is thought to be analogous to (often unattested) forms with an *o*-grade.

2. Hittite

In Hittite, SE is applied by Melchert (1994: 49f. with *reff.*) to account for the absence of **h-* in *warša-* 'rain', *wašt(a)-* 'to sin', *kalmara-* 'beam', and *palu_{ae}-* 'to cheer, shout for joy'. In all these cases we would be dealing with **h₂*, since the other two laryngeals probably would not be preserved anyway. In the case of *warša-* 'rain', an initial **h₂* is reconstructed only in order to account for the initial **a-* of Greek *ἀέροση* 'dew'. The variant *ἐέροση* with initial **e- < *h₁*, however, is much more frequent and attested earlier. The **a-* of *ἀέροση* must come from *ἀήρ* 'mist, air'. Since the **h₁-* would be lost anyway in the Hittite word, one cannot tell whether SE applied in this word.

Hittite *wašt(a)-* 'to sin' is allegedly related to Greek *ἄτη* 'error, blindedness', *αὐάτα* (Alcaeus) which would require loss of the initial laryngeal in Hittite, but the Greek word is clearly derived from the verb *ἁάω* 'to mislead', which makes the etymology impossible (Kloekhorst 2008: 986).

Hittite *kalmara-* 'beam, ray' is related to *kalmi-* 'piece of firewood', which makes the connection with e.g. Greek *κάλαμος* 'reed' semantically less likely (*idem*: 431). In addition, there is no indication that a laryngeal would be retained in this environment anyway. Even if the etymology is correct, there is no reason to assume SE.

Hittite *palu_{ae}-* 'to cheer, shout for joy' would require laryngeal loss if it derived from **polh₂-ueh₂* and thus be related to the word for the palm of a hand, e.g. Greek *παλάμη*. The semantic development would then be 'palm' >

‘clap’ > ‘cheer’. Semantically much more satisfying and formally equally possible is Kloekhorst’s proposal to derive the verb from **b^hlh₁-uo-ié/ó-* to the verbal root **b^hleh₁-* ‘to cry out’, cf. Latvian *blēju* ‘I bellow’ (idem: 623).

A final example from Hittite is *uttar-* ‘word’, which would reflect **h₂uodh₂-r* with a secondary zero grade according to Eichner (1980: 146), who connects the word to Greek *ἄδῆ* ‘voice’ and Sanskrit *vadⁱ* ‘to speak’. This etymology requires a substantial amount of analogical replacement to arrive at the attested forms (see the discussion in Kloekhorst 2008: 932f.). Kloekhorst connects the word to Latin *vetō*, Middle Welsh *dy-wed-* ‘to say’ < **ueth₂*, which seems preferable.

It is clear that none of the Hittite examples warrants the assumption that the SE worked in Anatolian.

3. Sanskrit

In Sanskrit there are two alleged examples of SE which deserve mentioning. Rasmussen adduces *darmá-* ‘Zerstörer’, which would lack the laryngeal allegedly reflected in *dáriman-* ‘Zersprengen’. The *set*-forms of this root are, however, secondary, as has been shown by Praust (2000).

Jasanoff invokes SE to account for the lack of a laryngeal in Sanskrit *válgati* ‘move up and down’, where the laryngeal is reconstructed on the basis of Tocharian B *woloktär* ‘rests, stays’ (2003: 76, fn. 29). Quite apart from the uncertainty of this etymology, the reconstruction **uolHg-* for *woloktär* is doubtful. There are three verbs of the *woloktär*-type within Tocharian B, of which only *koloktär* ‘follows’ has a Tocharian A variant, viz. *kälk-*, which shows no trace of a laryngeal. Whatever the explanation of the Tocharian B formation, the Sanskrit example cannot be adduced in favor of SE.²

Apart from the two examples mentioned and dealt with, there is one other word in Sanskrit that would show the effect, viz. *sárva-* ‘whole’, which will be discussed together with its Latin and Greek cognates later on.

² Furthermore, in Sanskrit the laryngeal would drop before the unaspirated voiced stop in those forms where the root was followed by a consonant (cf. Lubotsky 1981).

4. Balto-Slavic

In Balto-Slavic, the evidence for SE is of a different nature. There the absence of an acute accent may indicate that a laryngeal has been dropped. It is, however, important to realize that certain accentual paradigms were productive in certain formations, so that an accent cannot be used on its own as evidence in favor of or against SE. The most important publication to date about these productive types in Baltic is Derksen (1996). The main body of Balto-Slavic evidence for the effect was gathered by Rasmussen (1989: 181ff.) and Yamazaki (2009). In spite of the large number of examples they give, it is doubtful whether any of them can really be used as evidence.

A number of the Slavic examples Rasmussen adduces are mobile, rather than oxytone as he suggests, which means that they provide no direct evidence about the presence of a laryngeal (e.g. Russian *storoná*, acc. *stóronu* ‘side’; Russian *kólos* ‘ear’). Other examples are either of debatable origin, or they did not have a root-final laryngeal in the first place, like in Slavic **polvb* ‘fallow’ < **pol-u-* (cf. Sanskrit *parusá-* ‘grey, dirty’) and **vĕnb* ‘wreath’ < **uoh₁i-no* (cf. Schrijver 1991: 245).

Somewhat more solid evidence in favor of SE is provided by Slavic **koltb* ‘piece of wood’ and **moltb* ‘hammer’. The former appears to belong to the Slavic accentual paradigm *b*, which would at first glance rule out a laryngeal. The second word may also belong to accentual paradigm *b*, but there is stronger evidence for original mobility (cf. the discussion in Derksen 1996: 117ff., 2008: 231, 324). The accentuation of **moltb* is therefore probably inconclusive. The Baltic cognates of **koltb* all have an acute accent in combination with an *o*-grade: Lith. *kálti* ‘beat, forge’, *káltas* ‘chisel’, Latv. *kāit*, *kāīts*. There is no indication that these forms would reflect the zero grade of the root in, e.g., the participle, as Rasmussen proposes (1989: 183). The accentuation of Slavic **koltb* must be explained as a result of inner-Balto-Slavic processes (cf. Derksen, ll.c.) and is unlikely to reflect an Indo-European alternation. The laryngeal is faithfully reflected by the Baltic cognates.

Yamazaki discusses several of Rasmussen’s Baltic examples. In many cases she clearly shows that the examples

given by Rasmussen fall short of being certain. I will limit myself to those examples of SE adduced by Rasmussen which Yamazaki finds “plausible”: *karnà* ‘bark’, *spartà* ‘speed’, *šaiūnas*, *šaiūnis* ‘brave’, *narsà*, *nařsas* ‘courage’ and *baišas* ‘voice’.

The etymology of *karnà* ‘bark’ is uncertain. The connection with Latin *carō* ‘meat, flesh’ as ‘that what is cut off’ is not impossible, but hardly compelling. One could also derive the word from PIE *(s)kert- ‘to cut’ (which is reflected without final *-t- in Baltic, cf. Lithuanian *kiřti* ‘to hew’, *kiřvis* ‘axe’), in which case the non-acute root is regular.

Lithuanian *spartà* ‘speed’ is either derived from *spartūs* ‘fast’, with a non-acute root, or directly from the verb *spirti* ‘to spur on’. Both *u*-stem adjectives and deverbatives in *-a* are categories in which metatony is very productive in Lithuanian and the non-acute root can never be used as an argument against a laryngeal at an earlier stage (cf. Derksen 1996: 128ff., 158f.). The same applies to examples like Lithuanian *kalvà* ‘hill’ and *tamsūs* ‘dark’ which are adduced by Rasmussen. In Latvian we do find, e.g., *kalva* ‘hill, small island’ with the expected acute accent (thus also Yamazaki 2009: 443).

The adjectives *šaiūnas* and *šaiūnis* ‘hasty, impetuous, splendid, good’ may very well have been affected by metatony if the root was acute at some stage. In addition, it is not quite certain that the words are of Indo-European origin. They may derive from Lithuanian *šauti* ‘to shoot’ (thus Rasmussen), which has no cognates outside Balto-Slavic. Pokorny connects *šaiūnas* and *šaiūnis* with Greek *κνέω* ‘to be(come) pregnant’ and Sanskrit *śavī-* ‘to swell, become strong’ < **keuh₁*. For the semantics one may compare Sanskrit *śavas-* ‘power, might’. If this is correct, one would have to assume SE or metatony in the Baltic form. The former is problematic because the formation and *o*-grade of *šaiūnas* and *šaiūnis* are purely Baltic (Sanskrit *śūna-* ‘emptiness’ bears no semantic similarity to the Baltic words and is therefore unrelated).³

³Both semantically and formally it is also possible to derive the Baltic adjectives from the word for ‘dog’. In that case the full grade of the root

Lithuanian *baĩsas* ‘voice’ is certainly not of Indo-European origin either. In any case, there is no evidence that the root was acute. The acute tone of *bĩlti* ‘to speak’ comes from the *sta*-present *bĩlsta*.

Finally, the nouns *narsà* and *naĩsas* ‘courage’ are probably related to Sanskrit *ná*, Greek *ἀνήρ* ‘man’, Old Irish *ner* ‘strength, might’ etc., which do not contain a root-final laryngeal.

In short, none of the examples above can be adduced in favor of SE in Baltic. Yamazaki also provides some new examples that would show SE in Baltic. The most convincing of those are Lithuanian *gaudũs* ‘sonorous’ and Latvian *gãuds* ‘miserable’, which derive independently from the verbal root found in Lithuanian *gaũsti*, *gaudžiũ* ‘to make a sound, hum’, Latvian *gãust* ‘to wail’, also *gãust*.⁴ The verbal root may derive from **gouH-dʰ(h₁)-* and be compared to Sanskrit *jóguve* ‘to call’, Greek *γοάω* ‘to lament’, Slavic **govoriti* ‘to speak’, Old High German *gikewen* ‘to call’, *kũma* ‘lament’ as Yamazaki suggests (2009: 444). The root-final laryngeal is suggested by the Germanic noun. It is, however, not evident that the non-acute root in the Baltic verb is caused by SE. Firstly, the formation **gou(H)dʰ(h₁)-* is clearly a Baltic-Slavic innovation. It is therefore not imperative that the *o*-grade should be of Indo-European date (the same applies to the *o*-grade in the Greek cognate *γοάω*). Secondly, the Latvian form with an acute root requires an explanation. It may reflect other forms of the verbal paradigm that are now lost, but it may also be old. An alternative explanation for the loss of the laryngeal in Baltic may be to assume that it had already been lost in a thematic formation or in the nasal present found in Slavic before the suffix **d* was added, but this is of course an ad hoc assumption.

The other examples Yamazaki provides, Lithuanian *garbẽ* and *tãrpas*, are unconvincing. Lithuanian *garbẽ* ‘honor’

must probably be an instance of inner-Baltic ablaut and the non-acute accentuation is expected.

⁴The verbal root is related to Slavic **gosti*, 1sg.pres. **godŏ* ‘to play an instrument, hum’, which probably has mobile accentuation, cf. Polish *gaść*, 1sg.pres. *gedę*. The Slavic verb does not tell us whether it was acute or not. It probably reflects a nasal present **gund-*, cf. **bŏdŏ* ‘I will be’ < **bund-* to **byti* ‘to be’.

is related to the verb *geĩbti* ‘to honor’, Old Prussian *geĩbt* ‘to speak’. Here we have a circumflex root with an *e*-grade, which rules out SE. Since the verb occurs in Old Prussian as well, this seems to be the oldest form and *garbẽ* can easily be a later derivative.⁵ It is quite possible that the root is somehow related to Lithuanian *gĩrti* ‘to praise’, Sanskrit *gũrti-* ‘praise’ < **g^uerH-*, in which case Baltic **gerb-* may be based on the *yod*-present **g^u(e)r-i^e/o-* (Lithuanian *gĩria*), where we find regular loss of the laryngeal.

Lithuanian *tãrpas*, dialectally also *taĩrpas*, means ‘space between two objects, interval’⁶ and is cognate with Latvian *starpa* ‘idem’, which corresponds to the Lithuanian variant with acute intonation. Non-acute intonation is further found in the preposition *taĩp* ‘between’, where the circumflex is secondary, cf. the broken tone of Latvian *starp* ‘between’. These words may be connected with South-Slavic **trãpъ* ‘pit’, which has acute intonation, cf. Serbo-Croatian *trãp*. I see no reason why Latvian *tãrps* ‘worm’ should be related. Whether or not the Baltic words derive from **terh₁-* ‘to wear down’ (or **terh₂-* ‘to cross’?) remains speculative, because the *-p-* is unexplained. In any case, they do not constitute evidence in favor of SE.

There are two more cases which deserve some attention. In his Slavic etymological dictionary, Derksen reconstructs **HiH-n-* for Lithuanian *vĩenas*, Latvian *viẽns* ‘one’ and Slavic **jĩnъ* ‘other’ and **h₁eiH-ueh₂* for Lithuanian *ĩevà* (2, 4), dial. *ĩeva*, *jẽva* (1), Latvian *ĩẽva* ‘bird-cherry’, Slavic **jĩva* ‘idem’ (2008: 212, 216). In Latin and Greek there are cognates of these words with an *o*-grade in the root and no trace of a laryngeal: Old Latin acc.sg.m. *oino*, later *ũnus* ‘one’, Greek *oĩvŋ* ‘one (on dice)’, Latin *ũva* ‘bunch of grapes’, Greek *oĩŋ*, *oĩa*, *oĩŋ*, *oĩva* ‘service tree’. For the proposed reconstruction to work, one is thus forced to assume SE in Latin and Greek. Derksen reconstructs an *n*-stem and a *u*-stem respectively, because the roots **HeiHn-* and **HeiHu-* seem to have an impossible root structure in

⁵Leaving aside the fact that dialectally the word belongs to accentual paradigm 3 and the possibility that the circumflex is metatonical, as in *kilmẽ* (accentual paradigm 4) ‘origin’ from *kilti* ‘to arise’.

⁶But not ‘hole’, cf. Fraenkel 1962-1965 s.v. *tãrpas*.

Indo-European with their three root-final consonants.

To my mind, these forms are more easily explained from the stems **h₁ei-n-* and **Hei-u-*, without an internal laryngeal. The acute accentuation in Balto-Slavic should be explained from the zero-grade of the root. Derksen has shown that word-initial stressed **i-* is reflected as acute in Slavic (2003). I have argued elsewhere (Pronk 2011) that this rule applies to stressed **Hu-* and **Hi-* in Balto-Slavic already. The process can be identified with what is often referred to as “laryngeal metathesis”, the metathesis of a sequence of a laryngeal plus **i* or **u*, which took place in Balto-Slavic after the application of Hirt’s law. In paradigms with an ablauting initial syllable, the acute intonation was generalized, probably in the form of glottalization. In both examples under investigation, the initial zero-grade is attested in Slavic, where the acute accent is expected, and the full grade is attested in Baltic, which shows the secondary acute accent. Since no laryngeal has to be reconstructed in these roots, SE is not called for in Latin *ūnus*, Greek *οἷν* ‘one (on dice)’, Latin *ūva* ‘grape’ and Greek *οἷη*.

Apart from the fact that most - if not all - apparent examples in favor of SE in Balto-Slavic are incorrect or inconclusive, Balto-Slavic also has a significant number of counterexamples, such as Russian *koróva*, Lithuanian *kárvė* ‘cow’, Latvian *sáļms*, Russian *solóma* ‘straw’, Lithuanian *žárnà* ‘intestine, hose’ (accentual paradigm 3), Latvian *zárna*, cf. Sanskrit *hirá-* ‘vein’, Lithuanian *kálnas*, Latvian *kal̃ns* ‘hill’, Lithuanian *garnỹs* (accentual paradigm 3, secondarily also 4) ‘heron’ etc.

For all these counterexamples, it is possible to argue that the acute intonation originates in a zero-grade or *e*-grade root variant, as Yamazaki does for Lithuanian *kálnas* and Latvian *kal̃va* (2009: 453ff.). This is not disputed. In fact, it would be very difficult to find an Indo-European counterexample that could not be explained through inner-paradigmatic leveling with forms with other ablaut grades. It remains remarkable, however, that in formations with good Indo-European pedigree, the Balto-Slavic material offers only counterexamples to SE and not a single example that unequivocally speaks in favor of it.

5. Celtic

In Celtic, SE is held responsible for the loss of a laryngeal in Old Irish *oll* ‘ample’, comparative (*h*)*uilliu* by Matasović in his Celtic etymological dictionary. He derives *oll* from Proto-Celtic **folno-*, i.e. PIE **pol(h₁)no-*, with the root of Greek *πολύς*, and separates it from Old Irish (*h*)*uile* ‘whole, all’, Middle Welsh, Breton (*h*)*oll*, Cornish *hol*, *oll*. Matasović (s.v. **olyo-*) connects the latter group of words either to Gothic *alls* ‘all’ < **h₃ol-io-* (an etymology going back to Morris Jones 1913), or to Latin *sollus*, which would, again, require SE. Schrijver (1995: 323) also considers reconstructing **solh₂no-*.⁷ Since generalization of the lenited variant **hol-* at the expense of the root **sol-* in Goidelic is exceptional,⁸ the connection with Gothic *alls* seems more attractive. If Schrijver (1995: 19, 321ff.) is correct in assuming that British **li* would yield *-ll-* after the second syllable, but not after the first, Middle Welsh (*h*)*oll* ‘all’ etc. must reflect **olno-*. In that case, the *io*-stem of (*h*)*uile* must be separated from the British forms and OIr. *oll* ‘ample’ may be cognate, in spite of the minor semantic difference. Neither the forms with, nor those without initial *h-* in British can easily be explained as secondary, so perhaps we should reckon with conflation of earlier **sol-* and *(*p*)*ol-* in British, an option considered by Nussbaum, too. The uncertainty about the origin of the Celtic forms renders them at best possible examples of SE.

⁷Other proposals in the literature are the following: Thurneysen (1946: 500) connects the words to Latin *ollus* ‘that’ < **ol-no-* and the Old Irish preposition *al* ‘beyond’. Pokorny (s.v. *al-* 1, *ol-*) takes Old Irish *oll* and (*h*)*uile* etc. together as derivatives of **al-* ‘darüber hinaus’, which would form the basis of PIE *alios* ‘other’.

⁸Notice, however, that (*h*)*uile* is one of a few adjectives that can stand before the noun they qualify in prose (Thurneysen 1946: 229), and that it is always used with an article (idem: 297), which makes it likely that a preform **solio-* was more often in a position where it would be lenited than other adjectives (cf. idem: 142). In addition, *huile* can be used independently, also in positions where one expects lenition, e.g., *is and atá gním tengad isind huiliu labamar-ni* ‘That is the doing of the tongue, in all that we speak’ (MI 31^b23). Therefore, it cannot be ruled out completely that the lenited form was in fact generalized and the form with initial **s-* lost. A similar explanation might apply to the British forms, but cf. the discussion in Nussbaum 1997: 189f., fn. 89.

6. Latin

Of all the languages that preserve traces of the laryngeals best, Latin and Greek appear to show the most reliable reflexes of SE. In his 1997 article, Nussbaum gives a meticulous overview of the Latin material involved. He argues that SE can be shown to have affected four examples that are “certain enough” and four more which “become possible once the Saussure effect has been established” (l.c.: 186). The four best examples are *sollus* ‘whole’, *meditullium* ‘inland part of a country’, *collis* ‘hill’ and *collus/collum* ‘neck’. I will discuss them one by one.

Latin *meditullium* ‘inland part of a country’ has a clear cognate within Latin, namely *tellūs*, *-ūris* ‘ground, earth’. The etymon is related to Old Irish *talam* [m. n] ‘earth’ < **tlh₂em-*, Old Prussian *talus* ‘ground’, Lithuanian *tilės* pl. ‘flooring’, *tiltas* ‘bridge’, Serbo-Croatian *tlo* ‘floor’, and Old Norse *þel* ‘floor’. The formations of both Latin cognates are unexplained (cf. De Vaan 2008: 609) and they can hardly be treated separately from each other. The ablaut they show can be compared to *terra* ‘land’ - *extorris* ‘exiled’ < **ters-*, **tors-*/**tr̥s-*. The Indo-European cognates show a number of different formations, which makes it impossible to tell which formation may have caused the geminate *-ll-* in *tellūs* and *meditullium*. The geminate may come from the *n*-present reflected in *tollō* ‘to raise’ < **tel-nh₂*, but it may equally be from *-ls-* in analogy to **tersa*. It seems problematic to me to explain *meditullium* from **-tolHu-ijo-*, with loss of the laryngeal because of the *o*-grade, while leaving *tellūs* hanging in mid-air as preferred by Nussbaum.

Latin *collus*, *collum* ‘neck’ has one apparent direct cognate, viz. Gothic, Old High German, Old Norse *hals* ‘neck’. Both reflect **kolso-*. These words are often derived from the root **k^welH-* ‘to turn’, with the neck as a ‘turner’. This etymology is semantically perfectly possible (cf. Lithuanian *kāklas* ‘neck’ < **k^wok^wlo-*), but in Germanic the loss of labialization is unexpected. If one compares Gothic *has* ‘who’, *har* ‘where’, *han* ‘when’ etc. < **k^wo-*, *aiba-* ‘horse’ < **h₁ek^wuo-*, one gets the impression that the labialization is regularly retained before **o*. Admittedly, both the interrogative pronoun and the word for ‘horse’ may have restored the **w* from other forms in the same paradigm

(e.g., **k^weso* and nom.sg. **h₁ekūs*, cf. Kloekhorst 2008: 237-239). Even if the Latin and Germanic words belong to this root, their formation is unique (is it a thematicized *s*-stem (attested in Slavic **kolo*)?), other laryngeal-less derivatives of the same root may have influenced it (e.g. Lithuanian *kāklas* ‘neck’, Sanskrit *cakrā-*, Greek *κύκλος* ‘wheel’), and it cannot even be ruled out completely that *collus* reflects **kolasos* < **k^wolHso-*, as admitted by Nussbaum (1997: 196).

Latin *collis* ‘hill’ has direct cognates in Greek *κολώνη*, *κολωνός*, Gothic *hallus* ‘rock’ < **kolH-nu-*, English *hill* < **k^wlH-ni-*, Lithuanian *kálnas*, Latvian *kalns*, all ‘hill’. These forms clearly point to an original ablauting *n*-stem. A possible Indo-European paradigm would be nom. **kolH-ōn*, acc. **k(o)lH-on-m*, gen. **k(o)lH-n-os*. For the reconstruction of an *o*-grade in the suffix in the accusative cf. Umbrian *homonus* [dat.pl.] ‘man’. Since the laryngeal would have been lost in Latin in all forms with a full or lengthened grade of the suffix, it is very unlikely that we would find a trace of it. The word understandably joined the other *n*-stems as if it had a root **kol-*, thus becoming **kolō*, **kolonem*, (**klānis* >>) **kol(o)nis*, like *homō*, **homonem*, **hom(o)nis*. After that, **kol-ni-* > *collis* was derived from it, like *carnis* ‘meat’ next to *carō* ‘meat’ (< **kerh₂-*), gen. *carnis* (both already in Livius Andronicus) or *amnis* ‘river’ from an *n*-stem **abō*, cf. Old Irish *aub* ‘river’ < **abōn* or Latin *pellis* ‘skin, hide’ < **pel-n-*, cf. Lithuanian *plėnė* ‘membrane’ < **pl-ēn-*.

A similar explanation applies to Latin *pollen* ‘(fine) flour’, which is likely to be related to Latin *pulvis* ‘dust’ < **polHu-*,⁹ Greek *πάλη* ‘fine flour, dust’ < **plH-eh₂* or secondarily to a *u*-stem **παλυ-* < **plH-u-* (from which *παλύω* ‘to disperse flour’). Further cognates may be Lithuanian fem.pl. *pėlūs* ‘chaff’, Russian *polóva* ‘chaff’, Sanskrit *palāva* ‘chaff’ < **pelH-u-*, Latin *palea* ‘chaff’ (see further Schrijver 1991: 256f.). The *n*-stem **polH-n-* was reshaped in the zero-grade to **pol-n-* in analogy to other *n*-stems, as explained above for *collis*. The geminate *-ll-* subsequently spread throughout the paradigm.

⁹ *pulvis* < **polVu-* if Nussbaum is right that **-lu-* > *-ll-*. He explains the lack of a trace of the “Saussure effect” by assuming a full-grade **polH-o/eu-* (1997: 197).

Latin *sollus*, *sollo-* ‘whole’, mainly in compounds, is by far the strongest example for SE in Latin, or indeed in Indo-European.¹⁰ It is undisputedly related to *salvus* ‘safe, secure’, and outside Latin to Oscan *sullus* nom.pl. ‘every, all’, *salavs*, Umbrian *salv-* ‘whole, healthy’, Greek ὅλος, Sanskrit *sárva-*, Tocharian A *salu* ‘complete’, Tocharian B *solme* ‘completely’. It is traditionally thought that, within Italic, we might be dealing with a *u*-stem, with Latin *salvus* and Oscan *salavs* reflecting **slh₂-eu-o-*.¹¹ The Latin vocalism can only be explained from a zero-grade of the root. The Oscan form may, but need not have an anaptyctic *-a-* (cf. Schrijver 1991: 295, Nussbaum 1997: 186f.). The full grade of the suffix would also explain the sequence **-lv-* in Latin after syncope. The *u*-stem might be confirmed by Sanskrit *prasalaví-* ‘towards/on the right side’, which would reflect a loc.sg. **s(o)lH-eu-i*, cf. loc.sg. *sūnaví* ‘son’ (Plath 2000). Ruijgh (1987) points out that the initial stress of Greek ὅλος also points to an earlier *u*-stem. One cannot but conclude that the *uo*-stems in Greek, Sanskrit, Latin and possibly Tocharian are independent thematicizations of an old *u*-stem adjective. Next to this *u*-stem, there are a number of other formations, e.g. Old Irish *slán* ‘safe, whole, healthy’ < **slh₂-no-*, and probably Greek *ἰλάσκειν* ‘to reconcile, appease’ < **si-slh₂-ske/o-* with a secondary zero-grade *-λα-* (for expected **-λη-*), Armenian *atač’em* ‘to request’ (see the discussion in Clackson 1994: 173f.), Gothic *sels* ‘kind’ < **sēlh₂-*, and Latin *solor*, perhaps from a root noun **sōlh₂* (cf. De Vaan 2008: 572). Greek and Old Irish may point a root **selh₂-*, which might be confirmed by Hittite *šalli-* ‘big’, if < **solH-i-* (see Kloekhorst 2008: 710), but the semantics of this connection are not very strong.

Returning to the *u*-stem, the following adjectival paradigm can be reconstructed, at least for the masculine forms:¹²

¹⁰Cf. also the discussion in van Beek forthc.

¹¹I cannot agree with Nussbaum that **slh₂-u-o-* would also yield **salav-* (1997: 186, fn. 42), nor that there was an Indo-European suffix **-euo-* (idem: 187).

¹²Ruijgh even prefers a neuter *u*-stem **solh₂-u-* ‘the whole’ (1987), which seems attractive semantically. Because of the large number of attested adjectives, however, I rather reconstruct an adjective for Proto-Indo-

nom.sg. **solh₂us* > Italic **solus*
 acc.sg. **slh₂eum* > Italic **salauem*
 gen.sg. **slh₂eu(o)s* > Italic **salauos* (or **slh₂uos* >
 Italic **slāuos*)¹³

In the nominative, the laryngeal was probably regularly lost, as in Greek *πολύς* ‘many’ < **polh₁-us* etc. The nominative stem was thematicized in Latin *sollus*, Greek *όλος* and Sanskrit *sárva-*. The original accusative stem was thematicized in Italic yielding **salauo-* > Latin *salvus*, Oscan *salavs*. The split of the paradigm in Italic naturally separated the two shades of meaning of the adjective, i.e. ‘whole, undamaged’ (*salvus*) and ‘whole, complete’ (*sollus*). The question remains, of course, why all these forms were thematicized.¹⁴ This remains a problem, but it has been shown that these forms need not necessarily reflect the working of SE, especially since there are several indications that we are dealing with an earlier *u*-stem. For a discussion of the Greek forms I refer to Lucien van Beek’s article in this volume.

The other examples of SE in Latin “fall short of being certain”, as Nussbaum puts it (1997: 196). Latin *culmus* ‘stalk’ can reflect both **kolmos* and **kolamos* (idem: 196f., cf. *palma* < **plh₂-em-*). Latin *ūber* ‘udder’ can also reflect the zero-grade **Hu(H)d^h-r* or the *e*-grade **Heu(H)d^h-r* (idem:

European. At an earlier stage, this adjective may of course derive from the proposed neuter noun. The *o*-grade in the root would thus also be accounted for (i.e. the same full grade as in *δόρυ, γόνυ* etc.).

¹³If one prefers an acc.sg. **solh₂um*, the full grade of the suffix can be reconstructed for the loc.sg. **slh₂eui*.

¹⁴Several scenarios can be considered, I will briefly mention two of them. First, there may have been a semantic difference between PIE athematic **solh₂-u-* and thematic **solh₂-u-o-*, comparable to the opposition between Russian *ves* ‘whole, all’ and *celyj* ‘whole, entire’. The thematic vowel may have had a similar function to that of *-yj* in Russian *celyj*, which goes back to a pronoun that merged with the adjective to form a definite form of the adjective. Note that the generally indefinite PIE **polh₁-u-* ‘many’ remained unthematicized in Sanskrit *purí-*, Greek *πολύς*. Secondly, the *o*-grade of the nom.sg. may have acted as the trigger for the thematicization of the *u*-stem, although in that case it remains unclear why the otherwise similar **polh₁-u-* remained athematic.

198f.), attested in Old Norse *jugr*, Old Frisian *iader*.¹⁵ The existence of the second laryngeal in the root is doubtful. The odd thing about a reconstruction **HeuHd^h-* is that the root ends in three consonants, which is very unusual for an Indo-European root.¹⁶ It seems difficult to analyze the root as an original compound **Heu-* + **Hd^h-*, since neither element constitutes a known root. It is hardly more attractive to analyze the root final **-d^h-* as some kind of suffix or root extension, since it remains unclear what **HeuH-* would be. In addition, the heteroclitic inflexion of ‘udder’ speaks against the analysis of the word as a recent compound. The root structure would be less awkward if we could reconstruct the root as **h₃eud^h-*. In Sanskrit, the zero grade possibly yielded **ūdh-* if there is a sound law **h₃RC- > *ūRC-* (cf. Lubotsky 1988: 94, fn. 22).¹⁷ The Balto-Slavic cognates, Slavic **vymĕ* (a.p. a) ‘udder’, Lithuanian *ūdrōti* ‘to be with young’ and *pa-ūdrė* ‘lower part of the body’, may reflect the regular metathesis of initial stressed **Hu-*.¹⁸ A similar explanation may be invoked to explain the Germanic forms with long **ū-* (Swiss German *ūter*, Dutch *uier*), although there appear to be no parallels in Germanic.

7. Conclusion

It can of course be argued that, although none of the examples I discuss here require SE, the recurring pattern of lack of vocalization of a laryngeal whenever there is an *o*

¹⁵Cf. also the discussion in van Beek in this volume. In Latin, **HuHd^h-* may be expected to yield **vab-* according to Schrijver (1991: 327), but this is doubted by, e.g., Nussbaum (1997: 199, fn. 90).

¹⁶Why was the full grade not ***HueHd^h-*, as in, e.g., **Hieh₂ĝ-* ‘to worship’ and **h₂reh₂ĝ-* ‘to support’?

¹⁷Cf. the long initial *ū-* of Sanskrit *ūrvá-* ‘container, enclosure, dungeon’, which is likely to be related to the root *var-* ‘to cover, enclose’ < **h₃uer-*. Notice that the root *var-* also has a present form *ūrnōti* next to *vṛnōti*, which arose as a result of laryngeal metathesis when the verb was preceded by the preverbs *ví* and *abhí*: **CíHuC > *CíuHC-* (Lubotsky 2000, also on the etymology). About the long *ū* of *ūrvá-*, Lubotsky remarks that it is possible that *-ūr-* is the regular reflex of **-CruV-*, since the sequence *-r₂V-* is not attested in Vedic, except at transparent morpheme boundaries (1988: 94, 104 fn. 24). Other instances of unexplained initial long *ū-* are found in Sanskrit *úrj-* ‘food, refreshment, strength’ and *ūrdhvá-* ‘high’.

¹⁸Sanskrit *úddhar* shows columnar root-stress, and the Slavic forms also seem to reflect earlier fixed root stress (see Pronk 2009).

grade in the vicinity is proof enough that some sort of rule applied. It must be stressed, however, that the only example in Indo-European outside Greek that receives a straightforward explanation when one assumes SE is Sanskrit *sárva-*, Latin *sollus*, Greek ὄλος. As shown above, the *uo*-stem in these three languages is due to later individual thematicizations of a *u*-stem, which rather complicates the picture. Given the phonetic unlikeliness of the “rule”, one plausible example simply does not justify it. In addition, the one plausible example is outweighed by the numerous counterexamples we find in Balto-Slavic. The only possible conclusion is that SE did not work outside Greek and is therefore not a common Indo-European development.

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