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Initial **sp-* in Hittite and *šip(p)and-* 'to libate'*

The Proto-Indo-European source of Hittite *šip(p)and-* 'to libate' has been the subject of much discussion, due to its implications for the treatment of initial clusters of sibilant plus stop in Hittite and potential implications for the much larger question of the status of the verbal category of the "perfect" in Anatolian: was the perfect, which in the oldest non-Anatolian IE languages expresses an attained state, inherited also in Anatolian and lost there, or is it an "Indo-Hittite" feature, i.e., a common innovation of "Core Indo-European"? Derivation of *šip(p)and-* from a PIE reduplicated perfect **s(p)e-spónd-* has justifiably been rejected on formal and functional grounds, but improvements in our understanding of the outcome of PIE **sp-* in Hittite, as well as recent innovative proposals regarding the phonology of reduplication and its status in PIE verbal morphology call for a reconsideration of the issue.

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At the colloquium honoring Holger Pedersen in Copenhagen in 1992, Bernhard Forssman proposed that the Hittite stem *šipand-* 'libate; consecrate; offer' reflects a PIE reduplicated perfect stem **spe-spónd-*, while its rarer OH variant *išpand-* continues a root present (published as Forssman 1994). This account was not favorably received by the Anatolian specialists present upon its initial presentation, and it has subsequently with rare exceptions met mostly with rejection: e.g., Kassian and Yakubovich 2002: 34–5; Jasanoff 2003: 78, note 39; Tischler 2006: 1058 (with further literature); Kloekhorst 2008: 405; and Yakubovich 2009. Positive endorsements known to me are by Schulze-Thulin (2001: 384), LIV_2: 577, and Hoffner and Melchert (2008: 27), the last of which elicited a renewed rejection by Yakubovich (2010a: 151).

All of those who have rejected Forssman's derivation of *šipand-* have explicitly or implicitly assumed that *šipand-* and *išpand-* represent alternate spellings of a preserved initial cluster /sp-/. This was also the interpretation I adopted in Melchert 1994: 31–2, although with considerable misgivings. We have learned a great deal more about the fate of initial **sp-* in Hittite in the last twenty years, and I have for some time believed that the gist of Forssman's account of *šipand-* must be correct (hence the cautious reference in Hoffner and Melchert 2008: 27), but still outstanding formal and functional problems that I could not solve prevented me from asserting this in print. The time has now come for a complete review of the matter.

As has never been disputed, the development in Hittite of initial sequences of **st-* and **sk-* is consistently *išt-* and *išk-* respectively: *ištantā(i)-* 'linger, be late' < **steh₂-* 'stand', *ištu(wa)-* 'be-

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come known' < **steu-*, *iškalla-* 'slit, tear' < **skelH-*, *iškar-* 'prick, stick' < **sker-*. This is also the most common result for **sp-*: *išpai-* 'be satiated' < **speh$_1$(i)-*, *išpant-* 'night' < **(k^w)sp-ént-*, *išpar-* 'spread out, strew' < **sper-*, *išparre-* 'kick, trample' < **sperH-* (on separation of the last two see Kloekhorst 2008: 406–9), *išpart-* 'escape' < **sperdh-*.

However, we now have solid evidence for two additional though rare outcomes of **sp-*. The first is preservation as /sp-/, where the presence of a synchronic cluster is crucially indicated by *alternate* spellings with *ša-*, *še-*, *ši-*: *ša/e/ipe/ikkušta-* /spe/ikusta-/ 'pin, needle' (see now CHD Š: 397 for attestations). As seen by Poetto (1986: 52–3), Neumann (1987: 282), and Kimball (1999: 108–9), this word clearly reflects a virtual **sp(e)ik-us-to-* to the enlarged root **speig/k-* 'sharp, pointed' seen in English 'spike', Latin *spīca* 'ear (of grain)', etc. The second rare result is anaptyxis of a vowel *u*: *šuppištuwara-* 'adorned with appliqués, decorations', *šuppištuwari-* 'appliqué, decoration'. The meaning is now assured by the occurrence of the *i*-stem noun in the Hurro-Hittite Bilingual, KBo 32.14 ii 43 (see Neu 1996: 81 and 146). However, the popular etymology (already Neu 1970: 68) as a compound 'brightly shining', allegedly consisting of *šuppi-* 'ritually pure' and *ištu(wa)-* 'become known' makes no sense whatsoever either semantically or formally. Hittite *šuppi-* means 'ritually pure', and there is *no basis* of any kind for a sense 'shining'. Nor is the role of the purported second member 'become known' in a compound allegedly meaning 'brightly shining' explained (see the justified doubts of Kloekhorst 2008: 791).[1] This derivation also cannot account for the alternate form *išpišduwarāš* in KUB 42.64 Vo 2, which cannot be dismissed as a scribal error, since *iš-piš-du-wa-ra-* does not remotely resemble *šu-up-pí-iš-tu-wa-ra-* visually or aurally.

The decorations attached to a copper cup (thus in the bilingual) and the gold and silver adornments added to clothing may well have been shiny (for the latter see refs. in Tischler 2006: 1198), but they were also more fundamentally stuck or stitched onto their respective objects.[2] We are thus surely dealing with a derivative of a different form of the PIE root **spei-* 'pointed, sharp' seen already above in /spe/ikusta-/: the sense of /supistwara:-/ was 'appliquéd', decorated with something 'stuck on' (for the semantics compare the history of English 'stick' and 'stitch' and German *stechen*). Note, however, that at least one Hittite speaker knew this word in a form with the regular treatment of **sp-* as *išp-*.

I had already recognized the existence of these two examples in Melchert 1994: 32, but found them as exceptional and inexplicable as *šipand-*. It is now clear, at least to me, that these forms do fit into a well-known Hittite pattern: they show the two regular results of prehistoric **sm-*: (1) preservation; (2) *u*-anaptyxis. The first treatment is shown by Hittite *ša/e-me-en-zi*, *ša-am-na-an-zi* 'withdraw; relinquish' where (*pace* Kassian and Yakubovich 2002: 12) the alternate spelling of the singular stem clearly shows synchronic /smen-/ (thus with Oettinger 1979: 104, Kimball 1999: 117, and CHD Š: 120), in an ablauting root present **smén-*, **sm̥n-énti*, even if the root etymology remains uncertain (thus also Kloekhorst 2008: 714–15).

There are now three examples for the treatment with anaptyctic *-u-*, which is quite real (*contra* Kloekhorst 2008: 782–5):

(1) *šummittant-* 'axe' < virtual **smit-ént-* '(the) cutting (one)' (already Knobloch 1956: 67, Kimball 1999: 199 et al.);

[1] As per Kloekhorst (2008: 790), despite its clear behavior as an inherited word — an ablauting adjective — Hittite *šuppi-* 'ritually pure' has no clear cognates or etymology. Unfortunately, the attractive comparison with Umbrian *sopa*/**supa** and interpretation as 'taboo' (Watkins 1975) is very doubtful: see the extended critique by Weiss (2010: 358–83).

[2] I know of no basis for the meaning 'animal representation or icon (usually of metal)' adopted by Yakubovich (2009: 548, note 5). In any case, the word definitely does not contain *šuppi-* 'ritually pure'.

(2) *šum(m)um(m)aḫḫ-* 'unite, make one' < **sm-* 'one' + *-uman-* 'belonging to' + factitive *-aḫḫ-* (Rieken 2000: 174, modified by Hoffner and Melchert 2008: 60);[3]
(3) first plural enclitic possessive *-šumma/i-* < **s-mé-* < aphaeresized **n̥s-mé-* (Rieken 2002: 414–15).[4]

As emphasized by Rieken, the change of initial **sm-* > *šumm-* with anaptyxis and gemination is a genuine Hittite sound law. She herself (2002: 408) left open the question of its precise conditioning versus that of the preservation as /sm-/. However, the contrast between *ša/emen-* < **smén-* and *enclitic* possessive *šumma/i-* < **sme-* suggests that the different outcomes are conditioned by the accent: namely, that initial **sm-* was preserved immediately before the accent but developed to **summ-* when the following syllable was unaccented. We cannot be as certain about the accent in *šummittant-* and *šum(m)um(m)aḫḫ-*, but their morphological structure is more than compatible with supposing that the accent stood farther to the right than the original initial syllable.

Rieken (2002: 408) reasonably derives Hittite *išmeri-* 'bridle, rein' < **s(h₂)mér-*, but if the root etymology (to **seh₂-* 'bind') is correct, as it surely is, this example does not prove a development of **sm-* > *išm-*, since it is more likely that it was the **sh₂-* that led to *išḫ-* (as in *išḫanittar-* 'relative by marriage, as per Rieken 1999: 283–4). The resulting unsyllabifiable **išḫme-* was then reduced to *išme-*. *Pace* Kloekhorst (2008: 394) nothing requires that the verb *išḫamai-* 'sing' reflect a zero-grade **sh₂m-;* it may easily continue full-grade **sh₂em-*, as he himself assumes for the noun *išḫamāi-* 'song'.

We may now return to the matter of the Hittite treatment of initial **sp-*. The observed vacillation is now explainable. Pre-Hittite language learners were faced with two models for how to treat **sp-*: since it consisted of sibilant plus voiceless stop, they could follow the model of **st-* and **sk-* and add a prothetic *i-;* however, since **sp-* also consisted of a sibilant plus *labial stop*, speakers could also follow the model of the other sequence of sibilant plus labial stop, namely **sm-*, and according to the position of the accent, either preserve the sequence or insert an anaptyctic *-u-*. Although *m* generally behaves as a sonorant in older Indo-European languages (that is, as a continuant), one must not forget that in articulatory terms it is also a stop. It is thus not unreasonable that Hittite speakers did not show absolute consistency in their treatment of initial **sp-*, where **p* belonged both to the class of labial stops and to the class of voiceless stops.

The dominant practice for most lexemes was to follow the model of the other voiceless stops and add a prothetic vowel *i-*. Contra Melchert 1994: 32, Kimball 1999: 110–11, Kassian and Yakubovich 2002: 33–5, and Yakubovich 2009: 545–7, there is not the slightest justification to doubt the linguistic reality of the prothetic vowel in *išT-*, as assumed by Kronasser (1966: 48–9), Eichner (1975: 98), Oettinger (1979: 416–17), Kloekhorst (2008: 61), and others. First of all, the alternations in personal names from the Old Assyrian texts of the Colony period cited by Yakubovich (2009: 546) not only all involve **sp-*, as he admits, but show exactly the same variation as we have seen in *šuppištuwarā- ~ išpištuwara-*: *Šu-pu-da-aḫ-šu* vs. *Iš-pu-da-aḫ-šu*, *Šu-pu-na-aḫ-šu* vs. *Iš-pu-na-aḫ-šu*, *Šu-pu-nu-ma-an* vs. *Iš-pu-nu-ma-an*. I emphasize that we find no spellings in these names of the type †*Ša-pu-* or †*Ši-pu-*, which is what we would expect were

[3] Since the word is hapax, the objection of Kloekhorst (2008: 784) that the word does not show geminate spelling for either of the two *-mm-* is not compelling.

[4] I am not persuaded by Rieken's two proposed examples of the change **-sm-* > *-summ-* in morpheme-internal position. Hittite *šumanzan-* (sic!) means '(bul)rush' and has basic single *-m-* (see Melchert 2004: 129–31); CLuvian *te/iššumma/i-* '(unfired) clay cup' contains the Luvian suffix *-umma/i-* also seen in *annarumma/i-* 'powerful'.

we facing alternate spellings for /spu-/.[5] These names actually further confirm that the variation in the Hittite appellative is genuine: /sup-/ vs. /isp-/. Note that the scriptio plena of the stem vowel in *šuppištuwarā-* 'appliqué' suggests that the accent was not on the vowel following the initial **sp-*, and therefore the treatment *šupp-* beside *išp-* fits the pattern for *šumm-* < **sm-*. Unfortunately, there is no independent evidence for the position of the accent in the personal names or in *ša/e/ippe/ikkušta-* 'pin', but nothing stands in the way of supposing that the names reflect original accent beyond the first syllable, while the appellative was /spékusta-/ like /smén-/.[6]

Kimball (1999: 110) cites as "very convincing" my own argument (Melchert 1984: 110) that the Hittite adjective *išḫaškant-* 'blood-shot, blood-stained' must reflect a compound **išḫanškant-* with the participle of *iške/a-* 'anoint, smear', thus showing that the *i-* of *iške/a-* must be purely graphic. The argument is not at all compelling, however, since nothing precludes that the compound was formed in pre-Hittite before the addition of the prothetic *i-*. In any case, the overlooked new example *i-is-ke-ez-*[*zi*] in the fragment KBo 34.243:3 (Ritual of Zarpiya) now excludes both my etymology and that of Rieken (1999: 402), approved by Kloekhorst (2008: 402), which start from **(p)s-sḱe/o-* and **sg$^{(h)}$-yé/ó-* respectively.[7] The plene spelling (which would be entirely unparalleled for the prothetic vowel) appears to require a return to the etymology of Oettinger (1979: 327), despite the semantic difficulties associated with the root **(h_1)eish$_1$-*.

The first two arguments adduced by Kassian and Yakubovich (2002: 33) against the reality of the prothetic *i-* in *išT-* are also without foundation. Their statement that the prothetic vowel is always spelled *i-* is correct, but their claim that *iš-/eš-* alternations are frequent in cases with etymological **i-* is patently false: Hitt. *iškiš-* 'back', cognate with Grk. ἴχι(ον) 'loins' (a quite certain equation, *pace* Kloekhorst 2008: 402) is spelled exclusively with *iš-*, while *išḫā-* 'owner; master, lord' < **$h_1$es-h_2-ó-* with regular raising of pretonic short **e* to **i* (see now on this word and its etymology Nussbaum 2014: 244–5) is also spelled exclusively with *iš-*, with the single exception of the totally aberrant form *eš-ḫé* in the NS copy KBo 3.34 i 25, a copyist's error that has no probative value.[8] Their second point, that the prothetic vowel is never spelled with plene as *i-iš-*, makes no sense, since we would expect the prothetic vowel to be unaccented and thus never lengthened.[9] The further argument adduced by Yakubovich (2009: 546, note 3) is also less than compelling. He claims that the HLuvian form *sà-ma-ra/i-ka-wa/i-ni* (URBS) for the city appearing in Hittite cuneiform as ^{URU}*Iš-mi/e-ri-ka-* shows that the Luvians learned this city name through the Hittites with /sm-/, since Luvian had eliminated all cases of initial **sC-* in their own language. There are two problems here: first, to my knowledge we know only that Luvian eliminated initial **s*+stop by deletion of the sibilant (e.g., HLuvian (*261)*tapai* vs. Hittite

[5] One could, of course, argue that the empty vowel used in the spelling for /sp-/ merely copied the following real /u/ vowel, but the evidence from Hittite appellatives for the reality of *u*-anaptyxis argues decisively against this.

[6] The spelling of the "ethnic" suffix *-uma*(*n*)- with plene, as in ^{LÚ}*ḫi-iš-tu-u-ma-aš* (KBo 23.99 i 19), provides some indirect support for an accent */Spunóman-/ at least in the one personal name.

[7] *Contra* Kloekhorst (2008: 402), the inflection *iškezzi*, *iškanzi* must be older than that of *iškiyazzi*, since the inflectional type in *-e-/-a-* in base verbs is recessive in Hittite, while that in *-ye-/-ya-* is notoriously productive. Thus Rieken's etymology is excluded also on this basis.

[8] *Contra* Kloekhorst (2008: 390) the form *e-eš-ḫa-aš-ši-iš* is very unlikely to belong to this word (see Otten 1961: 130–1) and is irrelevant. There is thus no basis for appealing to the sporadic New Hittite change of *iš-* to *eš-* (see further below.)

[9] The claim of Kloekhorst (2008: 61) that the prothetic vowel cannot be identified with the Hittite phoneme /i/ because it fails to undergo the New Hittite lowering to *-e-* is also false, since Yakubovich (2010b: 309–15) has made compelling arguments that the very sporadic change of *e* > *i* in New Hittite is not a regular sound change.

ištāpi 'blocks up'). I am not aware of any evidence that tells us the fate of initial **s*+sonorant. Second, even if Luvian had no native words with initial **sR-*, the argument is not probative. There is no way to exclude that the Hittites adapted the name **Sme/iriga-* in their fashion with prothetic *i-*, while the Luvians dealt with the initial **sm-* by anaptyxis of an *-a-*. The Luvian form may easily be read as /Samariga-/.

We are thus left with *šipand-* alternating with *išpand-* as the *only* basis for doubting the reality of the prothetic *i-* in *išT-*. But we have now seen that this orthographic alternation cannot possibly be interpreted to stand for /spand-/, despite the assertions of Kassian and Yakubovich (2002: 33–5) and Yakubovich (2009: 547–8). We now *know* how a preserved initial /sp-/ was written where it existed, and as we would predict, it is expressed by alternation between *ša-pV-*, *še-pV-* and *ši-pV-* in *ša/e/ipe/ikkušta-* 'pin, needle'. Given that *šip*(*p*)*and-* is spelled several hundred times with absolute consistency as *ši-*(*ip*)*-pa-an-t/d°*, it is not credible that this spelling stands for /sp-/. The first syllable of the word must be read as /si-/.

Possible additional evidence for the reality of a stem /sipánd-/ comes from HLuvian and Lycian. Yakubovich (2009: 555) cites the suggestion of Hajnal (1995: 133–4) that HLuvian (CAELUM.*286.x)*sá-pa-tara/i-i-sa* (KARKAMİŠ A 2+3, §17a) might mean 'libation priest' and reflect an earlier */sVpentero/ī-/ also continued by Lycian *hppñterus*, which is a professional title or institution.[10] It is now clear that Lycian *hpp-* must be derived from a prehistoric **sVp-* (*contra* Melchert 1994: 304–5), and the HLuvian may be read /sapandaris/. For Yakubovich (2009: 556) these forms attest a hybrid Luvo-Hittite creation **səpantalli-* 'pertaining to a libation' that underwent rhoticism in Luvian and was then borrowed into Lycian. The last step is pure speculation, and the very different morphology of *hppñterus-* argues rather for a native Lycian word that is at best a root cognate with the Luvian. That the verbal stem is not attested in Luvian or Lycian (thus far!) is not a compelling argument against a Proto-Anatolian stem **sepónd-* that led by regular phonological developments to *šipand-*, */sapand-/, and **hppñt-*. I must emphasize, however, that I place no weight on this argument, since the meaning of the Luvian is not fully assured, and that of the Lycian is based entirely on the putative etymology.

Kassian and Yakubovich (2002: 33) and Yakubovich (2009: 547) argue that one cannot interpret the first vowel of the Old Hittite/Old Script spelling *ši-pa-an-t/d-°* as real, because this could only imply a reading /siband-/, and voicing of the stop in this environment cannot be motivated by any known Hittite sound change. This argument reflects a fundamental methodological fallacy and a profound misunderstanding of how orthographies devised by and for native speakers work. Such orthographies cannot be compared to the International Phonetic Alphabet. Native speakers *know* how the words of their language are pronounced and also the grammar that predicts where they will occur, and writing systems (especially those used by a small elite) need only give just enough clues for another native speaker reader to successfully identify the word intended. Examples like the Anatolian hieroglyphs for Luvian and Linear B for Mycenaean Greek show just how much information can be omitted! Many factors determine spelling practices in a given tradition: aesthetics (important in the Anatolian hieroglyphs used for public inscriptions), convention, convenience, and above all simply imitation of one's teachers.

The Hittites knew that /sipand-/ contained a voiceless labial stop; there was no *compulsion* to indicate this in a word that occurred hundreds of times in Old Hittite ritual texts. Since the first vowel of *ši-pa-an-t/d-°* has to have been linguistically real, Yakubovich's attempt (2009: 550–55) to motivate a Luvian-influenced anaptyxis into the non-existent /spand-/ is beside the point, but he does raise the legitimate question of why, beginning in Middle Hittite, the spell-

[10] For a similar independent interpretation of the HLuvian word and comparison with the Hittite hapax *ša-pa-an-ta-al-la* (KBo 31.8+ i 7) see Giusfredi 2010: 123–4.

ing *ši-ip-pa-an-t/d°-* was introduced and in fact became the dominant orthography. Here the increasing role of Luvian native speakers among the Hittite scribes may well be the responsible factor. The Luvian-speaking scribes surely learned fairly quickly the general Hittite scribal practice of distinguishing intervocalic voiceless from voiced stops by -VC-CV- versus -V-CV spellings. It would be entirely natural if they chose to apply this to what seemed the unmotivated exception of *ši-pa-an-t/d-°*. I stress, however, that this scenario is by no means necessary. Since, I must insist, the word was pronounced /sipánd-/ from the beginning of attested Hittite, a senior scribe could have decided at any time that the exception should be eliminated and a new standard spelling be adopted. A number of changes were made in Hittite spelling practices from Old to New Hittite, and this is merely one of them.

I may cite as a parallel for the non-writing of a geminate stop in Old Hittite versus its expression in later manuscripts the example of /tarsikke-/, the older iterative of *tar-* 'say'. In Old Script we find only *tar-ši-kán-zi* and *tar-ši-ke-ez-zi* in KBo 22.2 Ro 8 and Vo 4, but in Middle Script *tar-ši-ik-ke-mi* (HKM 46:27) and *tar-ši-ik-ke-ši* (KUB 14.1 Ro 34), and in New Script copies of Old Hittite texts *tar-ši-ik-kán-zi* (KBo 3.1 ii 33 and 3.16 iii 14).

Whatever the motivation may have been for the introduction of the spelling *ši-ip-pa-an-t/d°-*, the absolutely fixed spelling with initial *ši-* excludes the reading /spand-/ for Old Hittite, and since there is indeed no way to motivate a voicing of the labial stop, *ši-(ip)-pa-an-t/d°-* must be interpreted as /sipánd-/, while the rarer variant *iš-pa-an-t/d-°* stands for regular /ispánd-/. The problem then becomes: how do we account for the existence of these two stems and explain their attested shape and use?

The source of the stem *išpant-* is straightforward: it may continue a PIE root present of the h_2e-conjugation **spónd-ei*, **spénd-n̥ti* 'libate', yielding regularly attested *išpă̆nti*, *išpantanzi* (Jasanoff 2003: 86) — but see below for an alternative account. An ablauting root present **spénd-*, **spn̥d-* (Forssman 1994: 102) would also lead to *išpant-* phonologically, but such a reconstruction is morphologically incompatible with a Hittite *ḫi*-verb root present. That the *ḫi*-inflection of *išpand-* is secondary after *šipand-* (LIV_2: 577) is unlikely. Other Hittite root *mi*-presents standing beside reduplicated *ḫi*-presents show no such influence: *wēkzi* beside *wewakki* 'demands'.

Forssman (1994: 103) proposed to derive *šipand-* from a reduplicated stem **spe-spond-*, **spe-spn̥d-*, assuming a full reduplication of the initial **sp-* of the root and differing simplifications leading to Hittite *šipand-* and Old Latin *spepondī*. The need to assume a complicated double dissimilation for Hittite whereby the first **p* but the second **s* was lost has undoubtedly been one of the reasons for the widespread rejection of Forssman's account.

However, there is now a growing consensus that the history of reduplication in Indo-European should be understood very differently, namely as an inherited synchronic process whose operation is subject to renewal (whatever theoretical approach one takes to its description): see the extensive argumentation of Keydana 2006, followed by Byrd 2015: 118–21 and others. Furthermore, one should in reconstructing the PIE state of affairs follow the standard procedure of giving most weight to isolated archaisms that cannot easily be motivated as innovations. On this basis, following already Brugmann 1897: 40–41(!), Keydana (2006: 107), Byrd (2015: 120) and others argue on the basis of non-productive forms like Latin present *sistō* '(cause to) stand; stop', Grk. ἵστημι 'stand' plus Avestan *hi-štaiti* 'stands' and OIrish *se-scaind* 'jumped' that the PIE reduplication pattern with roots in initial **sT-* was **sV-sT-*.[11]

[11] Hittite *šišḫ(a)-* 'order, decide' may also be a relic reflecting **sí-sh₂-* to the root **seh₂-* 'bind' (thus Kloekhorst 2008: 758–9; cf. tentatively already Melchert 1984: 153, note 125). For the original stem as *šišḫ(a)-* see the MH/MS attestations cited by Kloekhorst and the *CHD* Š: 450–51.

This means that we may suppose that the PIE reduplicated stem behind Hittite *šipand-* was **se-spónd-*, **se-spn̥d-* (also considered as an alternative by Schulze-Thulin 2001: 384). These preforms will in terms of vocalism lead regularly to attested *šipă̆nti*, *šipant/danzi*, with regular raising of pretonic short **e* to *i* (see Melchert 1994: 101) and lengthening of the accented short **ó* to Hittite *ā* in the strong stem (spelled plene a few times, as in KBo 17.11 iv 4&14, OH/OS).

What remains to be accounted for is the deletion of the second **s* of the preform **sespVnd-*. Once we regard changes in productive reduplication patterns as reflecting renewal of a synchronic process, there are (at least) two ways to account for the loss of **s* in this context. The first may be formulated in terms of pre-Hittite constraints on the syllabification of consonants. Synchronically, an [s] in contact with another consonant at a syllable boundary appears to be treated as ambisyllabic in attested Hittite: note spellings such as *ti-iš-ša-kán-zi* 'they (usually) step' (IBoT 1.36 iv 30) beside usual *ti-iš-kán-zi* for [tis.skan.tˢi] or *wa-aš-ša-pa-an* 'garment' beside *wa-aš-pa-an* for [was.span] (see Bernabé Pajares 1973: 446–7 and *passim*; Melchert 1994: 150–52). However, we have compelling reasons to think that at an earlier prestage of Hittite there was a constraint against [s]+stop as a syllable onset.

For word-initial position, of course, the evidence is the development of the prothetic *i-* before **sT-*. As argued above, this was undeniably the regular treatment of such initial clusters. The (thus far) unique exception of /spekusta-/ 'pin' was "licensed" only by the pressure of preserved /sm-/ with [s] plus labial nasal stop. Addition of the prothetic vowel naturally enabled a prehistoric syllabification *[is.TV-]. Evidence for the same prehistoric constraint on [sT] in medial onsets is furnished by the pattern of anaptyxis in marked imperfectives with the suffix **-sk̂e/o-*, where a vowel was inserted between a preceding consonant and the **s* or in the case of coronals between the **s* and the **k*: *appiške-* 'take', *akkiške-* 'die', but *taršikke-* 'say' (see Melchert 2012: 179–80). Once again, the anaptyxis solved the prehistoric synchronic syllabification problem, permitting *[ap.pis.kV-], *[ak.kis.kV-] and *[tar.si.kV-].[12] I emphasize that the forms with anaptyxis became underlying representations by the time of attested Hittite, leading by then surely to phonetic realizations [ap.pis.skV-] etc.

We may therefore assume that likewise there was a stage at which pre-Hittite (arguably Common Anatolian) **sespVnd(V)-* could no longer be syllabified as *[se.spV́n.d(V)-], just as the word-initial *[spó/én.d(V)-] of the nominal stem $^{(DUG)}$*išpanduzzi-* 'libation' and its derivatives could not be syllabified (likewise in the *h_2e*-present if it existed at this point). In this case, solving the problem in the former by anaptyxis, producing *[se.sV.pV́n.d(V)-] beside the new [is.pó/én.d(V)-] with prothesis, would have seriously disrupted the formal relationship of words that were in semantic terms transparently related. A simpler alternative solution was to resyllabify *[se.spV́n.d(V)-] as *[ses.pV́n.d(V)-].

However, there is now reason to believe that the syllabification *[ses.pV́n.d(V)-] might itself have been problematic. Zukoff (2014: 272–5) has argued for a context-sensitive version of the well-known Obligatory Contour Principle that prohibits identical adjacent segments. Zukoff proposes that there was also operative in early Indo-European an OCP-SYLLABLE (OCP-σ) constraint: "Assign one violation mark * for every syllable that contains identical segments."[13] If we assume that this constraint also applied at some stage of pre-Hittite (or Common Anatolian), then it would have prohibited the syllabification *[ses.pV́n.d(V)-], which

[12] For the assumption that intervocalic voiceless stops spelled double were geminates that closed the preceding syllable see Melchert 1994: 18 with references and also Kloekhorst 2014: 545–6 (with a different phonological analysis).

[13] For an extensive discussion of OCP effects in PIE and its descendants (including but not confined to OCP-σ) see Sandell 2016, who also duly notes (2016: 146) the notorious exceptionality of PIE **ses-* 'sleep' and its reflexes.

would have been solved by deletion of the *s* in the syllable coda.[14] If loss of the coda consonant led as expected to compensatory lengthening, producing a virtual *[se:.pV́n.d(V)-], the pretonic long vowel could have been shortened in time to undergo the specific pre-Hittite change of pretonic short **e* to *i*. Compare Hittite *ḫippara-* 'serf' (or sim.) < **h₂ēpor-ó-* (Eichner 1973: 72).[15]

Hittite *šipand-* may thus be derived by regular phonological developments from a reduplicated stem **se-spónd-*, **se-spn̥d-*, and I stress again that its absolutely fixed *i*-vocalism cannot be plausibly explained by any other means. There remains, however, the question of whether such a reduplicated stem is a viable source for the Hittite verb in its attested use. One of the few supporters of Forssman's original proposal, expresses doubts: "Ist ein altes Zustandsperfekt semantisch sinnvoll?" (Kümmel in LIV$_2$: 577, note 5). Yakubovich (2009: 547) also reasonably protests that there is no discernible functional difference between attested *šipand-* and *išpand-* (cf. also Kloekhorst 2008: 406). I myself previously looked in vain for any such contrast in usage.

I now believe that such a venture failed because we based our search on false premises. A perfect with the standardly assumed value of an "attained state" hardly fits the usage of the Hittite verb, which is clearly eventive: 'libate', secondarily 'consecrate' (by pouring a libation over), then by metonymy 'offer X (to a deity)' and by syntactic change 'worship (a deity) with X': see CHD Š: 384–95. I had supposed that the reduplicated stem belonged to what I regarded as the small class of iterative-durative perfects, such as **we-w(o)rt-* 'roll, revolve' (on such a meaning for at least some instances of Vedic *vavart-* see Kümmel 2000: 462ff.). But I could find no clear traces of an iterative-durative or even processual value for *šipand-*.

Jasanoff (forthcoming) has now argued that the "attained state" value of the perfect in Core Indo-European is an innovation and that the classical "perfect" originates in a reduplicated *h₂e*-aorist of the shape **Ce-CóC-*, **Ce-CC-*, whereas the few "perfects" that show iterative semantics reflect rather reduplicated *h₂e*-presents of the form **Cé-CoC-*, **Cé-CC-*.[16] Hittite *wewakk-* 'request' (repeatedly) and *mēma/i-* 'speak' are direct reflexes of the latter category. By this scenario, **se-spónd-*, **se-spn̥d-* would have been a reduplicated *h₂e*-aorist and should have referred to the act of libating not as an activity (which would have been expressed by the *h₂e*-present), but as a single telic act.[17]

If one examines all thirty-plus instances of *šipand-* in Old Hittite/Old Script, one finds that it is consistently used in such a fashion. It is used to refer to the act of libating once at a particular "station", such as in front of the window (KBo 17.11+ iv 23) or to the hearth (KBo 17.19

[14] One may compare typologically for a similar "repair" the Sanskrit weak perfect stem *sed-* 'sit' < **sé-sd-* and more broadly other Sanskrit weak perfect stems of the shape *CeC-* as well as long-vowel preterite formations in Germanic and Celtic: see Schumacher 2005: 601–5, Zukoff 2014: 274, and Sandell: 2016: esp. 142–3 and 156–7.

[15] Zukoff (2015) has now refined his account of Indo-European reduplication patterns in terms of what he labels the POORLY-CUED REPETITION PRINCIPLE: "A CVC sequence containing identical consonants ($C_\alpha VC_\alpha$) is dispreferred, due to repetition blindness; it is especially dispreferred if one or both of the consonants lack phonetic cues which are important for the perception of its presence (in contrast to zero) in the speech signal." For reasons he sets forth, this principle applies especially to the second fricative [s] in a sequence #sVsT-. Since this newer formulation will also handle the case of *šipand-* < **se-spónd-*, I forego extensive discussion here and refer interested readers to Zukoff's own presentation, available online.

[16] While verbs of the latter class have mostly been assimilated to the true "attained state" perfects in the attested languages, Jasanoff stresses that in the oldest Greek their separate origin is still betrayed by a different pluperfect inflection.

[17] I do follow LIV$_2$: 577 and others, against Jasanoff forthcoming, in supposing that the concrete meaning 'libate' of Greek and Hittite is original, from which already in PIE developed the secondary sense 'pledge, dedicate' (in the middle 'pledge, dedicate oneself').

ii 11). It alone (never *išpand-*) is used with specification of how many discrete times one performs the act of libating: 'once' (KBo 17.11+ iv 33, KUB 43.30 ii 11&15 and often), 'twice' (KBo 20.10 i 9), 'three times' (KUB 43.30 ii 14), 'seven times' (KBo 25.127 ii 25). It alone is attested in the telic sense 'consecrate' a sacrificial animal or other object (KBo 17.36+ iii 9 and 17.33+ i 14). Finally, it may be used of worshipping a deity (in the accusative) by libating into a bowl (KBo 25.61 Vo 9).

Trying to determine whether the stem *išpand-* has a synchronically distinct sense and whether its absence in the contexts just cited for *šipand-* is systematic or merely due to chance is made extremely difficult by the very small number of examples, especially of examples with full context. Aside from the "Ritual for the Royal Couple", which uses *only išpand-* in its attested portions (see Otten and Souček 1969: 97), there are a mere handful of other attestations, either in Old Script or later copies. However, the examples in KBo 20 ii 5&6 (OH/OS), where *išpanti* 'performs a libation' occurs in the immediately context of *ḫinga* 'bows' is strongly reminiscent of that of KBo 25.104 ii 12–13 (OH/OS?), where we read LUGAL-*uš* ^{d}*Kuwaššaš UŠKE*[*N*…] *šipanti*. Similarly, the phraseology […]× 2 *ekuzi* […*ḫu*]*ppari išpant*[*i*] 'drinks two […] libates into a bowl' (KBo 25.51 i 18–19; OH/OS) hardly differs from that of *ḫūppari šipanti* (KBo 25.61 Vo 9; OH/OS) cited above.

It therefore seems extremely unlikely that the stem *išpant-* has any different sense synchronically from that of *šipant-*. Both refer to libating conceived as a single telic act and to the other telic meanings derived from that. By the oldest attested Hittite *išpant-* survives only as a marginal variant of *šipant-*. In fact, one may reasonably ask: does the very rare verbal stem *išpant-* continue a genuine prehistoric present stem at all, or is it merely an analogical creation based on the nominal forms $^{(DUG)}$*išpanduzzi-* 'libation', ^{DUG}*išpanduzzi*(*y*)*aššar-* 'libation vessel', and $^{(DUG)}$*išpantuwa-* 'libation vessel'? Of course, if one opts for the latter interpretation, then one must ask in turn what the basis was for the nominal stems, which appear to be deverbative.

As to ^{DUG}*išpanduzzi-* (from which ^{DUG}*išpanduzzi*(*y*)*aššar-* obviously is further derived), if one looks at the class of Hittite nouns in *-uzzi-*, some are indeed undeniably deverbative, formed to synchronically existing verbal stems: e.g., ^{KUŠ}*annanuzzi-* '(part of a) harness' < *annanu-* 'train', *kuruzzi-* 'cutting tool' < *ku*(*e*)*r-* 'cut'. Others, however, appear to be rather deradical, being derived from forms of the respective roots whose existence in pre-Hittite as verbal stems is dubious: e.g., *išḫuzzi-* 'belt, chain' < **s*(*e*)*h*$_2$- 'bind' (but all verbal forms are based on *išḫi-* < **sh*$_2$*ei-*), *tuzzi-* 'camp; army' < **dh*(*e*)*h*$_1$- 'place' (whereas the present stem of the verb is *dai-* with an **-i-* suffix).[18] The nominal stems ^{DUG}*išpanduzzi-* and ^{DUG}*išpanduzzi*(*y*)*aššar-* are thus not probative evidence for a genuine pre-Hittite verbal stem *išpand-*. The stem *išpanduzzi-* may be a primary derivative from the root **spend-*. It is true that $^{(DUG)}$*išpanduwa-* is hypostasized from the verbal noun (thus with Carruba 1966: 23, note 35), but precisely in this case there are also a number of spellings as $^{(DUG)}$*šipanduwa-* (see CHD Š: 396). In this noun, then, the variant *išpanduwa-* may be analogical, just as in the other verbal forms.

I therefore must conclude that evidence for a pre-Hittite present stem of any kind is less than compelling. A *h*$_2$*e*-conjugation present **spónd-ei*, **spénd-n̥ti* may well have existed, but its existence must be based on other evidence (see Jasanoff 2003: 78 on Greek σπένδω 'pour, libate' and Latin *spondeō* 'vow'). The fundamentally telic senses of the Hittite verb *šipand-* are in any case fully compatible with the proposal that it continues a reduplicated *h*$_2$*e*-aorist. With due revisions, then, the much maligned derivation suggested by Forssman more than twenty

[18] The primary meaning of *tuzzi-* is 'camp', as shown by the derived verb *tuzziya-* 'encamp'. One must with Kloekhorst (2008: 908) insist on this etymology of Carruba (1966: 23, note 35). There is *no* connection with western Indo-European **teutā-*.

years ago may be upheld. However, one must not overlook that the functional side of the scenario presented here, following Jasanoff, has implications for Indo-European dialectology that are diametrically opposed to those of Forssman's original formulation: by the present account Hittite *šip(p)and-* reflects a PIE reduplicated aorist whose development into an "attained-state" perfect is a common innovation of "Core Indo-European".

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Response to C. Melchert *

It is appropriate to begin this response by thanking H. Craig Melchert for submitting the paper under discussion to the *Journal of Language Relationship*. Given the fact that the main claim of this paper radically contradicts the views expressed earlier by two editors of the journal, Alexei Kassian and Ilya Yakubovich, the publication of this piece in our journal is obviously conducive to resuming the discussion on this controversial topic. I hope that our readers will benefit from comparing different approaches to interpreting Hittite cuneiform spellings.

In the first part of the response I will dwell on Melchert's specific claims pertaining to the Hittite verbal stem *špand-* 'to libate'. It is my intention to demonstrate that its analysis offered immediately above is fraught with so many complications and arbitrary assumptions that it cannot be acceptable as a viable hypothesis regardless of the broader considerations that have motivated it. The second part of the response turns to a more general issue of how the Anatolian cuneiform reflects the evolution of consonant clusters in the Hittite language. I have to acknowledge here that Melchert's new approach is internally consistent and has some advantages over his older views. This prompts me to present an alternative account of how *špand-* may have evolved within the history of Hittite, which largely accommodates Melchert's contemporary interpretation of Hittite orthography but strives to avoid the pitfalls of his etymological analysis.

1. The readers must first be reminded about the nature of the controversy. The Old Hittite texts display a number of forms that contain the reflexes of the Indo-European root **spe/ond-* 'to libate' (LIV$_2$: 577–578). These forms can be divided into two groups displaying the cuneiform spelling beginning with *iš-pa-* and *ši-pa-* respectively. Their distribution in Old Hittite / Old Script texts is illustrated in the Table 1 below, which is taken wholesale from Kassian & Yakubovich 2002: 34. It is easy to see that the the third-person forms of the base verb display the variants beginning with both *iš-pa-* and *ši-pa-*, with a preference for the first variant, while the rest of the attested forms show exclusively the spelling *iš-pa-*. It is worth mentioning that the spelling *ši-pa-* was generalized for all the finite forms by the Middle Hittite period, but the nominal derivatives *išpantuzzi* and *išpantuzzijaššar* retained the spelling *iš-pa-* throughout the history of Hittite (Yakubovich 2009: 549).

The controversy concerns the question whether the forms listed in the Table 1 are ultimately derived from one verbal stem or from two. According to the view of Kassian & Yakubovich 2002, which is also maintained in Yakubovich 2009, the variants *iš-pa-* and *ši-pa-* reflect different graphic renderings of the same word-initial cluster /sp-/, which cannot be unambiguouly represented in cuneiform script. In this we followed a tentative suggestion expressed in Melchert 1994: 31. For Melchert (ibid.), the issue was not fully settled, because he could not think of a plausible reason why the two different graphic conventions were adopted in the instance of the root *špand-* 'libate', but not for rendering the other roots with etymological **sC-* clusters, which all consistently adopt the spelling *iš-CV-*. Kassian and Yakubovich (2002: 34) were bolder in defending the same interpretation, because we thought that we had a solution to this problem. According to the

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