Hittite ḥišša- c. ‘thill, shaft (of a cart)’ and the feminine gender in Proto-Indo-European

The Split – Reconstructing Early Indo-European Language and Culture
University of Copenhagen, September 13–15, 2017
Stefan Höfler, Harvard University

1. Hittite ḥišša- c. ‘thill, shaft (of a cart)’
   - Oldest attestations, however, as ḥiššannum in the Old Assyrian texts of Kültepe/Kaneş (19th–18th c. BCE), with 9-ā(n)- being a commonly found “extension” for loanwords. Cf. Dercksen 2007:30ff. Similarly, for example, tazzinnum ‘army’ from Hitt. tuzzi- c. (Dercksen 2007:35).

2. Vedic ḍšā- f. ‘thill, shaft (of a cart)’ (RV+)
   - The word appears 2 × in the RV:
     3.53.17ab: sthirāu gāvau bhavatāṁ viśur ākṣo mēṣā [= mā ḍšā] vi varhi mā yagam vi śāri |
     “Die beiden Rinder sollen ausdauernd sein und fest die Achse. Nicht soll die Deichsel abreißen, nicht das Joch zerbrechen.” (Geldner)
     8.5.29: hiranyāyī vāṃ rābbhir ḍšā ākso hiranyāyāḥ | ubhā cakrā hiranyāyāḥ ||
     “Golden ist eure Lehne, die Deichsel, golden die Achse; beide Räder sind golden.” (Geldner)

1. 1 × ḍkeṣa- ‘having one shaft’;
2. 10.135.3: yāṃ kumāra nāvaṁ rátham acakrāṃ mānasākrnoḥ |
   ḍkeṣaṁ viśvātāṁ prāācām āpāṣyām ādhi tiṣṭhasi ||
   “Der neue Wagen ohne Räder, den du Knabe da im Geister gemacht hast, der nur eine Deichsel hat und nach allen Richtungen weiter fährt, auf dem stehst du, ein Nichtsehender.”
3. In the AV, also dual forms (iṣē ‘two shafts; Gabeldeichsel’) are attested, cf. PW s.v.

3. Phonological and Morphological Reconstruction
   - Both Hitt. ḥišša- c. and Ved. ḍšā- f. can be traced back to a preform *h₂ih₁séh₂.
   - Note that …
     o … *h₁- in anlaut position is possible too if you accept *h₁ > Hitt. ḥ-.
     o … the second laryngeal cannot be *Vh₂ since only *Vh₁sV and *Vh₃sV would have assimilated to Hitt. VišV. Cf. Melcher 1994:77f.
     o … the reconstruction of oxytone accent is based on Ved. ḍšā- alone. There are no plene written endings of Hittite ḥišša- to confirm this (nor a plene written *h₂i₃- to refute it).
   - While it is true that Hitt. ḥišša- does not need to continue a formation in *e₂h₂ and could equally well be traced back to a thematic masculine *h₂ih₁s₂a-, this option seems unattractive in view of Ved. ḍšā- and Occam’s Razor.
   - This pre-form *h₂ih₁sëh₂, then, can be segmented as *h₂ih₁-sëh₂; if another piece of related material is added:
     o Modern Slovene ojče n., gen. sg. ojčeša ‘thill, shaft (of a cart)’ is the regular continuant of a neuter s-stem *h₂e₂j₁₁-os.
   - Note that …
     o … *h₂ih₁-s₂-eh₂ cannot, in any plausible way, be regarded an inflectional form (such as collective, plural, or else) of the s-stem *h₂e₂j₁₁-ös, nor can it be a “thematization” of it. Their relationship must be derivational.
       a collective or plural is also excluded for semantical reasons – one could only argue for a dual (‘Gabeldeichsel’), but this is formally impossible.

---

• a “thematization” (quite hard to argue for in the first place) would have hardly resulted in an oxytone *-eh₂-feminine.
  o … both the continuants of *h₂éjih₁j₁–os and its apparent derivative *h₂jih₁j₁–s-êh₂ denote, however, the exact same thing, viz. the ‘thill, shaft (of a cart)’.
• This situation will be explained below. For now, let us remind ourselves of the fact that neuter s-stems could function as nomina instrumenti (sensu lato) in the sense of …
  o VERBAL root *to X <-> s-STEM ‘the act of X-ing’ and ‘thing on/with which one X-es, thing related to X-ing’.
  o *(s)ed ‘to sit down’ <-> *(s)êd-os n. ‘sitting down’ (as in Ved. sādas + √kar ‘to sit down’) and ‘the thing on which one sits down’ (as in Gk. ὀδός n. ‘seat, stool’, lit.).
  o *(t)gel² ‘to move from A to B’ <-> *(tég²-)os n. ‘the thing on which one moves from A to B’ (as in Gk. ὀξύς n.Pl. ‘chariot’ Hom., Pi. for *έξων, cf. έξως-ν ‘sharp’ Hsch.).
• It seems advisable to regard the s-stem *h₂éjih₁j₁–os n. (Slov. ojéž) as one of these cases, viz. with an original meaning of both ‘the act of X-ing’ and ‘the thing with which one X-es’.

4. The Root *√h₂éjih₁j₁
• Some words for ‘thill, shaft’ are derived from roots or verbs with a meaning ‘to draw, to pull’ (cf. also Engl. drawbar), like for example …
  o … Germ. Deichsel < *penslō << *tenk₂slëh₂, and Lat. tēmō, -onis m. < *tenk₂sōnōn- (Weiss 2009:183), both from a root *√teng ‘to pull, draw’ (IEW:1067; LIV² Addenda s.v.); for the vehicle-related context cf. YAv. 3pl. mid. Sanjaištē ‘pull (a cart; said of horses)’.
• This is not unreasonable since the ‘thill, shaft’ is the connection between the body of a cart or carriage and the draft animal that pulls it.

If one assumes that the root *√h₂éjih₁j₁ had a meaning ‘to pull’, one can easily accept that the s-stem *h₂éjih₁j₁–os bore the double meaning of a nomen actionis ‘the pulling (of the draft animal/s)’ and a nomen instrumenti (sensu lato) ‘the thing on which the draft animal/s pull/s the cart’ (> Slov. ojéž n. ‘thill, shaft’).
• The root *h₂éjih₁j₁ ‘to pull [a cart] (active); to be pulled, to move, to speed [of or on a cart] (middle)’ is perhaps attested in the primary verbal formations Ved. īyate ‘moves, speeds (of or on a chariot)’ and less likely in Ved. āyate ‘speeds’, as i-reduplicated present *h₂jih₁j₁–e-toj and thematic present *h₂jih₁j₁–e-toj respectively (cf. the formally identical pairs ījate and ājati, and āhati and vāhati).
• Details can be found in the Appendix.

5. The Derivational History of *h₂éjih₁j₁-séh₂
• How can we justify the formation of *h₂jih₁j₁–s-êh₂ (Hitt. ḫiṣṣa- c. and Ved. dḗyā- f.) next to *h₂éjih₁j₁–os (Slov. ojéž) on a morphological and a morphosyntactic level?
• As to the formal side of the derivation, it has been known for over a century that neuter s-stems could be the basis for exocentric possessive adjectives via the suffix *-ō-, with a double zero grade in the root and the suffix of the base word (cf. Persson 1893:270f.; Höfler 2015), as in:
  o *léy̱k-os n. ‘light’ (Av. raocah- n. ‘light, day’, Ved. rókas- n.)
    → *(t)uk-s-ō- ‘having light’ (Ved. rukṣā- ‘shining, radiant’ RV 6.3.7).
  o *ksr̥-s-ó- ‘the cutting; division’ (Lat. serēnu s 3 ‘clear (of the weather)’ < *kers̥-s-no-) → *(t)uk-s-ō- ‘having dryness’ (Gk. ξηρός ‘dry, dried’ Att.-Ion.).
• When derived from a verbal abstract, the possessive adjective could have both “active/agentive” and “passive/resultative” reading:
  o *(s)ék-os n. ‘the cutting; division’ (Lat. secus n. ‘sex (male or female)’)
    → *(s)k-s-ō- (lit.) ‘having a cutting’ …
    • (a) “active/agentive” ‘cutting’, subst. as PGmc. *sah{s}s- n. ‘knife’.
    • (b) “passive/result.” ‘cut’, subst. as Lat. saxum n. ‘(piece of) rock’.


2 I thank Jay Jasanoff (Harvard) for inspiring discussions about this topic, though no endorsement of any specific ideas is hereby implied.
Accordingly, one could argue that the s-stem verbal abstract ‘the pulling (of a cart)’ formed a similar possessive adjective …

- °h\textsubscript{2}\textepsilon jh\textsubscript{1/3}-os n. ‘the pulling (of a cart)’ → °h\textepsilon jh\textsubscript{1/3}-s-\textepsilon (lit.) having the pulling (of the cart)’
- … and that this adjective with an “active/agentive” reading ‘pulling the cart’ was then substantivized with the suffix °h- to give a noun with a meaning ‘the thing pulling the cart’ or ‘the thing with which one pulls the cart’.
  - Just as the example above: °s,k-s-\textepsilon- (lit.) having a cutting’ in an “active/agentive” reading ‘cutting’, subst. as PGmc. °saks\textepsilon- n. ‘knife’, literally ‘the cutting thing’ or ‘the thing with which one cuts’.

For °h\textsubscript{2}-substantivizations of thematic adjectives in Anatolian and “Core-Indo-European” cf. Melchert 2014.

So, this analysis works on the paper. But there are some problems with the account just presented:

- While an adjective °s,k-s-\textepsilon- ‘cutting; cut’ was surely a semantically justified member of a PIE speaker’s lexicon and it is perhaps only coincidence that the adjective is not attested anywhere as such, it is on the other hand quite difficult to imagine that an adjective °h\textepsilon jh\textsubscript{1/3}-s-\textepsilon- (lit.) having the pulling (of the cart)’ would have ever been a lexeme in its own right with a raison d’être other than to serve as the basis for the substantivization °h\textepsilon jh\textsubscript{1/3}-s-\textepsilonh- ‘thill, shaft’, which, as it were, bore the identical meaning of the base word °h\textepsilon jh\textsubscript{1/3}-os n. ‘thill, shaft’ that the alleged adjective was derived from in the first place.
  - In other words: It seems somewhat unreasonable to assume that PIE ever possessed an autonomous adjective °h\textepsilon jh\textsubscript{1/3}-s-\textepsilon- derived from a verbal abstract ‘the pulling (of a cart)’ with an “active/agentive” (or a “passive/resultative”) reading.
- And while these concerns are only impressionistic and based on semantic considerations alone, there might be formal problems, too …

6. Substantivization of adjectives in PIE

- For PIE and the IE languages, one has to distinguish (at least) two basic processes of substantivizations of adjectives, viz. …

  (1) the substantivization via ellipsis, i.e. the omission of a substantive that an adjective was originally paired with, so that only the adjective remains in a substantivized meaning (see further below).

  A bottle of red, a bottle of white / It all depends upon your appetite / I’ll meet you any time you want / In our Italian Restaurant: [= a bottle of white (sc. wine).]
  (Billy Joel – Scenes from an Italian Restaurant).

  (2) a process that, for the time being, will be named “direct substantivization”, i.e. the adjective is substantivized without the existence of a prior syntagma of SUBST. + ADJ; the result can be (a) concrete individualizations or (b) abstracts (cf. Nussbaum 2014:304ff.).

  The conjunctiva is the membrane that lines the eyelid and covers the white of the eye. [arguably no ellipsis here.]
  To make meringue, you have to separate the white from the yolk. [arguably no ellipsis here; except for the unrelated ellipsis of “egg”, viz. (egg) white.]

- For PIE it seems as if the latter process (number (2)) of “direct substantivization” via the suffix °h- went hand in hand with a retraction of the accent:
  - In Gk., for example, the masculine stems in -ης or -ᾱς (°*e-h\textsubscript{2}+s) are as a rule not oxytone. Cf. Buck/Petersen pp. 2ff.

- NB: The most secure examples of “direct”, non-ellipsis °h\textsubscript{2}-substantivizations are of course masculine °h\textsubscript{2}-stems.
  - In Ved. the exceptional m\textacutenth\textepsilon- m. (!) ‘churning stick, whisk’ < °me/\textepsilon ornth\textepsilonh-\textepsilon, a subst. of °me/\textepsilon ornth\textepsilon- ‘stirring; stirred’ (attested as Ved. m\textacutenth\textepsilon- m. ‘stirred drink’).⁴

⁴ If this is really a masculine stem in -\textepsilon- that somehow escaped the apparent shift of all other [if there ever were] masculine °e\textsubscript{h}-stems to feminine gender, it is hardly surprising that speakers associated it with the one other masculine stem in ‘path’- existing in Sanskrit, viz. p\textepsilon\textacutenth\textepsilon- m. ‘path’ and that the inflection of the latter influenced that of the former in later literature (cf. AiGr III:308f.). In the RV, the only attested form is acc.-sg. m\textacutenth\textepsilon\textepsilonm.  

5 hoefler@fas.harvard.edu 6 hoefler@fas.harvard.edu
Furthermore: examples like *leuk-ó- ‘bright’ (Gk. λευκός) → *léu̯keh₁ ‘the bright one’ (Gk. λευκή f. ‘white poplar’; λεύκυκα pl. ‘white spots on the nails’); and abstracts such as θέρμη f. ‘heat’ (θηράμος ‘hot’), Ion. έξιθρη f. ‘hatred’ (ἐξθρός ‘hostile’; cf. Pinault 2011:174.), etc.

Similarly Lith. kuprā₁ f. ‘hump’ from *kúpreh₂ (as per Schaffner 2001:371ff.; cf. also OHG hovar m. ‘id.’ < *hufra- < *kúpreh₂) vis-à-vis *kup-ró- (Latv. kuprs ‘hunched’), etc.

Furthermore the evidence of deadjectival personal names (which per se are the paradebeispiel for ellipsis-less substantivization) points to accent retraction (e.g. γλαυκός → Γλαύκη ‘a Nereid’; in Ved. perhaps Ghóṣā₁–2 f. ‘animal’ in the fem. adj. for the tremendous thunder’) is used in combination with mahrā₁ m. ‘noise’.

In Lat. one can only detect traces of the prehistorical accent in isolated cases such as the dual outcome of *CRḤC sequences ( *CRḤC > Lat. CRāC vs. *CRḤC > Lat. CaR(a)C; cf. Höfler 2017). Two examples of *h₂-substanzivizations:

- *s̥pr̥H-os n. ‘feather, wing’ (Slov. pero, -esa n. ‘feather’) → *s̥pr̥H-s-ó- ‘having feathers’ → *s̥pr̥H-seh₂ ‘the feathered one’ (Lat. parra, Umbr. parfa- ‘name of a bird’).
  - It would, of course, be silly here to think of an ellipsis such as ‘the feathered (bird)’. More plausible: a generic term or ‘the one with the very prominent feathers’.
  - In the same manner: *rot-eh₂- ‘wheel’ (Lat. rota f.) → *rot-h-ó- ‘having wheels’ → *rāth-sa- ‘the one having wheels’ (Ved. rātha-, Av. rādh- m. ‘chariot’); equally silly to think of an ellipsis here (‘the (chariot) having wheels’).

- *p̥l̥H-os n. (a) covering (as ‘skin’ in Gk. ἐρυσί-πελας n. ‘a skin rash’) → *phs-s-ó- ‘act/agent.’ ‘covering’ → *phs Método ‘the covering one’ (Hitt. palahša- c. ‘womens’ garment; curtain’, Lat. palla f. ‘id., covering’).
  - Cf. Engl. ‘a covering’. No need for an ellipsis ‘a covering (garment)’, ‘a covering (cloth)’, vel sim.
  - Note that Hitt. palahša- c. is another secure inherited *-eh₂-stem.

- On the other hand, *-eh₂-stems can also continue substantivizations of the feminine forms of thematic adjectives via ellipsis, i.e. via omission of the substantive that the adjective was originally paired with.

  - And because this was not a “direct substantivization” process such as the one outlined above, the adjective usually keeps its oxytone accent. Examples for detectable ellipses:
    - Ved. pṛthivī₁-₁ f. (Mother) E/‘earth’ from the fem. adj. *pl̥h₂-y-ih₂ ‘broad’ via ellipsis from a syntagma ‘the broad earth’, attested in Ved. kṣ̥ām … pṛthvim (RV 10.31.9) and YAv. zām parṣ̥ḍhim (Y.10.4; Yt.13.9).
    - Ved. mahaśā₁–₂ ‘tremendous’ (RV 10.66.10 mahaśāsya tanyatós ‘of the tremendous thunder’) is used in combination with mṛgā₂ m. ‘animal’ in the RV mahaśāṃ mṛgām ‘the tremendous animal’ RV 8.69.15, etc.), denoting the ‘buffalo’; via ellipsis a (likewise oxytone) mahaśā₂ m. ‘buffalo’ emerged.

  - To be sure, it is impossible to prove a PIE ellipsis.
  - But a reasonably plausible case might be: *sne̯-os n. (‘communal’ bond) for the root cf. *sne̯+b² ‘to marry (a man)’ in Lat. nūbō, nūpsī ‘marries/d (a man)’, caus. in Russ.-CS. snubļļu, snubiti ‘to marry off’) → *snu-s-ó- ‘related through marriage’.
  - *d̥uḥgítēr snusóς ‘a daughter by marriage’ = ‘daughter-in-law’ (term coined before the emergence of feminine agreement), via ellipsis *snusós f. (!) reflected in Gk. νυός f., Arm. now, Lat. nurus, -ūs f. (remodeled as an u-stem).

  - NB: Somewhat secure examples of “non-direct”, ellipsis-based substantivizations are of course feminine o-stems.

    - Ved. snusā₁–₂ f., Serb.-CS. snuxa f., PGmc. *snuzō(n)- f. either reflect an independent einzelsprachlich remodeling or (less attractive) point to a younger syntagma *d̥uḥgítēr snusēh₂ with “regular” agreement.

*bhāg-ō- ‘related to the beech, beech-’, used in a syntagma with a feminine word for ‘tree, wood’ (qua ‘beech-tree, beech-wood’), whence via ellipsis Gk. φηγός f., Lat. fāgus f., and remodeled as a “formal feminine” in PGmc. *bōkō (n.f.).

It is impossible (and also unrewarding) to try to accommodate a theory on the origin of the feminine gender here. Many people have said many things about this topic and I would not be able to contribute anything substantial to this ongoing debate.

It might, however, be prudent to review some additional evidence that has been claimed to show vestiges of the feminine gender in Anatolian.

If we return to *h2ih₁/₂-s-ēh₂, it now becomes possible to regard the underlying adjective *h2ih₁/₂-s-ō- as a possessive adjective with relational meaning ‘related to the *h2ih₁/₂-os [= thill]’ or (though less attractive because of the reservations expressed above) with an “active”/”agentive” meaning ‘transmitting the *h2ih₁/₂-os [= pulling of the cart]’.

In a next step, we only have to assume that this adjective was used in combination with a word for ‘rod, pole’ to give a syntagma meaning ‘the rod related to the thill’ or ‘the thill-pole’, Germ. ‘Deichselstange’.

We, then, have to assume that this word for ‘rod, pole’ either displayed the same suffix *h₂ and that the adjective *h2ih₁/₂-sō- showed a corresponding *h₂-agreement or (partly in line with the just-mentioned option) that it was grammatically feminine and that the adjective showed feminine agreement.

* X(e)-h₂ h₂ih₁/sēh₂ ‘rod related to the thill’, whence via ellipsis *h₂ih₁/sēh₂: ‘thill’.

This, on the other hand, presupposes that the common ancestor of Anatolian and “Core-Indo-European” already possessed some sort of *h₂-agreement.

7. The Feminine Gender in PIE?

It is impossible (and also unrewarding) to try to accommodate a theory on the origin of the feminine gender here. Many people have said many things about this topic and I would not be able to contribute anything substantial to this ongoing debate.

It might, however, be prudent to review some additional evidence that has been claimed to show vestiges of the feminine gender in Anatolian.

For the Hittite numeral for ‘1’ šiya- as a continuant of 1.FEM *smīh₂ (gen. sg. *smēh₂ > *sjēh₂ > Gk. ἵης Hom.) cf. Eichner 2015:20f., but also Kloekhorst 2008 s.v. šii- (*sih₂ “the original feminine form of ‘one’” and “[i]n Hittite, this *sih₂ is the basis for the paradigm as attested”).

The “keššar argument” as per Pooth 2016:8 with note 35: Hitt. keššar ‘hand’ is genus commune (acc.-sg. kiššeran OS), matching the fem. gender of Gk. χείρ, etc. Since the nom. sg. is asigmatic, however, the word must have been neuter in PIE and was “feminized” already in PIE. Thus, Anatolian must have lost the grammatical feminine.

Cases of apparent “*h₂-agreement” have also been spotted in Lycian, but they seem to be a rare and secondary development (TL 100: ebe xupa me tibeija “This tomb is Tibeian” instead of *tibeia).” Cf. Hajnal 1994:154f.; Kim 2009:71 and 82; Melchert 2014:259.

Even if the latter does not reflect anything old, it is not unthinkable that similar (sc. and sporadic) agreement phenomena took place in PIE before the development of the feminine gender as such (bzw. that they eventually led there).

If the parents said *h₂ékuros nēgos ‘a new horse’ and *roteh₂ nēgos ‘a new wheel’, it does not seem audacious to hypothesize that one or the other child would produce something like *h₂ékuros nēgos ‘a new horse’ and accordingly *roteh₂ nēgh₂ ‘a new wheel’.

---

8. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

9. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

10. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

---

9. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

10. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

---

9. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).

10. Even though I am an adamant proponent of a strict division between the morphosemantic processes producing (i) possessive (or: proprietive) adjectives (‘having X’) on the one hand and (ii) relational (or: genitival) adjectives (‘belonging to X’) on the other, one has to acknowledge that also the former could—in some cases at least—come to mean something like ‘related to X’, as in the examples: *tuh₂ri- ‘curdled milk’ (YAv. tūri-n. → tu-rh₂ji-ō- ‘related to curdled milk’ (YAv. tūri-ia- ‘curdled’), Gk. ἱππός m. ‘cheese’, Myc. turoj; cf. Meier-Brügger 2004); or *melit- ‘honey’ (Gk. μῦλα n., etc.) → *melit-ō- ‘related to honey’ (gr. μῦλον κηρίον … Hsch. ‘honeycomb’).
• Along these lines one could also interpret the emergence of “weak adjectives” with the substantivizing suffixes *-i-, *-n-, etc. for which cf. Nussbaum 2014:304ff.
• If our argumentation about the prehistory of *h₁dh₂, *séh₂ ‘thill’ is correct, we have to assume a similar stage of (perhaps loose) *-h₂-agreement phenomena for all of PIE (including Anatolian).
• Note that judging from the Greek situation (cf. Kastner 1967) à la ἑδώδοξτος Ἕλεξ, etc., “Core-Indo-European” has not yet had a fully fledged agreement system for (all) thematic adjectives.
  o Rather, *-h₂-agreement seems to have been a facultative phenomenon that, however, seems to have been so common that it was (independently?) grammaticalized in most of the branches.
  o The fact that—as I have tried to show—Hittite seems to presuppose the very same *-h₂-agreement, puts the Anatolian branch right there within the “core” IE languages.
  o The path from some sort of *-h₂-agreement to a third grammatical gender seems viable. However, I want to leave open the question on which part of this path Anatolian decided to split off.

8. As an aside: The emergence of wheeled vehicles

“We can say with great confidence that wheeled vehicles were not invented until after 4000 BCE; the surviving evidence suggests a date closer to 3500 BCE. Before 4000 BCE there were no wheels or wagons to talk about.” (Anthony 2007:63)

• Reconstructing a wagon-related term as sophisticated as the ‘thill’ for Hittite and the other IE languages, it seems compulsory to assume a “split” not prior to this date!
Appendix: The Root *h2eh₁₁₃ ‘to pull’

- If one assumes that the root *h₂ēh₁₁₃ had a meaning ‘to pull’, one can easily accept that the s-stem *h₂ēh₁₁₃-os bore the double meaning of a nomen actionis ‘the pulling (of the draft animal/s)’ and a nomen instrumenti (sensu lato) ‘the thing on which the draft animal/s pull/s the cart’ (> Slov. ojč ‘thill, shaft”).

- If we assume that an active verbal form (e.g. them. present *h₂ēh₁₁₃-e-ti ‘pulls’ just like *gēn₁₁₃-e-ti ‘begets’) was prototypically used with a draft animal as its subj. …
  o as in, e.g., (A) *h₂aksōn(ū) rōth₁₁₃ h₂ēh₁₁₃eti. ‘The ox pulls the cart.’

  - … we can infer that a medio-passive form of the same verb (e.g. a *-je/o-present *h₂i₂h₁₁₃-e-toj-i ‘is pulled’, just like *gēn₁₁₃-e-toj-i ‘is born’) developed a meaning ‘to move, travel (said of a cart)’ …
  o as in, e.g., (B) *rōth₁₁₃os h₂ēh₁₁₃etoj. ‘The cart moves.’

- … and also ‘to ride, drive (on a cart)’ …
  o as in, e.g., (C) *h₂nēr rōth₁₁₃i h₂ēh₁₁₃etoj. ‘The man rides on the cart.’

- This would, of course, be comparable to the synchronic situation of, for example, Ved. ्vyāh/uh ‘fahrenheit, befördern’ (VI.4:39f.) and Lat. uēhere ‘to convey, carry’ that seem to have similar semantic features:
  o as in, e.g., (A) Ved. rātham ... ā́ yā́m ā́śvāsaḥ stāyijō vāhantī (RV 7.78.4cd)
    “Wagen … den gutgeschirrte Rosse ziehen.”
  Lat. currum … albitēs uestebant equī. (Curt. 3.3.11)
    “White horses drew the chariot.”
  o as in, e.g., (B) Ved. rātham ... vāstör-vāstör vāhamānām (RV 10.40.1)
    “Wagen, … der jeden morgen ausfährt”
  Lat. currus … in phalangem invecti erant. (Curt. 4.15.14)
    “The chariots had charged upon the phalanx.”
  o as in, e.g., (C) Ved. prā yād vāthēte mahīnā ráthasya (RV 1.180.09a)
    “Wenn ihr mit der Größe eures Wagens aufbrecht, …”
  Lat. curru Dareus, Alexander eqō nehebatur. (Curt. 3.3.11)
    “Darius rode in his chariot, Alexander on his horse.”
  o Incidentally, the root *ḷu̯eg₂ like *h₂ēh₁₁₃ ‘to move from A to B’ formed an s-stem qua nomens instrumenti (sensu lato) *ḷu̯eg₂-os n. ‘the thing on which one moves from A to B’ attested in Gk. (see above).

- And if this scenario were to be accepted, one could even recognize the continuant of this assumed *h₂i₂h₁₁₃etoj in Ved. īyate ‘moves, speeds (of or on a chariot):’
  o as in, e.g., (B) samānāyajana hi vāṁ rātho dārāv amartyāḥ | samudrē aśvinēyate [= aśvinī īyate] (RV 1.30.18)
    “Denn euer unsterblicher Wagen fährt in einer Fahrt auf dem Meere, ihr Meister Asvin.”
  o as in, e.g., (C) prabodhāyantī sūvīhāya devy usā īyate suvīhāya rāthēna || (RV 4.14.3cd)
    “Die Göttin Uṣas kommt zu guter Fahrt, die Schläfer aufwachend, auf gutbespanntem Wagen.”
  o The corresponding active (A) seems to be unattested (but see below).

- … unless, of course, the verb īyate does not belong to our root *h₂ēh₁₁₃ at all, but rather to the root of Ved. yāti ‘rides’ (VI.4:407), Lith. jōju, OCS jād, Toch. B iyam,
that is reconstructed as *\(\sqrt{}\)eh₂ ‘dahinziehen, fahren’ in the \(LIV^2\) (p. 309f) and might, qua *\(\sqrt{}\)eh₃, be a root extended variant of *\(\sqrt{}\)ej ‘to go’ (thus VIA l.c.).

- Our \(\hat{y}a\)te could then, reflect *\(\sqrt{}\)ih₂-je-toj.
  - But it would be quite strange to reconstruct a *-je/o-present *\(\sqrt{}\)ih₂-je-toj (\(\hat{y}a\)te) next to a root present *\(\sqrt{}\)ih₂-ii (\(\hat{y}a\)toj). Such a pairing is quasi-unattested.⁸
  - A pattern that is found more frequently is that of thematic presents next to 1-reduplicated thematic presents:
    - *\(\sqrt{}\)ih₂-\(e\)-ti (Ved. \(\hat{a}j\)ati ‘dr.’) ↔ *\(\sqrt{}\)ih₂-\(g\)-e-toj (Ved. \(\hat{\j}a\)te ‘drives’)
    - *\(\sqrt{}\)ih₂-\(\j\)e-toj (Ved. váhate) ↔ *\(\sqrt{}\)ih₂-\(\j\)e-toj (Ved. \(\hat{\j}a\)hi ‘pushes’)
    - *\(\sqrt{}\)ih₂-\(e\)-ti (Ved. \(\hat{\j}\)ati ‘flies’) ↔ *\(\sqrt{}\)ih₂-\(e\)-ti (Gk. \(\hat{\j}\)ati ‘falls’)
- And indeed, our \(\hat{y}a\)te ‘moves, speeds (of or on a chariot)’ could, in principle, be reconstructed as a 1-reduplicated thematic present of the root *\(\sqrt{}\)eh₃ or of the root *\(\sqrt{}\)eh₂ ‘to ride’.
  - *\(\sqrt{}\)ih₂-\(\j\)e-toj and *\(\sqrt{}\)ih₂-\(\j\)e-toj could both end up as Ved. \(\hat{y}a\)te.
- But only for *\(\sqrt{}\)eh₃ there is a chance that a corresponding thematic present is attested:
  - *\(\sqrt{}\)ih₂-\(\j\)e-toj could be the source of the enigmatic Ved. \(\hat{\j}a\)te ‘speeds’ (cf., e.g., \(RV\) 8.100.8.a: \(\hat{\j}\)anojává \(\hat{\j}\)ayámanás ‘schnell wie der Gedanke eilend’), so that \(\hat{\j}a\)te is to \(\hat{\j}a\)te just as \(\hat{\j}a\)ti is to \(\hat{\j}a\)te and \(\hat{\j}a\)hi is to \(\hat{\j}a\)hi.
  - This \(\hat{\j}a\)te is usually interpreted as a thematic present of the root *\(\sqrt{}\)ej ‘to go’ (cf. \(LIV^2\):233) or as the present subjunctive of \(\hat{e}\)tí ‘goes’ (see note 10).
- If it, however, belonged to a different root, an alleged *\(\sqrt{}\)eh₃-\(\j\)e-toj ‘is pulled; moves’ could perhaps open up a new perspective for the difficult passage \(RV\) 1.127.3fg ... \(y\)amate \(n\)á\(y\)ate (= ná \(\hat{\j}\)ate), that Jamison/Brereton translate as ‘he will hold his place, he will not be moved’.⁹
  - Cf. also 1.119.2 where the subject of \(s\)á\(m\) \(y\)ante is arguably inter alia the cart (rá\(\hat{\j}\)ham) that was mentioned in the verse before, viz. 1.119.1.

- But of course, a connection of either \(\hat{\j}a\)te or \(\hat{\j}ate\) with the root *\(\sqrt{}\)ej₃ is very difficult to “prove” beyond reasonable doubt.
- What is clear from the semantics and phraseology, however, is that Ved. \(\hat{\j}a\)te ‘moves, speeds’ has no connection to Ved. \(\hat{\j}o\)ti ‘impels, sends’ (pace Insler 1972:102f.). The former shows evident affinities to vehicle-related contexts¹⁰ while the latter never does.¹¹
- So any other (and more reliable) evidence for a root *\(\sqrt{}\)ej₃ ‘to pull’ would be extremely welcome.

---

⁸ A non-exhaustive search for Ved. \(\hat{\j}a\)te had the following results: subject is rá\(\hat{\j}\)ha: \(RV\) 1.30.18; 1.141.8; 4.31.14; 5.18.3; subject is \(\hat{\j}\)aka: \(RV\) 1.30.19; 8.22.4; subject is rá\(\hat{\j}\)ha: \(RV\) 3.3.6; \(\hat{\j}ate\) in connection with harnessed horses: \(RV\) 4.5.16; 5.55.1; 6.39.4; with instr. sg. rá\(\hat{\j}\)hena: \(RV\) 4.14.3; with loc. sg. rá\(\hat{\j}\)h: \(RV\) 6.59.5; with acc. sg. s\(\hat{\j}\)r\(\hat{\j}\)ham: \(RV\) 10.168.2. Cf. also Insler 1972:96: “(…) of its application to the movement of horses (particularly runners), chariots or their wheels, and the wind”; and p. 97: “When \(\hat{\j}ate\) is employed to describe the movement of a god—such usage constitutes the majority of occurrences of the verb in the \(RV\)—the movement usually takes place through the use of horses or chariots, or is compared to them”.

¹⁰ cf. Insler 1972:102 who admits that “[t]he single point which can be raised as an objection to the combination of \(\hat{\j}ate\) and \(\hat{\j}o\)ti ... [is] that the subjects of \(\hat{\j}ate\) are different from the objects of \(\hat{\j}o\)ti”.

⁹ Jamison does interpret the form as a subjunctive to \(\hat{\j}\)ti, though. See her commentary ad loc. (Jamison 2016)

¹¹ There are no secure examples in \(LIV^2\) apart from \(\sqrt{}\)de\(\j\)k.

---