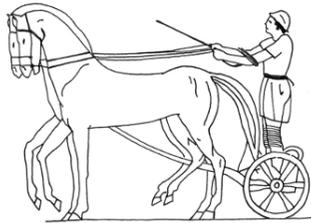
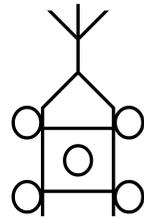


Hittite *ḫišša-* c. ‘thill, shaft (of a cart)’ and the feminine gender in Proto-Indo-European

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Stefan Höfler, Harvard University



Drawing of a chariot with a shaft.



A representation of the wagon motif on the Bronocice pot (3635–3375 BCE).¹

1. Hittite *ḫišša-* c. ‘thill, shaft (of a cart)’

- For attestations cf. Kloekhorst 2008 s.v.; *HED* 3:318f.: acc. sg. *ḫi-iš-ša-an* (NS), dat.-loc.sg. *ḫi-iš-ši* (MS; OH/NS; NS), *ḫe-eš-ši* (NS).
- Oldest attestations, however, as *ḫiššanum* in the Old Assyrian texts of Kültepe/Kaneš (19th–18th c. BCE), with ^o-*n(n)*- being a commonly found “extension” for loanwords. Cf. Dercksen 2007:30ff. Similarly, for example, *tuzzinum* ‘army’ from Hitt. *tuzzi-* c. (Dercksen 2007:35).

2. Vedic *ṛṣā-* f. ‘thill, shaft (of a cart)’ (*RV+*)

- The word appears 2 × in the *RV*:

3.53.17ab: *sthīrau gāvau bhavatām vīlūr ākṣo mēṣā [= mā ṛṣā] vī varhi mā yugām vī sārī |*

“Die beiden Rinder sollen ausdauernd sein und fest die Achse. Nicht soll die **Deichsel** abreißen, nicht das Joch zerbrechen.” (Geldner)

8.5.29: *hiranyāyī vām rābhīr ṛṣā ākṣo hiranyāyah | ubhā cakrā hiranyāyā ||*

“Golden ist eure Lehne, die **Deichsel**, golden die Achse; beide Räder sind golden.” (Geldner)

- 1 × *ékeṣa-* ‘having one shaft’:

10.135.3: *yām kumāra nāvaṃ rātham acakrām mānasākṛṇoh |*
ékeṣam viśvataḥ prāñcam āpaśyann ādhi tiṣṭhasi ||

“Der neue Wagen ohne Räder, den du Knabe da im Geiste gemacht hast, **der nur eine Deichsel hat** und nach allen Richtungen weiter fährt, auf dem stehst du, ein Nichtsehender.”

- In the *AV*, also dual forms (*ṛṣé* ‘two shafts; *Gabeldeichsel*’) are attested, cf. *PW* s.v.

3. Phonological and Morphological Reconstruction

- Both Hitt. *ḫišša-* c. and Ved. *ṛṣā-* f. can be traced back to a preform **h₂ih_{1/3}séh₂*.
- Note that ...
 - ... **h₃-* in *anlaut* position is possible too if you accept **h₃-* > Hitt. *ḫ-*.
 - ... the second laryngeal cannot be **h₂* since only **Vh₁sV* and **Vh₃sV* would have assimilated to Hitt. *VššV*. Cf. Melcher 1994:77f.
 - ... the reconstruction of **oxytone accent** is based on Ved. *ṛṣā-* alone. There are no *plene* written endings of Hittite *ḫišša-* to confirm this (nor a *plene* written [†]*ḫi-i-iš^o* to refute it).
 - ... while it is true that Hitt. *ḫišša-* does not need to continue a formation in **-eh₂-* and could equally well be traced back to a thematic masculine **h₂ih_{1/3}so-*, this option seems unattractive in view of Ved. *ṛṣā-* and Occam’s Razor.
- This pre-form **h₂ih_{1/3}séh₂*, then, can be segmented as **h₂ih_{1/3}-s-éh₂* if another piece of related material is added:
 - Modern Slovene *ojê* n., gen. sg. *ojêsa* ‘thill, shaft (of a cart)’ is the regular continuant of a **neuter s-stem** **h₂éh_{1/3}-os*.
- Note that ...
 - ... **h₂ih_{1/3}-s-éh₂* cannot, in any plausible way, be regarded an **inflectional** form (such as collective, plural, or else) of the *s*-stem **h₂éh_{1/3}-os*, 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**.

¹ Sources: <https://autodo.info/pages/g/greek-chariot-drawing/017>, and https://en.wikipedia.org/wiki/Bronocice_pot (08/16/17).

- a “thematization” (quite hard to argue for in the first place) would have hardly resulted in an **oxytone** **-eh₂-feminine*.
 - ... both the continuants of **h₂éǵh_{1/3}-os* and its apparent derivative **h₂ih_{1/3}-s-éh₂* 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 ...
 - VERBAL ROOT ‘to X’ ↔ *S*-STEM ‘the act of X-ing’ AND ‘thing on/with which one X-es, thing related to X-ing’.
 - **√sed* ‘to sit down’ ↔ **séd-os* n. ‘sitting down’ (as in Ved. *sádas* + *√kar* ‘to sit down’) AND ‘the thing on which one sits down’ (as in Gk. ἔδος n. ‘seat, stool’ *Il.*+).
 - **√meg^h* ‘to move from A to B’ ↔ **μέγ^h-os* n. ‘the thing on which one moves from A to B’ (as in Gk. ὄχηα n.Pl. ‘chariot’ Hom., Pi. for **έχηα*; cf. ἔχεσφιν· ἄρμασιν Hsch.).
- It seems advisable to regard the *s*-stem **h₂éǵh_{1/3}-os* n. (Slov. *ojê*) 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’.²

4. The Root **√h₂éǵh_{1/3}*

- 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 ...
 - ... Germ. *Deichsel* < **benχslō* << **tenk^(h)sleh₂*, and Lat. *tēmō*, *-ōnis* m. < **tenk^(h)smōn-* (Weiss 2009:183), both from a root **√teng^h* ‘**to pull, draw**’ (*IEW*:1067; *LIV*² *Addenda s.v.*); for the vehicle-related context cf. YAv. 3pl. mid. *ḡanjaiiānte* ‘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 **√h₂éǵh_{1/3}* had a meaning ‘to pull’, one can easily accept that the *s*-stem **h₂éǵh_{1/3}-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. *ojê* n. ‘thill, shaft’).
- The root **√h₂éǵh_{1/3}* ‘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. *áyate* ‘speeds’, as ***i*-reduplicated present** **h₂i-h₂ih_{1/3}-e-toi* and **thematic present** **h₂éǵh_{1/3}-e-toi* respectively (cf. the formally identical pairs *ījate* and *ájati*, and *ūhati* and *váhati*).³
- Details can be found in the **Appendix**.

5. The Derivational History of **h₂ih_{1/3}séh₂*

- **How can we justify** the formation of **h₂ih_{1/3}-s-éh₂* (Hitt. *hišša-* c. and Ved. *īṣā-* f.) next to **h₂éǵh_{1/3}-os* (Slov. *ojê*) 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 **-ó-*, with a double zero grade in the root and the suffix of the base word (cf. Persson 1893:270f.; Höfler 2015), as in:
 - **léyk-os* n. ‘light’ (Av. *raocah-* n. ‘light, day’, Ved. *rókas-* n.)
→ ****luk-s-ó-* ‘having light’** (Ved. *rukṣá-* ‘shining, radiant’ *RV* 6.3.7).
 - **ksér-os* n. ‘dryness’ (Lat. *serēnus* 3 ‘clear (of the weather)’ < **kser-es-no-*)
→ ****ksr-s-ó-* ‘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:
 - **sék-os* n. ‘the cutting; division’ (Lat. *secus* n. ‘sex (male or female)’)
→ ****sk-s-ó-* ‘(lit.) having a cutting’** ...
 - (a) “active/agentive” ‘cutting’, subst. as PGmc. **sahsa-* n. ‘knife’.
 - (b) “passive/result.” ‘cut’, subst. as Lat. *saxum* n. ‘(piece of) rock’.

² For YAv. *aeša-* ‘?’, Finn. *aisa* ‘shaft’, and Gk. οἶαξ m. ‘handle of rudder, tiller’ see Katz 1983:118f. and Peters 1980:94f. A very interesting and quite modern dossier is provided by Lidén 1897:60-65.

³ 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 ...
 - **h₂éjh_{1/3}-os* n. ‘the pulling (of a cart)’ → **h₂ih_{1/3}-s-ó-* ‘(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 **-h₂-* 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: **s₉k-s-ó-* ‘(lit.) having a cutting’ in an “active/agentive” reading ‘cutting’, subst. as PGmc. **sahsa-* n. ‘knife’, literally ‘the cutting thing’ or ‘the thing with which one cuts’.
- For **-h₂-*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 **s₉k-s-ó-* ‘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 **h₂ih_{1/3}-s-ó-* ‘(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 **h₂ih_{1/3}-s-éh₂* ‘thill, shaft’, which, as it were, bore the **identical meaning** of the base word **h₂éjh_{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 **h₂ih_{1/3}-s-ó-* 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 **-h₂-* went hand in hand with a **retraction of the accent**:
 - In Gk., for example, the masculine stems in *-ης* or *-ᾶς* (< **-e-h₂+s*) are as a rule not oxytone. *Cf.* Buck/Petersen *pp.* 2ff.
- NB: The most secure examples of “direct”, non-ellipsis **-h₂-*substantivizations are of course **masculine **-h₂-*stems**.
 - In Ved. the exceptional *mánthā-* m. (!) ‘churning stick, whisk’ < **mé/ónth₂eh₂-*, a subst. of **me/onth₂-ó-* ‘stirring; stirred’ (attested as Ved. *manthá-* m. ‘stirred drink’).⁴

⁴ If this is really a masculine stem in *-ā-* that somehow escaped the apparent shift of all other [if there ever were] masculine **-eh₂-*stems to feminine gender, it is hardly surprising that speakers associated it with the one other masculine stem in *°ánthā-* existing in Sanskrit, *viz. pánthā-* 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. *mánthām*.

- Furthermore: examples like **leuk-ó-* ‘bright’ (Gk. λευκός) → **léukeh₂* ‘the bright one’ (Gk. λεύκη f. ‘white poplar’, λεῦκαι pl. ‘white spots on the nails’); and abstracts such as *θέρμη* f. ‘heat’ (θερμός ‘hot’), Ion. *ἔχθρη* f. ‘hatred’ (ἐχθρός ‘hostile’; cf. Pinault 2011:174.), etc.
- Similarly Lith. *kuprà* f. ‘hump’ from **kúpreh₂* (as per Schaffner 2001:371f.; cf. also OHG *hovar* m. ‘id.’ < **hufra-* < **kúp-ro-*) 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 *Ghóṣā-* in 10.40.5 if the underlying adj. is a τομός-type **ghośá-*; cf. *ghóśa-* m. ‘noise’).
- In Lat. one can only detect traces of the prehistorical accent in isolated cases such as the dual outcome of **CRHC* sequences (**CRHC*’ > Lat. *CRāC* vs. **CR̥HC* > Lat. *CaR(a)C*; cf. Höfler 2017). Two examples of *-*h₂*-substantivizations:
 - *(*s*)*pérH-os* n. ‘feather, wing’ (Slov. *pero*, -*esa* n. ‘feather’) → *(*s*)*prH-s-ó-* ‘having feathers’ → *(*s*)*pr̥Hseh₂* ‘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-h₂₋ó-* ‘having wheels’ → **róth_{2o-}* ‘the one having wheels’ (Ved. *rátha-*, Av. *raṣa-* m. ‘chariot’); equally silly to think of an ellipsis here (†‘the (chariot) having wheels’).
 - **pélh_{2-os}* n. ‘(a) covering’ (as ‘skin’ in Gk. ἐρυσί-πελας n. ‘a skin rash’) → **p̥lh_{2-s-ó-}* “act./agent.” ‘covering’ → **p̥lh_{2seh₂}* ‘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. *pr̥thivī-*, *pr̥thvī-* f. ‘(Mother) E/earth’ from the fem. adj. **p̥lth_{2-u-ih₂}* ‘broad’ via ellipsis from a syntagma ‘the broad earth’, attested in Ved. *kṣām ... pr̥thvīm* (*RV* 10.31.9) and YAv. *zqm pər̥θvīm* (*Y.*10.4; *Yt.*13.9).
 - Ved. *mahiśá-* ‘tremendous’ (*RV* 10.66.10 *mahiśásya tanyatós* ‘of the tremendous thunder’) is used in combination with *mṛgá-* m. ‘animal’ in the *RV* (*mahiśám mṛgám* ‘the tremendous animal’ *RV* 8.69.15, etc.), denoting the ‘buffalo’; via ellipsis a (likewise oxytone) *mahiśá-* m. ‘buffalo’ emerged.
 - To be sure, it is impossible to **prove** a **PIE ellipsis**.
 - But a reasonably plausible case might be: **snéu-os* n. ‘(connubial) bond’ (for the root cf. **√sneu+bʰ* ‘to marry (a man)’ in Lat. *nūbō*, *nūpsī* ‘marries/d (a man)’, caus. in Russ.-CS. *snublju*, *snubiti* ‘to marry off’) → **snu-s-ó-* ‘related through marriage’:
 - **d^hugh_{2tér} snusós* ‘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. *snuśá-* f., Serb.-CS. *sněxa* f., PGmc. **snuzō(n)-* f. either reflect an independent *einzel sprachlich* remodeling or (less attractive) point to a younger syntagma **d^hugh_{2tér} snuséh₂* with “regular” agreement.

- Similarly perhaps: **b^hāg-* f. ‘beech’ (PGmc. **bōk-* ‘book’) → relational adj. **bhāg-* ó- ‘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. (OHG *buoha* f.).
 - History repeated itself in that Mod. Ital. *faggio* m. ‘beech, beech-wood’, Catal. *faig* m. continue the masculine of a Lat. relational adjective *fāgeus* ‘beech-’ (Plin.), from a syntagma VLat. **(arbor m.) fāgeus* (cf. Mod. Ital. *albero*, Catal. *arbre* m. ‘tree’), while Mod. Port. *faia* f. ‘beech’ continues the fem. *fāgea*, from **(arbor f.) fāgea* (cf. Mod. Port. *árvore* f. ‘tree’).
- If we return to **h₂ih_{1/3}-s-éh₂*, it now becomes possible to regard the underlying adjective **h₂ih_{1/3}-s-ó-* as a possessive adjective with relational meaning ‘related to the **h₂éih_{1/3}-os* [= thill]’⁵ or (though less attractive because of the reservations expressed above) with an “active”/“agentive” meaning ‘transmitting the **h₂éih_{1/3}-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 **h₂ih_{1/3}só-* 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 h₂ih_{1/3}séh₂* ‘rod related to the thill’, whence via ellipsis **h₂ih_{1/3}séh₂* ‘thill’.
- This, on the other hand, presupposes that the common ancestor of Anatolian and “Core-Indo-European” already possessed **some sort of **-h₂-agreement***.

⁵ 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. *tū’ri-* n.) → **tuh₂ri-ó-* ‘related to curdled milk’ (YAv. *tū’riia-* ‘curdled’, Gk. τῦρός m. ‘cheese’, Myc. *tu-ro₂*; cf. Meier-Brügger 2004); or **mélit-* ‘honey’ (Gk. μέλι n., etc.) → **mélit-ó-* ‘related to honey’ (gr. μελιτόν κηρίον ... Hsch. ‘honeycomb’).

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 topic⁶ 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 **smih₂*** (gen. sg. **smīeh₂s* > **sīeh₂s* > Gk. ἑἷς Hom.) cf. Eichner 2015:20f., but also Kloekhorst 2008 s.v. *šī-* (**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. χεῖρ, 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 **tibei*).⁷ 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 **h₁ékh₂os néuos* ‘a new horse’ and **roteh₂ néuos* ‘a new wheel’, it does not seem audacious to hypothesize that one or the other child would produce something like **h₁ékh₂os néuos* ‘a new horse’ and accordingly **roteh₂ néueh₂* ‘a new wheel’.

⁶ Cf. most recently the papers in Neri/Schumann 2014; also Pinault 2011 with references to older literature.

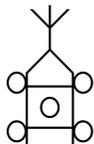
⁷ I thank David Sasseville (Marburg) for help in dealing with the Lycian evidence.

- 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 **h₂ih_{1/3}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 ῥοδοδάκτυλος Ἡώς, etc., “Core-Indo-European” has not yet had a fully fledged agreement system for (all) thematic adjectives.
 - 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.
 - 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.
 - 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!**



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Appendix: The Root **√h₂eǵh_{1/3}* ‘to pull’

- If one assumes that the root **√h₂eǵh_{1/3}* had a meaning ‘to pull’, one can easily accept that the *s*-stem **h₂eǵh_{1/3}-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. *ojě* n. ‘thill, shaft’).
- If we assume that an active verbal form (e.g. them. present **h₂eǵh_{1/3}-e-ti* ‘pulls’ just like **ǵénh₁-e-ti* ‘begets’) was prototypically used with a draft animal as its subj. ...
 - as in, e.g., (A) **h₂úksō(n) róth₂om h₂eǵh_{1/3}eti*. ‘The ox pulls the cart.’
ANIMAL_{NOM.} CART_{ACC.} PULL_{ACT.}
- ... we can infer that a medio-passive form of the same verb (e.g. a **-ǵe/o*-present **h₂ih_{1/3}-ǵe-toǵ* ‘is pulled’, just like **ǵǵh₁-ǵe-toǵ* ‘is born’) developed a meaning ‘to move, travel (said of a cart)’ ...
 - as in, e.g., (B) **róth₂os h₂ih_{1/3}ǵetoǵ*. ‘The cart moves.’
CART_{NOM.} PULL_{MID.}

- ... and also ‘to ride, drive (on a cart)’ ...
 - as in, e.g., (C) **h₂nér róth₂oh₁ h₂ih_{1/3}ǵetoǵ*. ‘The man rides on the cart.’
PERSON_{NOM.} CART_{INST.} PULL_{MID.}
- This would, of course, be comparable to the synchronic situation of, for example, Ved. *√vah/uh* ‘fahren, befördern’ (VIA:398f.) and Lat. *uehere* ‘to convey, carry’ that seem to have similar semantic features:
 - as in, e.g., (A) Ved. *rátham ... á yám ásvāsaḥ suyijo váhanti* (RV 7.78.4cd)
“Wagen ..., den gutgeschirrte Rosse ziehen.”
Lat. *currum ... albescentes uehebant equi*. (Curt. 3.3.11)
“White horses drew the chariot.”
 - as in, e.g., (B) Ved. *rátham ... vástor-vastor váhamānam* (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.”
 - as in, e.g., (C) Ved. *prá yád váhethē mahinā ráthasya* (RV 1.180.09a)
“Wenn ihr mit der Größe eures Wagens aufbrecht, ...”
Lat. *curru Dareus, Alexander equo uehebatur*. (Curt. 3.3.11)
“Darius rode in his chariot, Alexander on his horse.”
 - Incidentally, the root **√ueǵh^h* ‘to move from A to B’ formed an *s*-stem *quā nomen instrumenti (sensu lato) *ueǵh^h-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 **h₂ih_{1/3}ǵetoǵ* in Ved. *ǵyate* ‘moves, speeds (of or on a chariot)’:
 - as in, e.g., (B) *samānáyojano hí vāṃ rátho dasrāv amartyaḥ | samudré aśvinéyate* [= *aśvinā ǵyate*] (RV 1.30.18)
“Denn euer unsterblicher Wagen fährt in einer Fahrt auf dem Meere, ihr Meister Aśvin.”
 - as in, e.g., (C) *prabodhāyanti suvitāya devy uṣā ǵyate suyijā ráthena* || (RV 4.14.3cd)
“Die Göttin Uṣas kommt zu guter Fahrt, die Schläfer aufweckend, auf gutbespanntem Wagen.”
 - The corresponding active (A) seems to be unattested (but see below).
- ... unless, of course, the verb *ǵyate* does not belong to our root **√h₂eǵh_{1/3}* at all, but rather to the root of Ved. *yāti* ‘rides’ (VIA:407), Lith. *jóju*, OCS *jadŏ*, Toch. B *iyam*,

that is reconstructed as $*\sqrt{h_2}jeh_2$ ‘dahinziehen, fahren’ in the *LIV*² (p. 309f) and might, qua $*\sqrt{h_1}jeh_2$, be a root extended variant of $*\sqrt{h_1}ej$ ‘to go’ (thus *VIA l.c.*).

- Our $\acute{y}ate$ could, then, reflect $*h_1ih_2\text{-}je\text{-}toj$.
 - But it would be quite strange to reconstruct a $*\text{-}je/o\text{-}$ present $*h_1ih_2\text{-}je\text{-}toj$ ($\acute{y}ate$) next to a root present $*h_1jéh_2\text{-}ti$ ($yáti$). Such a pairing is quasi-unattested.⁸

○ A pattern that is found more frequently is that of **thematic presents** next to ***i*-reduplicated thematic presents**:

- $*h_2é\hat{g}\text{-}e\text{-}ti$ (Ved. $\acute{a}jati$ ‘dr.’) ↔ $*h_2i\text{-}h_2\hat{g}\text{-}e\text{-}toj$ (Ved. $\acute{í}jate$ ‘drives’)
- $*\mu\acute{é}\hat{g}^h\text{-}e\text{-}ti$ (Ved. $váhate$) ↔ $*\mu i\text{-}\mu\hat{g}^h\text{-}e\text{-}ti$ (Ved. $\acute{ú}hati$ ‘pushes’)
- $*pét\text{-}e\text{-}ti$ (Ved. $pátati$ ‘flies’) ↔ $*pi\text{-}pt\text{-}e\text{-}ti$ (Gk. $\pi\acute{\iota}\pi\tau\epsilon\iota$ ‘falls’)

• And indeed, our $\acute{y}ate$ ‘moves, speeds (of or on a chariot)’ could, in principle, be reconstructed as a *i*-reduplicated thematic present of the root $*\sqrt{h_2}ejh_{1/3}$ or of the root $*\sqrt{h_1}jeh_2$ ‘to ride’.

○ $*h_2i\text{-}h_2ih_{1/3}\text{-}e\text{-}toj$ and $*h_1i\text{-}h_1ih_2\text{-}e\text{-}toj$ could both end up as Ved. $\acute{y}ate$.

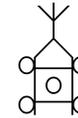
• But only for $*\sqrt{h_2}ejh_{1/3}$ there is a chance that a corresponding **thematic present** is attested:

- $*h_2éih_{1/3}\text{-}e\text{-}toj$ could be the source of the enigmatic Ved. $\acute{a}yate$ ‘speeds’ (cf., e.g., *RV* 8.100.8.a: $mánojavā \acute{á}yamānas$ ‘schnell wie der Gedanke eilend’), so that $\acute{á}yate$ is to $\acute{y}ate$ just as $\acute{á}jati$ is to $\acute{í}jate$ and $váhati$ is to $\acute{ú}hati$.
- This $\acute{á}yate$ is usually interpreted as a thematic present of the root $*\sqrt{h_1}ej$ ‘to go’ (cf. *LIV*²:233) or as the present subjunctive of $\acute{e}ti$ ‘goes’ (see note 10).

• If it, however, belonged to a different root, an alleged $*h_2éih_{1/3}\text{-}e\text{-}toj$ ‘is pulled; moves’ could perhaps open up a new perspective for the difficult passage *RV* 1.127.3fg ... $yamate náyate$ [= $ná \acute{á} \acute{a}yate$], 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 $sám \acute{a}yante$ is arguably *inter alia* the cart ($rátham$) that was mentioned in the verse before, viz. 1.119.1.

- But of course, a connection of either $\acute{í}yate$ or $\acute{á}yate$ with the root $*\sqrt{h_2}ejh_{1/3}$ is very difficult to “prove” beyond reasonable doubt.
- What is clear from the semantics and phraseology, however, is that Ved. $\acute{í}yate$ ‘moves, speeds’ has no connection to Ved. $inóti$ ‘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 $*\sqrt{h_2}ejh_{1/3}$ ‘to pull’ would be extremely welcome.



⁸ There are no secure examples in *LIV*² apart from $*\sqrt{d}eyk$.

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

¹⁰ A non-exhaustive search for Ved. $\acute{í}yate$ had the following results: subject is $rátha\text{-}$: *RV* 1.30.18; 1.141.8; 4.31.14; 5.18.3; subject is $cákra\text{-}$: *RV* 1.30.19; 8.22.4; subject is $rathí\text{-}$: *RV* 3.3.6; $\acute{í}ya(n)te$ in connection with harnessed horses: *RV* 4.45.6; 5.55.1; 6.39.4; with instr. sg. $ráthena$: *RV* 4.14.3; with loc. sg. $ráthe$: *RV* 6.59.5; with acc. sg. $sarátham$: *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 $\acute{í}yate$ 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“.

¹¹ Cf. Insler 1972:102 who admits that „[t]he single point which can be raised as an objection to the combination of $\acute{í}yate$ and $inóti$... [is] that the subjects of $\acute{í}yate$ are different from the objects of $inóti$ “.