1. The morphological markers of the Indo-European feminine gender arose from a word-formation suffix with collective meaning *-h₂ and various derivatives formed with it, including thematic *-e-h₂ and athematic *-i-h₂. This insight goes back to Johannes Schmidt and was later substantiated in many ways by advances in the reconstruction of Proto-Indo-European nominal morphology, most notably Nussbaum 1986 and Harðarson 1987a, b. The origin of the collective morpheme *-h₂ is hinted at by a wealth of traces of the pre-inflectional, purely word-formational use of *-h₂, which survive into the individual Indo-European languages. The evidence includes the placement of *-h₂ before derivational suffixes in complex formations and before inflectional endings, which accords with the usual behavior of derivational morphemes, cf. e.g.

PIE *kʷe-h₂-nt-o- > Lat. quantus; PIE *te-h₂-nt-o- > Lat. tantus; PIE *kʷi-h₂ ⇒ *kʷi-h₂-ent- > Skt. kīıyant- (Sims-Williams 1997: 318);
PIE *kər-h₂ ⇒ *kər-h₂-s- ⇒ *kər-h₂-s-ro- ⇒ *kər-h₂-s-re-h₂ > Lat. cerebra ‘brains’ (for the semantics cf. Germ. Gehirn);
PIE *dru-h₂ ‘wood’ ⇒ singulative *dru-h₂-s ‘single tree’ > Gk. δρῦς (Balles 2004a: 46, Nikolaev 2010a: 192; on the derivation of singulative formations cf. Leukart 1994: 153ff.).

Also pointing in the same direction is the functional restriction of the collective suffix to indicating collectivity, with no implication of grammatical gender or number. Originally, h₂-collectives were independent of gender (a) and could subsequently be associated both with masculine (b) and with neuter (c) o-stems (Schmidt 1889: 5, Widmer 2006: 439ff.).

* This article evolved out of a paper which was presented to the 28th East Coast Indo-European Conference held at the Háskóli Íslands, Reykjavík, on June 13, 2009. The basic insights concerning the etymological identification of the Tocharian agent-noun suffixes B -tsai-ca, -ntsa/-ñca, -nta and vocative/oblique B -ñcai, -cai were presented on the handout circulated at that conference. I’m happy to acknowledge that G. J. Pinault reached some basic insights and similar results independently in a lecture presented in July 2009, which may be taken as a confirmation of the basic results of both our papers, cf. this volume pp. 180f. on B –ećça, A –ant, pp. 187f. on B aknātsa.
Collective and Feminine in Tocharian

<table>
<thead>
<tr>
<th>PIE masculine *yih₁ros</th>
<th>PIE neuter *kʷekʷlh₁om</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘endowed with strength, virile’ (Toch. A wir, Lat. vir)</td>
<td>‘yoke’</td>
</tr>
<tr>
<td>(count) plural *yih₁rōs</td>
<td>(count &amp; collective) plural = collective *kʷe₃̥kʷlh₂₂h₂</td>
</tr>
<tr>
<td>collective *yih₁reh₂ ‘group of men’ (Umbr. ueiro, MEISER 1986: 118)</td>
<td>‘set of wheels, chariot’</td>
</tr>
<tr>
<td>(count plural) *kʷekʷlh₁ōs</td>
<td>(single) wheels’</td>
</tr>
</tbody>
</table>

(Cf. HARDARSON 1987a: 78f. Note that Vedic cákra- is normally neuter, like Proto-Germanic *χʷeχʷla-, and only rarely masculine, see KLEIN 1992: 141.)

h₂-collectives were also indifferent to number, being assignable to either singular or plural depending on the semantic category of the noun in question. Whereas mass nouns are prone to be assigned to the singular (a), numerals and count nouns prefer an assignment to the plural (b):

<table>
<thead>
<tr>
<th>PIE masculine *yédor₃h₂</th>
<th>PIE neuter *tr₃h₂ dékom₃t</th>
</tr>
</thead>
<tbody>
<tr>
<td>but plural meaning ‘waters’ is also attested (RAU 2009: 39);</td>
<td></td>
</tr>
<tr>
<td>b) PIE *tr₃h₂ dékom₃t (Hackstein 2010: 61) → doubly marked collective *tr₃h₂ dékom₃t₃h₂</td>
<td></td>
</tr>
</tbody>
</table>

Likewise uncontested is the origin of the feminine in the collective, given the partial homophony of collective and feminine morphemes. The feminine preserves morphological traces of its collective origin in the feminine nominative/accusative dual ending *-eh₂₁h₂ (Lat. duae, OCS dŭvě), which takes the neuter dual marker *-ih₂ (cf. o-stem neuter nominative/accusative dual *-o-ih₂; COWGILL apud NUSSBAUM 1986: 132 n. 59, TICHY 1993: 12f. and 2000: 70). Nonetheless, the precise motivation for and pathway of development leading from the collective to the feminine has remained controversial. Whatever their ultimate connection, it seems reasonably clear that the association of the notion of collectivity and feminine grammatical gender must be governed by a language-independent mechanism, because even collective formations of post-PIE date that arose within the individual IE languages show subsequent gender assignment to the feminine, cf. Latin collective neuter plural gaudia > French feminine singular joie. (One could argue, as R. KIM reminds me, that this is merely morphologically governed, i.e. a (reanalyzed) noun in -a is automatically assigned feminine gender. The fact, however, that the given
transition is typically found with abstract nouns and nouns denoting natural aggregates suggests that while the phonological identity of the two morphemes may have been facultative, the development was semantically driven, see RHEINFELDER 1967: 27f. for an instructive collection of cases.)

2. Despite general agreement on the original word-formational status of the collective and its relation to the feminine gender, the flow of articles devoted to the evolution of the feminine from the collective has not ceased. Much of the debate concerns the factors which promoted the emergence of feminine gender. Were certain constructions pivotal for the conversion of the collective noun class into nouns of feminine gender, e.g. syntactic conversion of collective-abstract nouns into adjectives (HARDARSON 1987)? Or did particular lexemes play a decisive role, e.g. the PIE word for ‘woman’ as in Gk. γυν^, Skt. gnâ- (BRÜGMANN apud WACKERNAGEL 1928: 43) or the PIE collective *yidêyeh₂ ‘females left behind by a warrior killed in battle’, subsequently specialized in usage to denote a single member of the group, i.e. a widow (TICHY 1993)?

In Tocharian, the development of the collective morpheme *-h₂ into a marker of feminine gender is not as far evolved as in the other Indo-European languages. This makes Tocharian an especially interesting candidate for examining the transition from the collective to the feminine and determining the precise steps involved. Before discussing the Tocharian evidence, however, it will be useful to recall some well-documented pathways of development, attested outside Tocharian, which illustrate the tendency of collective-abstracts to turn into animate agent nouns with subsequent restriction to either male or (more systematically) female reference.

3. From abstract-collective to animate

3.1 Sociological saliency of group affiliation and meronymic whole-part relation

The crucial question is how to account for the functional extension of the collective to denote female sex. In this context, linguists have frequently called attention to the use of collectives to refer to individual females. For instance, HARDARSON (1987b: 123, 126) added instances of collectives as denotations of individual females. Note however that German Frauenzimmer is not a valid example of such a collective; rather it exemplifies the metonymic shift from ‘(day) room for women’ to ‘women’ and finally ‘single woman’ (KLUGE & SEE Bold 1989: 230). In a similar vein, TICHY (1993: 10f.) stated that „Die Umdeutung einer Gruppenbezeichnung zur Bezeichnung einer einzelnen Frau war beispielsweise im Kontext von Possessivverhältnissen möglich, vgl. etwa dt. Herr X und Anhang.“ Pointing out instances like the foregoing, however, only restates the phenomenon to be explained—the use of collectives to denote females—instead of explaining it.
A promising explanation for the proclivity of collectives to signify female sex is based on the sociological perception of females as family members. A number of ancient Indo-European (and non-Indo-European) cultures attest to the practice of identifying and addressing women not primarily as individuals, but by their family affiliation. Conversely, then, it was the family affiliation that could be used to metonymically refer to and identify a particular female being. For females, the family affiliation was so prominent as to become a distinguishing mark in the identification of individual feminine family members. This correspondence between sociology and linguistic expression has left its trace in the onomastic systems of some Indo-European languages. An example is furnished by Ancient Italic: “Frauen hatten in den Gemeinwesen Zentralitaliens kein Bürgerrecht. Darum benutzten in Rom Frauen – Freigelassene wie Freigeborene – grundsätzlich die Namenformel der Männer, jedoch ohne Tribusangabe und normalerweise auch ohne Pränomen … Die Tochter des Königs Servius Tullius wird in der Überlieferung stets nur mit dem Gentile Tullia zitiert” (RIX 1995: 726; cf. WACKERNAGEL 1912: 26, STÜBER 2009: 224ff.). Similarly in Greek, men are usually addressed by their name(s), while women tend not to be addressed by name but by the generic ὅ γυναι ‘ο woman!’ (WACKERNAGEL 1912: 26).

The collective-based perception of females is further reflected by etymological evidence. The latter includes the secure reconstruction of a collective *yidēye-eh₂ ‘family of the slain (warrior)’, whose morphological derivation was clarified by TICHY (1993: 15f.): PIE *yid̂- ‘slay’ ⇒ PIE *yid̂-u- ‘slain (warrior)’ ⇒ vṛddhi-derivative *yid̂ey-o- ‘akin to the slain (warrior)’ ⇒ collective *yid̂ey-eh₂ ‘family of the slain (warrior)’. This formation exemplifies a sociological frame for Proto-Indo-European which assigns greater prominence to the group affiliation of females than to their individuality. Later, in the individual languages, the PIE lexeme *yidēye-eh₂ lost its collective semantics and took on the meaning ‘widow’ (Lat. vidua, Engl. widow). Another example is the Ancient Greek opposition of male οκορτής (agent noun in -ης, thus ‘the one performing cohabitation’) and female οκοιτίς (abstract-derived singulative formation, ‘the one endowed with cohabitation’), which by their derivational morphology convey the sociological notion of male agentivity while assigning a patient-like role to females.

In general, the semantic shift from family to single family member is so natural that it recurs time and again in linguistic history. A straightforward example is offered by Lat. familia ‘family, entirety of household members’, which by regular sound-change yields Romanian femeie ‘woman’: Latin fāmĭlĭa [fămĭlijă] > [fămĭljă] > Romanian [fêmĕȞĕ] <femeie> (MEYER-LÜBKE 1935: 3180, PUȘCĂRIU 1975: 595). The propensity of females to act as gregarious animals, while male animals tend to keep separate, recurs in the ethological characteristics of cattle, cf. LITSCHER
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(2009: 283): “Entscheidend für die Korrelation dieser Klasse [Kollektivum] mit dem femininen Sexus war dabei unter anderem der Umstand, dass in der Haustierhaltung die männlichen und die weiblichen Tiere sehr unterschiedliche Rollen spielten: Die Männchen werden z.B. bei Kühen und Pferden meist einzeln gehalten, die Weibchen hingegen in Gruppen.” Again, there is etymological evidence to corroborate this. For instance, PIE *steh₂d̂-om, -eh₂ originally denoted ‘stable, staying place of the herd’, and underwent a metonymic shift to the animals themselves (LÜHR 2000: 326). In Slavic, the neuter nouns OCS stado n., Russ. stado ‘herd’ contain no specification of the herd animals. In Germanic, by contrast, the noun was specialized to denote a ‘herd of horses’ (Proto-Germanic *stōðom, *stōðō-) without specification of gender, and this meaning is preserved in Old and Middle High German stuot and Old English neuter stōð, Engl. stud. Eventually, however, since horse herds frequently were herds of brood mares, the meaning of the German noun was narrowed down to ‘herds of mares’, attested sporadically from the end of the fourteenth century. Early Modern German stute went one step further in the metonymic shift from ‘herd of brood mares’ to ‘single mare.’ The history of English stud shares the semantic development from ‘establishment in which stallions and mares are kept for breeding’ to ‘stallions and mares kept in such an establishment’. Furthermore, ME stude, English stud is also attested in fifteenth and sixteenth century English in the meaning ‘a mare kept for breeding’, apparently short for stud-mare (OED s.v. stud 4a). Note that by contrast, American English went the opposite direction in specializing the meaning of stud to ‘stallion’, apparently a shortened form of stud-horse (OED s.v. stud 4b, D. Gunkel, p.c.). This nicely bears out our observation that the collective-based designation of females is neither driven by logical necessity nor reflects any inner-linguistic bias, but depends on language- and society-specific conventions.

Another instructive example is Latin familia ‘members of a household, wife, children, slaves’, whose meaning was later narrowed down to ‘woman’ (Romanian femeie) or ‘child’ (Albanian fëmijë ‘child’, cf. MATZINGER 2006: 83f.). This example demonstrates that the Romanian development of ‘family’ to ‘female’ reflects just one possible option, which prevailed for purely extralinguistic reasons. In addition, Albanian fëmijë shows that the gender selection of a collective noun like familia upon its concretization is essentially open, allowing for both male and female referents, cf. e.g. Albanian fëmijë i mirë (masc.) ‘good boy’, fëmijë e mirë ‘good girl’.

Examples like the aforegoing show that using the morphological category of the collective to denote female sex potentially reflects certain well-attested ethological and sociological frames. In this context, however, it is important to note that under-specification in the denotation of female individuals certainly does not reflect a built-in linguistic bias. After all, referring to individuals by their affiliated group and
sociological institution is by no means confined to female beings, but occurs with female and male beings alike.

The gender association of abstracts and collectives upon their individualization is not a priori fixed, but rather depends on the sociological conventions chosen by a particular community, and thus on communicative relevance. In keeping with this, and as we shall see further below, Tocharian still shows the gender-indifferent use of agent-noun suffixes that came to be restricted to masculine or feminine reference in many other branches of Indo-European.

(Communicative relevance as a factor influencing the linguistic specification or underspecification of natural sex was already noted by Varro L. L. 9.56, who mentioned in passing that the distinction between female and male sex remains unspecified in generic animal names unless communicatively relevant.)

3.2 From collective-abstract *-eh₂ to gender-nonspecific agent-noun suffix

In Proto-Indo-European, the collective-abstract morpheme *-eh₂ is commonly employed as an agent-noun suffix, as noted already by Meillet (1930-31: 6): “Quant aux themes en -ā-, la comparaison du latin, du grec, du baltique, du slave et de l’arménien a montré que des noms d’agent désignant des hommes appartiennent normalement à ce type.” The agentive function of collective *-eh₂ most likely arose through the propensity of collective-abstract nouns to denote animate beings, particularly in cases where more communicative weight was attached to the activity and profession of an individual being than to its individuality. Instructive examples are the following.

<table>
<thead>
<tr>
<th>Collective and abstract ⇒ individual person</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>family ⇒ family member</td>
<td>Latin <em>familia</em> &gt; Romanian <em>femeie</em> ‘woman’</td>
</tr>
<tr>
<td>age group ⇒ member of age group</td>
<td>Engl. <em>youth</em> ⇒ ‘young individual’, Russ. <em>starina</em> ‘antiquity’ and ‘old man’</td>
</tr>
<tr>
<td>action ⇒ performer of an action</td>
<td>OCS <em>slaga</em> ‘service’ ⇒ ‘servant’</td>
</tr>
<tr>
<td></td>
<td>Latin <em>auriga</em> ‘guidance of the reins’ ⇒ ‘charioteer’</td>
</tr>
<tr>
<td></td>
<td>Greek <em>φυγή</em> ‘wild flight’, Latin <em>fuga</em> ‘flight’ and ‘those who flee, fugitives’, e.g. <em>plane fuga merae</em> ‘truly pure cowards’ (Petron. 45)</td>
</tr>
</tbody>
</table>
Cases like these show that under the communicative prominence of agentivity, collective-abstract nouns in *-eh₂ could begin to denote animate beings. This eventually led to the reanalysis of the collective-abstract suffix *-eh₂ as an animate agent-noun suffix.

In this respect, two morphological characteristics of the animate agentive suffix *-eh₂ are worth noting. First, it bears the potential to denote either female or male referents. Second, it is predominantly substantival, but if used predicatively, it betrays a tendency to undergo adjectival conversion.

The semantic and functional changes described above do not always entail the substitution of meanings, but frequently lead to polysemy in the functional array of the collective-abstract suffix and the collective-abstract formation to a given nominal base, covering the entire breadth of developmental stages from collective-abstract through gender-indifferent agent to specified male or female gender, and from substantive to adjective. In the following, I adduce examples of such polysemy from German, Latin and Ancient Greek.

The German collective-abstract suffix -e (< PIE *-eh₂, as in German weak feminines like Gab-e ‘gift’; cf. on the morphological type SCHAFFNER 2001: 399) derives collective nouns as well as nouns denoting persons (male, female or of unspecified gender), cf. e.g.

<table>
<thead>
<tr>
<th>Verbal base</th>
<th>Deverbal collective/abstract</th>
<th>Referent</th>
</tr>
</thead>
<tbody>
<tr>
<td>spenden ‘to donate’ ⇒</td>
<td>Abstract Spende ‘act of donating’ and collective ‘donated object’</td>
<td>Inanimate</td>
</tr>
<tr>
<td>spucken ‘to spit’ ⇒</td>
<td>Collective Spucke ‘spit(tle)’</td>
<td>Inanimate, substance</td>
</tr>
<tr>
<td>petzen ‘to tattle’ ⇒</td>
<td>Abstract Petze ‘tattletale’</td>
<td>Animate, gender-indifferent, referring to children</td>
</tr>
<tr>
<td>putzen ‘to clean’ ⇒</td>
<td>Abstract Putze ‘cleaning woman’</td>
<td>Animate, female (derogatory)</td>
</tr>
</tbody>
</table>
wachen ‘to guard’ ⇒  Abstract Wache ‘guarding’ and collective ‘(military) unit of guards’ ⇒ single professional ‘guard’

Turning to Latin, an instructive case is furnished by Lat. convena ‘arriving person’ (< *coming together, gathering, meeting*), which can be most adequately glossed in Present-Day-English as ‘arrival’ with the same meaning extension from abstract to abstract and human referents, e.g. in the phrase *the newest arrival is an 18-year-old freshman from UNC* (D. Gunkel, p.c.). Lat. convena is substantival and gender-indifferent, cf. e.g.

*Eodem convenae complures ex agro accessitavere* “a number of arrivals came there from the farmland” (Cato Orig. fr. 22 ap. Gell. 18.12.7)

*An vero tibi Romulus ille aut pastores et convenas congregasse* “or do you really think that Romulus brought together shepherds and refugees back then?” (Cic. De Orat. 1.37)

*Et quibusdam convenis et feris barbaris corporis custodiam committebat* “and he entrusted the protection of his person to some assembled strangers and wild barbarians” (Cic. Tusc. 5.58)

In the following example, convenae is used predicatively and resembles an adjective modifying amantis. In addition, the word refers to a male-female couple.

*Itaque paravi intus magnas machinas, qui amantis una inter se facerem convenas* “and so I have prepared great stratagems inside, whereby I may make the lovers come together” (Pl. Mil. 138f.)

Continuing with Ancient Greek, Epic Greek ὁμήλική ‘sameness of age’ exemplifies the full pathway of development from a collective to a gender-indifferent and eventually pseudo-adjectival agent noun. Synchronically, the semantic array of ὁμήλική includes both the inherited and the innovative meanings. To begin, ὁμήλική is used as a collective ‘those of the same age’, cf.

ός ἔφεσεν θάνατος μοι ἄδειν κακός ὑπάτωτε δεαῖρο
υἱὲ αὐτὸν ἡμίθρημον γνωστοὺς τε λαπάσα
παῖδα τε τηλυγέθην καὶ ὁμήλικὴν ἔρατείνην.

“would that I had chosen death rather than to have come here with your son, far from my bridal chamber, my friends, my darling daughter, and all the companions of my girlhood” (*Il. 3.173ff.*
In the following example, ὀμηλίκη is used predicatively and could lend itself to reanalysis as an adjective:

εἰ γὰρ ὀμηλίκη γε γενοίμεθα τῷ δ' ἔστι θυμῷ
ἀψά κεν ἤ δέ φέροιτο μέγα κράτος, ἢ δὲ φεροίμην.

"if I were of the same age as he is and in my present mind, either he or I should soon bear away the prize of victory" (Il. 13.485f.).

With reference to single youths, ὀμηλίκη could come to denote individuals. Crucially, both female and male reference were possible, cf. with female reference εἰδομένη κοίρη ναυσικελείτοι Δόμαντος,
ἡ οἱ ὀμηλίκη μὲν ἔην, κεχριστὸ δὲ θυμῷ.

“Athena took the form of the famous sea leader Dymas’ daughter, who was a bosom friend of Nausicaa and just her own age” (Od. 6.22f.).

and with male reference
Μέντορ, ἄμυνον ἄρην, μνῆσαι δ’ ἐτάροιο φίλου,
ὁσ σ’ ἀγαθών ρέζωκον ὀμηλίκη δὲ μοι ἑσσὶ.

“Odysseus was glad when he saw her and said: Mentor, lend me your help, and forget not your old comrade, nor the many good turns he has done you. Besides, you are my age-mate” (Od. 22.208f.).

4. The rise of *-e-h₂ and *-i-h₂ as an incipient innovation in Tocharian

In Tocharian, the inherited PIE collective is in a state of transition between a derivational and an inflectional category. On the one hand, feminine gender appears as an already established category in the grammar of Tocharian. The evidence includes:

- the demonstrative pronoun Toch. B sā, which continues *sa from *sa(h₂) (Sieg, Siegling & Schulze 1908, RINGE 1996: 94, PINAULT 2009);
- pronominal adjectives in PIE *-nt- with fem. *-nt-ih₂, e.g. Toch. A fem. ponts*, obl. pontsām (cf. Gr. πᾶσα ‘all, every’; PINAULT 2008: 524);
- feminine adjectives to athematic stems, e.g. Toch. B klyomīna < PIE *-mōn, fem. *-mn-ih₂;
- numerals, e.g. Toch. B tarya < PIE *triḥ₂.
Strikingly, however, most thematic adjectives do not show a fully fledged system, but rather suppletion of the feminine markers, using *-ih₂ in the singular but *-eh₂ in the plural (Sieg, Sieglung and Schulze 1931: 28f., first mentioned in the context of IE reconstruction by Kim 2009: 75-7).

<table>
<thead>
<tr>
<th>Case</th>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>nom. masc. sg.</td>
<td>*h₁rud₇-r-o-s</td>
<td>B masc. ratr-e 'ruber'</td>
</tr>
<tr>
<td>nom. fem. sg.</td>
<td>*h₁rud₇-r-i-h₂</td>
<td>B fem. rätar-ya 'rubra'</td>
</tr>
<tr>
<td>nom. acc. fem. pl. &amp; coll.</td>
<td>*h₁rud₇-r-eh₂</td>
<td>B fem.-neuter pl. rät-r-o-na 'rubidae, rubidas'</td>
</tr>
</tbody>
</table>

One possible explanation for the semi-thematic inflection of thematic adjectives in the feminine is that the emergence of *-ih₂ and *-eh₂ as motion suffixes represents an incipient innovation in Tocharian. This fits well with the hypothesis that *-eh₂ as a motion suffix results from a secondary development in the adjectives, an idea which has long been entertained (cf. the literature in Schwizer 1950: 36 Zusatz 3 mit Lit.).

Instead of collective-abstracts in *-eh₂, Tocharian thematic adjectives exhibit the reflex of *-ih₂ in the feminine nominative singular. Strikingly, the Tocharian B nominative singular feminine rätarya 'red' goes back to PIE *h₁rud₇-r-i-h₂ 'redness', a collective-abstract noun, which yielded an adjective only subsequently by syntactic conversion. This integration of collective markers by syntactic conversion in the adjectival inflection was already suggested by Hardarson (1987a: 102) and can in general be supported by a wealth of data (Hackstein 2010a and 2010b). Adjectival conversion is demonstrably favored by the occurrence of collective-abstract nouns as predicate nouns or close appositions (Nussbaum 1997: 117f., Hackstein 2010a: 63f.). Indisputable cases are Latin bēstia > French bête or German Schade(n) ‘damage’ > pseudo-adjectival schade ‘a pity, unfortunate, regrettable’, e.g. sehr schade ‘quite unfortunate’. If Tocharian offers a model for collective-abstracts in *-ih₂ yielding the feminine adjectival suffix of the devī-type, then the Tocharian evidence viably supports Stübers analysis (2007: 9, likewise Szemerényi 1990: 203) of adjectival devī-type *-ih₂ as the h₂-derivative of an i-stem abstract.

The idea that adjectival fem. sg. *-ih₂ arose through the syntactic conversion of substantive collective-abstract nouns has much in favor of it, since Tocharian offers a number of precedent cases as we shall see further below. This hypothesis also implies that *-ih₂ was originally unspecified as to grammatical gender. The present investigation will show that Tocharian agent nouns systematically employ *-ih₂ as a suffix which is unspecified as to grammatical and natural gender. Outside Tocharian,
a few indications pointing in the same direction have recently come to light, cf. for instance REMMER’s treatment of Vedic masculine nouns and Avestan male names ending in -i of the devi-type (REMMER 2010).

What has been said about adjectival *-ih₂ in Tocharian also holds for *-eh₂. Feminine *-eh₂ is well-nigh absent in the nominative singular of thematic adjectives, which supports the old view (see above) that feminine adjectival motion with *-eh₂ arose secondarily. Among the very scanty traces of Tocharian thematic adjectives exhibiting *-eh₂ in the feminine singular is PIE *neyos, which is reflected as Toch. B masculine ñwe, and beside which the feminine singular B ñwa* is found once in the oblique form ñwai in the internally inflected compound ñwai=riṣi ‘of the new city’, cf.

ñake suktuñce śkas meñantse mem mante ñwe mape śātre swātār “now, since the seventh day of the sixth month new ripe grain is consumed” (B 461,4f., PINAULT 1984: 30)

cai ñwai ri=ṣi śrāyā “these are the aged men of the New City” (SI B Toch./12,1, PINAULT 1998: 16)

The scarcity of Tocharian singular forms employing *-eh₂ as a marker of the feminine supports the above explanation and accords better with an incipient innovation in Tocharian than a receding archaism. Since the eh₂-inflection does not appear to be established in the Tocharian adjective, the question arises whether ñwai=ri(-ṣi) might belong to an intermediate stage in which B ñwa* was still a derivationally formed collective-abstract in apposition, as if ‘the novel(ty), the city’. As has long been seen (MIELLET 1930-31: 6, HARDARSON 1987a: 102, TICHY 1993: 1f.), the older binary gender system I: *neos (masculine = feminine), *neyom (neuter) was superseded in late PIE by the innovative tripartite system II: *neyos (masculine), *neeyh₂ (feminine), *neyom (neuter). This change was brought about by the integration of the collective-abstract noun *neeyh₂ (feminine) ‘being young, youth; novelty’ (cf. NIKOLAEV 2010a: 191) into the inflection of the adjective. The older system I is still living in Hittite, where newaš ‘new’ is the common-gender form. The female name Hitt. 1Niwa ‘the new one’ (see ZEHNDER 2010: 89, STÜBER 2009: 14f.) represents either “a purely graphic entity” with -a for nominative -aš (nominatives in naming constructions may use the bare stem, cf. HOFFNER & MELCHERT 2008: 242), or collective-fem. newa(h) with regular loss of final *-h₂ after vowels, alongside which traces of a non-inflectional, purely derivational collective noun are presupposed by the Cappadocian name in Hittite-Luvian transmission 1/Niwašušař, (m)Niwašušu.

In sum, the evidence presented in this section corroborates the scenario envisaged by HARDARSON (1987a: 102) for the creation of thematic nom. sg. fem. adjectives in *-eh₂, namely the syntactic reanalysis and morphological conversion of
collective-abstract nouns into adjectives with feminine reference, cf. e.g. PIE *snuusos lubéh₂; “the daughter-in-law is a pleasure.”

5. Collective-abstracts in *-h₂, depending on their semantics and the paradigmatic contrast, may be assigned to either the singular or the plural. The Tocharian collective is transnumeral, in that such formations (transnumeralia) straddle the division between singular and plural. I cite three examples.

Alongside PIE *mēms/*mēms- > Skt. māh ‘flesh’ and PIE *mēms-re-h₂ ‘fleshy stuff’ > Lat. membra, Gk. μῆμα, OIr. mīr, we find the collective *mēms-(e)h₂ > PToch. *māms > Toch. B plural mīsa ‘flesh, fleshy stuff’ (Ringe 1996: 70, Vine 2002: 333, NIL 486-8). PToch. *-a < PIE *-h₂ has turned into a regular plural marker, cf. B pūwar ‘fire’, coll. pl. pwāra, dual pwāri ‘two fires’ (< PIE *-ih₂; Hilmarsson 1989: 112f.). On the one hand, Toch. B mīsa is assigned inflectionally to the plural by taking plural concord in adjectives, cf. mīsa pepakYuwa ‘meat soup’ (PK AS 2B b4 = Y2 b4, Carring 2003: 41, 64). On the other hand Toch. B mīsa could be conceived of as a singular mass noun by the Tocharians, since in order to express the plural a new plural misaiwenta ‘pieces of meat or flesh’ was formed (Winter 1962: 116f.) with individualizing -nt- (Melchert 2000, Balles 2004b: 20).

An analogous case with a singular collective and a new count plural is Toch. B singular ost ‘house, Haus’, singular collective ostwa ‘aggregate of houses, Gebäude(komplex)’, count plural ostwaiwenta ‘aggregates of houses’, Toch. A singular waYt, collective waYtu ‘dwelling place, house, palace’ (many attestations in the Maitreyasamitānaka), count plural waYtantu (A 318 b5).

A third example is provided by the Tocharian quantifier B māka, A māk ‘much, many, magnitude, multitude’. Tocharian B māka, A māk descends from the collective noun *mēgh₂, acc. sg. *mēgh₂-m. Pinault plausibly explains the Tocharian anlaut by a blending of the allomorphs *mV- and āk from *mēg- with a-Umlaut. The semantic range of B māka, A māk includes alongside the inherited as singular mass noun ‘multitude/a lot’ (a) as direct object, b) appositionally, c) adverbially) its innovative employment with overt plural inflection (as substantive or adjective, see d).

a) Tocharian B māka as accusative singular neuter, cf. Skt. bahu bhāṣate = māka wessām (B 305b4).

b) Appositional (postpositional) Tocharian B māka, A māk in prose texts takes singular or plural concord in the verb, cf. singular concord in Toch. B uppalavaranā asiyantase yeke peti māka sportittrā, literally “reverence, a lot,” was paid to the nun Uppalavarna” (B HMR 3 a3), beside plural concord, e.g. in Toch. B  añgarga jaçraifnta patrai māka krajipirentrā “The añgargika monks gathered many (a lot of) begging-bowls” (B 337 b4). Crucially, in the preceding examples, the postposition of
the attributive quantifier (cf. THOMAS 1995:58-62) deviates from the positional rules of B māka, A māk, whose default position is before the head noun, cf. THOMAS (1995: 50 with fn. 5). To account for the unexpected postposition, THOMAS (1995: 59) suggested an analysis of māka as an adverb, but this analysis is not persuasive in light of the intended sense of the passage, which may also be inferred from the Pāli version. However, if seen as an apposed mass noun and as an apposed substantive, the postposition of māka accords perfectly with the syntax of Tocharian, which requires apposed nouns and appositions to be postposed (HACKSTEIN 2010a).

c) Adverbial acc. sg. n. Tocharian B māka (cf. THOMAS 1995), e.g., māka plyawāre ākti śāmna “gods and humans wailed a lot”, paralleled by Homeric Greek, e.g., μύη ... βοος (Il. 17.334), and the equation Toch. B kakāccu māka “having rejoiced a great deal” (B 118a6), Latin magis ... gaudebat (Ter. Eun. 587), magis gauderem (Cicero ad Att. 8.6.4.2), magis gavisurum te (Cicero ad fam. 8.8.1), Greek μέγη’ εγιηθεν (Il. 7.127), μεγήσαν δέ μέγη (Hes. Th. 173).

Examples for overt plural inflection include substantival comitative B māka=mpa “together with many” (B404a1), and kramYāR sū wnolmets wnolmets wnolmets wnolmets makāts makāts makāts makāts pälskonta “he disturbs the thinking of many beings” (B 15 a8 = 17 b2), māka alloekna sankrāmntane „in many other monasteries” (Klosterbrief, THOMAS 1964: 74, text 34, 5).

In sum, the Tocharian evidence accords nicely with Brugmann’s earlier diagnosis: “Die Formen auf -ā waren also von Haus aus weder singularische noch pluralische Kollektiva, sondern Kollektiva schlechthin, die nach Bedürfniss bald singularisch bald pluralisch gefasst wurden” (Brugmann 1930: 355).

6. Collective-abstracts in *-t-i-h, and abstracts in *-tl-eh

When suffixed to *-t- and *-nt-, the Tocharian reflex of PIE *-i-h₂ is not always firmly associated with feminine gender, except for lexicalized items like substantival B lāntsa, A lānts ’queen’, and pronominal adjectives like Toch. A fem. ponts* ‘all, every.’ Rather, Tocharian reflexes of *-t-i-h₃ and *-nt-i-h₃ appear to be indifferent to grammatical gender. It is in this connection that our analysis of Tocharian feminine thematic adjectives of the type rātarya, īwa* as collective-based pseudo-adjectives becomes particularly appealing. As will be shown in the next sections, Tocharian offers other traces of the substantival employment of complex agentive formatives in *-h₃, *-i-h₃, and *-e-h₃, which are more or less closely associated with adjectival categories outside Tocharian:

* -t-i-h₃ (§6.1), * -t-ijeh₂ (§6.2)
* -nt-i-h₃ (§7.1), * -nt-ijeh₁ (§7.2)
* -nt-eh₂ (§8.2)
6.1. Collective-abstracts in *-t-i-h₂

Complex formants of the type *-t-ih₂ appear in Tocharian as gender-indifferent agent-noun markers, referring to male and female individuals alike. Perhaps the best example is B aknātsa, A āknats ‘fool(ish)’. Traditionally, this noun is classified as an adjective, see KRAUSE/TOMAS (1962: 97 §96,3). In terms of historical phonology, however, B aknātsa, A āknats rather reflects an abstract noun PIE *ŋ-ghën₃-t-ih₂, whose substantival properties persist with respect to the absence of paradigmatically opposed gendered forms, e.g. there is no masculine/neuter āknāta beside B aknātsa (§3.1).

Toch. B aknātsa, A āknats is not exclusively assigned to feminine gender, but may refer to females and males alike. Furthermore, it shows an inclination towards substantival use.

Gender-indifferent:

ce cmelše yarke petisa triketär ramt akn(ā)tsa onuwañe šaul paktär “by honoring and flattering this existence the fool [gender indifferent] goes astray [and] regards this life as eternal.” (B 31b3Š)
totkānts aiku te mant kārsormeṇ appamāt yamaskentār māyeñeçaŋ aknātsaŋ (B 31 a6) “knowing that he is known only to a few, the not-knowing, ignorant ones [gender indifferent] ridicule him,” translating Skt. alpajñāta iti jñātvā hy avajānanti ajānakāḥ (Udv. 13cd).

Masculine:

aismw akn(ā)tsa wat āRtpi ksa Ypä mā=lāR māskentār “the wise one and the fool [masc.] are not different” (B 28b3Š)
walo aknātsa su mārsau šañ āñm “The king, a fool [masc.] having forgotten even himself” (B 81a2Š)
mānte āknats, mānte trikYant “like a fool, like an erring one” (A 80 a4)

In sum, the formal peculiarities of Toch. B aknātsa, A āknats, namely its indifference to gender and its propensity for substantival use, can be accounted for by assuming an underlying abstract-collective substantive, whose precise derivation is reconstructible as follows:

PIE *ŋ-ghën₃-t-s > Gk. ἄγνώς ‘unknown’ (Hom. Od. 5.79), ‘ignorant’ (S. OT 1133, X. Oec. 2013);
⇒ *ŋ-ghën₃-t-ih₂ ‘ignorance’ > Toch. B aknātsa, A āknats ‘ignorant one’ (second-syllable ā → a by vowel weakening); cf. HILMARSSON (1991: 125, 1996:
10): “the Tocharian forms reflect a final *-tsā as if from I.-E. *-t-iH₂”; ⇒ *ŋ-ŋneh-t-o- (Lat. ıgnōtus, Goth. unknīpfs, OIr. ingnad ‘unheard of, unusual’; cf. Vine 2004: 360-366 on *CeH-to-).

6.2. Abstracts in *-tijeh₂ and Tocharian B agent nouns in -ca

The pathway of development illustrated above by Toch. B aknāīs, A āknats, leading from abstract noun to agent noun, recurs with the Tocharian B agent nouns in -ca (Krause & Thomas 1960: 188f.). These nouns again show morphological and syntactic peculiarities that are best explained as persistent features of diachronically underlying abstract nouns, namely the lack of an overt gender contrast and substantival syntactic behavior.

The Tocharian B agent nouns in -ca occur as non-attributive substantives and are used as translation equivalents of Sanskrit substantives, cf. e.g. cowai tārkauca cowai tārkau māsket(ur) “The robber turns into the robbed” (B 22a3), rendering Skt. sa vilōptā vilūpyāte (Udv. 9.9). B tne ytārye sā śpālmeR śaiYYe kärsaucaisa kärsaucaisa kärsaucaisa kärsaucaisa apākārtse yāmusa klyomña “This noble path has been shown to be the best by the knower of the world” (B 30a3f.).

(mā lkā)tsiś aittaeka prere kärsaucaisa “he is the destroyer of the arrow directed at not-knowing” (B 27b3), translating Skt. ajñāyai šalya-kṛntana (Udv. 12.9).

This word-formation type is productive; further examples include B wayauca ‘leader’, yāṣṭīca ‘begger’, ynūca ‘going’, kālpauca : Skt. lābhin, wārpaucā ‘enjoyer’. An incipient integration into the verbal inflectional paradigm is hinted at by its ability to govern direct objects: cf. śaiYYe kärsaucaisa, prere kärsauca in the passages above.

Rather than being an inner-Tocharian creation, the Tocharian B word-formation type in -ca arguably has an Indo-European pedigree. It descends from abstract derivatives in *-tijeh₂ to PIE formations in *-(n)t(i)iʢo- (Lat. nūntius, Skt. śrutyam). The postulation of such abstract derivatives, with subsequent development to agent nouns, is not as far-fetched as it might at first seem. A precedent for the suffix and its syntactic conversion from an abstract substantive to a pseudo-adjective is furnished by Italic, cf. e.g. Latin amīcus ⇒ amīcitia, puer ⇒ pueritia, *mīl-i-t-s ‘soldier’ (> *mīl-ēs-s > mīl-ēss) ⇒ mīl-i-t-ia. In Italic, *-tijeh₂ serves to form denominative derivatives designating institutions, cf. e.g. Umbrian kvestretie (loc. sg.) ‘office of the quaestor’, uhstretie (loc. sg.) ‘office of the uhur’. Through reference to concrete entities, such abstract nouns could develop into collectives and eventually come to denote a single member of the collective: abstract ‘soldierhood’ > collective ‘soldiery’ > agent noun ‘soldier’. Such a development may be observed in process in
Latin *militia*, which alongside its abstract meaning ‘military service’ (*militia* ‘military service, war’, e.g., Pl. *fr. inc.* 128) extended its meaning to ‘soldiers collectively’ (e.g., Liv. 4.26.3), and eventually to ‘individual soldier’ (*militia equestris* ‘cavalry officer’, e.g., Plin. *Ep.* 7.57.2).

Unlike Italic, where the formations in *-tía* are still predominantly abstract nouns, Tocharian developed these abstract nouns into gender-indifferent animate agent nouns. The same development in all likelihood occurred in Lycian, where agent nouns in *-aza* are amenable to a derivation from abstract nouns in *-tiēh₂*; thus HAJNAL (1994: 151f.) derived Lycian agent nouns in *-aza*, *kumaza* ‘priest’, *ygaza* ‘warrior’ from *X-e/oítā*. Under this analysis, a relation to the Toch. agent noun suffix *-ca* becomes very probable; this may in turn represent an areal phenomenon reflecting the prehistoric contiguity of Proto-Anatolian and Proto-Tocharian.

There is more cumulative evidence to suggest that the conversion of collective and abstract nouns into agent nouns occurred on a large scale in the prehistory of Tocharian. Not only did the conversion involve collective-abstracts in *-t-i-h₂* and abstracts in *-tiēh₂*, but also those in *-nt-i-h₂* and *-ntiēh₂* (§7), and those in *-nt-eh₂* (§8).

7. Collective-abstracts in *-nt-i-h₂* and abstracts in *-ntiēh₂*

7.1. Collective-abstracts in *-nt-i-h₂*

Both Tocharian languages preserve reflexes of the collective-abstract suffix *-nt-i-h₂*, which is the source of the agent noun suffix B *-ntsa*, A *-nts* (KRAUSE & THOMAS 1960: 151 §233,2; for a collection of examples see PINAULT 2008: 618, MALZAHN 2010: 485-7). B *-ntsa*, A *-nts* shares the morphosyntactic characteristics encountered above with the agent nouns in *-ca*: lack of gender distinction, constraint on attributive use, and substantival word-type. All of these peculiarities are explainable as persistent properties of the historically underlying collective-abstract nouns.

As an agent noun suffix, B *-ntsa*, A *-nts* is so productive that it is suffixed to subjunctive stems that are clear inner-Tocharian innovations, cf. e.g.

B *tarkāntsa* ‘carpenter’: or nāmsen *tarkāntsā* sañ añm y(ātāskem aśaunyī) (PK NS 107 b1, THOMAS 1976: 106, 110), the translation of Skt. dārūnamaṇi taṅkād hyyāmānṇaṃ damayanti pāṇḍitāh (Udv. 17.10cd) “the carpenters cut/fashion the wood, the sages control themselves”.

B *wawāntsa* (375a2) = *wapānts* ‘weaver’ (as presupposed also by Toch. A *wāpants*, wāpāntsune ‘weaving’, see SCHMIDT 2001: 20): Vardhanem *wapāntsai* palskōs pyāmīttaṃ “call to mind Vardhan, the weaver” (B375b2).


The Tocharian verbal adjectives in *-antsa* descend from deadjectival abstracts in *-nt-ih₂*, a word-formational type, which while sporadically attested in Ancient In-
do-European languages (Goth. *hulundi ‘hell’ < PIE *kl̥-⟨-nt⟩-ih$_2$, Goth. *sunja, OE *synn, OHG *sunce ‘sin’ < PIE *h₁-s-ŋt-ih$_2$, cf. SEEBOLD 1969: 25-45, SCHAFFNER 2001: 555) achieved greater productivity in Tocharian. It preserves the prior developmental stage of the feminine nt-participle of the type of OCS *bero, Goth. *baírandei, Gr. φρουσα, and Ved. *bhāra(n)tī-. (Although phonologically compatible with the latter participles, Toch. *preRtsa does not present unequivocal evidence for PIE *bh₂erontih$_2$ (contrary to SCHMIDT’s 1975: 294f. interpretation) since *preRtsa “ought to be feminine” while referring to a masculine noun *tsa (CARLING 2003: 89) and since it lends itself also to an alternative explanation as a periphrastic form meaning ‘with pregnancy’ (CARLING 2003: 88f., cf. PINAULT in this volume, pp. 184f.). Note, however, that the objection raised by CARLING against SCHMIDT’s analysis vanishes if *preRtsa represents an abstract-derived pseudo-adjective of the aknātsa type, which is exempt from gender agreement.)

This line of development clearly attests to an association of the devī-inflection with PIE *-i-h$_2$ (in accordance with STÜBER’s explanation, STÜBER 2007). The secondary origin of the feminine nt-participle accords well with the secondary character of verbal nt-inflection in general, since, as is well known, the integration of the erstwhile agent noun suffix -nt- into the verbal paradigm is a secondary development, along with its association with active voice. As is evident from Hittite (HOFFNER & MELCHERT 2008: 339), this suffix originally had intransitive-passive value, of which only scant traces survived in the other Indo-European branches: cf. e.g. Ved. intensive pēpiśat- ‘adorned’, Ved. pṛṣat- ‘speckled’, Lat. ēvidēns ‘visible’, vehēns ‘being carried’, Goth. *hulundi ‘hell, the concealed’ (from *kl̥-ŋt-ih$_2$), and see SCHAEFER (1994: 45f.) on other relics of the intransitive-passive use of nt-participles in the classical Indo-European languages.

7.2. Abstracts in *-nti$h_2$

The present active participle in Tocharian B is formed by means of the suffix -ñca. In trying to determine the historical source of this suffix, it is again helpful to base the reconstruction on its synchronic peculiarities, which stand a chance of preserving features of an ancestral formation. Morphologically, the eñca-particiles show no overt gender contrast and are predominantly substantival. The evidence of Sanskrit-Tocharian translations is especially telling. There, Tocharian active present participles function as translation equivalents not of Sanskrit present active participles, but of substantival agent nouns. Cf. the following examples:

agent noun
klāwäššeñcai ka cai “these (the tathāgatas) are only the proclaimers” (B 27 b3), translating Skt. ākhyātāras tathāgatāḥ (Udv. 13.9b-d).
The verbal *nt*-participle is primarily used as a substantive agent noun, either appositionally, (rarely) attributively, or as a predicate noun. By contrast, there is a constraint on the predicative use of the *nt*-participle as a verbal adjective, i.e. as a converb. When functioning as a converb, the middle participle has to be used instead. This formal differentiation, which was first noted by DIETZ (1981: 74, 144; cf. now MALZAHN 2010: 480ff.), is best exemplified by pairs of contrasting active and middle participles of the same verb. We observe a syntactically driven shift from substantival active participle in -ñca to converbial middle participle in -mane, cf. e.g.

substantival active participle in -ñca

*pelaikne preïcai* “oh bearer of the dharma” (B H149add. 67b5), translating Udv. 22.11a dharmadharam.

*poyšiñ=ākalk preïcai* sek “o bearer of the desire for becoming the all-knower” (B 229 a4).

converbial middle participle in -mane

*kektsëï premane tem lâklena wârpñaträ* “if bearing a human body, one feels the pains” (B284 a3f.).

substantival active participle in -ñca

*mā wase weşêïcaimpá seme wântre mäskemar* “with a lier (lit. lie-teller) I don’t want to cooperate” (B 596 a1).

converbial middle participle in -mane

*(mā wai)ke (weskau) wes kemane, aïstrâ waïke we(skau)* “in saying ‘I’m not telling a lie,’ he knows ‘I’m telling a lie’” (B336a7).
7.2.1 Phonological interpretation: what are the possibilities?

It is impossible to derive Toch. B -eñca from the prs. act. fem. *-ño-nt-ih₂, which would yield *-entja > *-entja > *-ent’a, with regular development of the sequence dental plus yod to a dental affricate -ts-. As we saw above in §7.1, the phonological equivalent of Gk. φερόμενα, Ved. bhāra(n)tī, OCS berǫštī appears in Tocharian B as the lexicalized premtsa ‘pregnant’.

Which options remain to explain B -eñca in terms of historical phonology?

The only remaining possibility is to explain the palatal affricate Toch. -c- from *-t- plus syllabic *-i-, i.e., *-nt-ijeh₂ > *-ntijah₂ with a Kuiper byform *-ntija > *-nti’ija > *-nc’ija > *-nc’ja > -ńca. For the phonological development, cf. PIE *tritijeh₂ > *triti’ah₂ with loss of final -h₂ per Kuiper to *triti’ja > *trici’ja > **trici’ja > *trici’ja > B trica.¹ A further example of the reduction of -ciya to -ca is fem. A *mättak ’ipse’ alongside masc. A mättak 'ipsa' (PINAUT 2008: 550f.; for the etymology see PINAUT 2010: 362).

Toch. B -eñca may thus be compared with PIE abstract formations in *-nti,eh₂ (cf. Lat. praesentia, clémentia, patientia; for a collection of forms, see WEISS 2009: 278f.). Crucially, the derivational type of Lat. praesentia is substantival. With regard to Toch. B -eñca, this would require us to assume a subsequent adjectival conversion of the nt-abstracts in question. A number of other indications indeed corroborate this presumption.

7.2.2 Morphological evidence for substantive inflection: the Tocharian B vocative in -eñcai

The presumed substantival value of the Tocharian B formant -eñca can furthermore be supported by morphological arguments. In particular, there is evidence to suggest that the vocative formation of these participles goes back to a substantival formation. The Toch. B participles in -eñca are peculiar in that they form a vocative in -eñcai. The inflectional pattern is

Vocative -eñcai
Nominative -eñca
Accusative (Oblique) -eñcai

¹ For the ordinal number ‘third’, a stem in *-ijo- (delocatival *-ijo-, MAYRHOFER 1986: 165f.) is well attested: cf. especially OCS tretĭjĭ, Middle Welsh trydyd (GREEN 1992: 542), Av. ērītiia- , in light of which the phonologically ambiguous forms Lith. trėčias, Goth. þrīdja, and Lat. tertius (WEISS 2009: 374) are also likely to contain the disyllabic suffix *-ijo-.
There are arguments in favor of equating the Toch. B vocative ending -(eñe)cai with the morpheme found in the vocative of the Indo-Iranian ā-stem substantives, and residually in Greek γόναί beside γυνή 'woman'.

Until now, the formal relationship of the Greek and Indo-Aryan vocative morpheme -ai to the ā-stems has been unclear. The key to understanding, however, is provided by the interpretation of the Greek and Indo-Aryan morpheme -ai as the vocative (*-eh₂-i-t) of the complex collective formation with nom. sg. *-eh₂-i-t-s, which, as shown by Watkins (1975: 364f.), is reflected in the Greek noun type in -ης, e.g. βασιληΐς, and the Luvian noun type in -a[ai(t)-, e.g. Luvian annaruma[ai(t)- 'strength', hattula[ai(t)- 'health'. (A related collective-abstract suffix *-eh₁-i may underlie Hittite II-abhi, which besides Eichner’s interpretation (1992: 51) as a locative numeral abstract*ti/dayahhi ‘in twoness’, also allows for a contextual identification as an accusative neuter form.)

The Tocharian agent noun vocative in -eñcai thus provides further evidence for a substantival formation in transition to adjectival usage. The same phenomenon is encountered in the Homeric Greek nouns in -ης, which are normally feminine substantives (cf. the feminine names Βρῆθις, Χρῆθις, and see Schwyzer 1939: 465) but also occur as appositional pseudo-adjectives, e.g. in δῶροι δίοι τιμή βασιληΐς "and he gave him half of the power, of the kingdom" (Il. 6.193), ὦς δ’ ὅτε Παινδορέου κούρην, χλορηθῆς ἄρον "the nightingale of the Greenwood" (Od. 19.518), ἔδραν ἀδόνιον Ἑλαχῆς, πρεσβῆ δια τιμὴν “you have gained highest abode and highest honor” (H. Hymn. 29.3). Phonologically, we would expect *-eh₂-i-t to yield Greek -αι, cf. vocative *-eh₂-i-t > -αι as in γόναί, locative-allative *dʰe₂m-eh₂-i > χαμαί (with -αι instead of -αί due to early contraction; Lipp 2009: 107, Nikolaev 2010b: 66f.). By contrast, -ης represents the leveling of allomorphic *-eh₁-i-, originally found inter alia in the genitive *-eh₂-i-es and locative *-eh₂-i-i.

A further piece of evidence is furnished by the Latin collective morpheme -ae. The possible collective function of the Latin morpheme -ae is proved by the morphosyntactic pattern exemplified by unae bigae ‘one two-horse team’ (not *una biga, which would be symmetrical with the pattern casa, casae), binae bigae, trinae bigae etc., which already in antiquity was found to be exceptional enough to warrant comment, cf. Varro L. L. 9.63f., 10.67. Examples such as these prove that Latin -ae when used as a collective morpheme is indifferent to number, as it may occur with

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2 Reflexes of *gʷneh₂-i- are also found in Albanian, Armenian, and Phrygian, see Matzinger 2006: 25. Matzinger reconstructs *gʷnh₂-ai-, but there is no phonological obstacle to positing *gʷneh₂-i-.

3 For a survey of research on the vocative of the Indo-Iranian ā-stems, see Lühr 1991: 173-5.
the numerals one, two, and three alike; for further discussion, cf. Hackstein (2010a: 52f.).

The Latin-Anatolian-Greek-Indo-Iranian correspondence thus illustrates for the same suffix the transition from collective-abstract function (Luvian) to a “feminine” composite suffix (Greek, Indo-Iranian) designating natural and grammatical feminine gender. Functionally, Tocharian B vocative -ai in -eñcai would be closest to Luvian -aḥīt, which continues the collective-abstract formant prior to its integration into a grammatical category of “feminine/collective-abstract.” Being coreferential with masculine as well as feminine nouns, B -eñcai is indifferent to gender. Furthermore, the Tocharian B vocatives and obliques in -eñcai are frequently substantial, cf. e.g.

\[pw=ākalkānta \textit{aiššeñcai} \textit{cinem akalk ūskemar} “O fulfiller of all wishes, of you I request a wish” (B 228 b3f.).
\]

\[\textit{pontāts saimo, kāršse-ṛīai, aṁmālaska, lākle-nāksi, sākw aiššeñcai, kāṣṣi, pānto} “O refuge of all beings, seeker of hale, compassionate one, destroyer of sorrows, bestower of luck, teacher and support” (B 229 b3f.).
\]

\[mā \textit{waše \textit{wešeñcaimpa} ṣeṁe wāntre māskemar “with a liar I don’t want to cooperate” (B 596 a1).}
\]

Equating Tocharian vocative -ai- (collective-abstract) with Luvian neuter -aḥīt (genus commune) would account for the homophony of the vocative and accusative/oblique -ai in Tocharian. Under the given hypothesis, the homophony of vocative and oblique simply continues the non-distinction of vocative (= nominative) as against the accusative.

<table>
<thead>
<tr>
<th></th>
<th>I (Luvian, Greek)</th>
<th>II (Latin, Greek, Indo-Iranian, Tocharian)</th>
<th>III (Slavic, Italic, Greek)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocative</td>
<td>*-eh₂-i-t</td>
<td>*-eh₂-i-t</td>
<td>*-eh₂ &gt; *-ah₂ &gt; *-a₄</td>
</tr>
<tr>
<td>Nominative</td>
<td>*-eh₂-i-t</td>
<td>*-eh₂</td>
<td>*-eh₂</td>
</tr>
<tr>
<td>Accusative</td>
<td>*-eh₂-i-t</td>
<td>*-eh₂</td>
<td>*-eh₂</td>
</tr>
</tbody>
</table>

---

Originally, *-eh₂-i-t served as nom., voc. and acc. (I), and *-eh₂-i-t- was merely an allomorph of the isofunctional simple morpheme *-eh₂- (III). Through blending of (I) and (III), suppletive patterns arose as in Indo-Iranian, Tocharian and Greek (II). In Tocharian B, the association of vocative -ai (*-eh₂-i) and nominative -a (*-eh₂) corresponds to the pattern found in Vedic Skt. sêne, sênā and residually in Greek γονῆ, γονή (acc. γονατίκα).

### 7.2.3 Collective-based vocatives in thematic stems

In Tocharian, certain paradigmatic configurations show reflexes of the PIE collective morpheme *-eh₂ in transition between the original collective and a feminine-singular or neuter-plural function. As a case in point, we may mention Tocharian thematic nouns with masculine singular vocatives in -a alongside nominatives in -e. Thematic nouns (especially kinship terms) supply their singular vocative by means of a diminutive formation in *-eh₂ which is based on the collective, e.g., nominative šomške ‘little son’, vocative šomška. Crucially here, the vocative singular ending, which allows for a reconstruction *-a(h₂), is no longer a collective, since it denotes a single human being. Furthermore, synchronically it neither represents a feminine singular, since it denotes a masculine being, nor does it function as a neuter plural, given that the formation is aligned paradigmatically with masculine nominative singular -e.

How then are we to determine the function encoded by the vocative singular morpheme -a? A straightforward solution is suggested by the fact that the morpheme in question typically occurs in thematic diminutives. It is common in IE languages for diminutives to be encoded by morphemes conveying neuter gender, cf. WACKERNAGEL (1928: 16f.). Furthermore, the diminutive suffix conveys affection, which allows it to be employed with kinship terms. A neuter origin for the thematic vocative in -a is also supported by nominative ņakte ‘deity’, vocative ņakta. As in other languages, the term for ‘god’ was originally conceived of as impersonal (HACKSTEIN 2006: 102 fn. 45); and as pointed out by HILMARSSON (1989: 48f.), ņakte is treated morphologically as a neuter in Tocharian, with absence of -m in the obl. sg., and feminine-neuter concord in the plural. In sum, the Tocharian reflexes of *-eh₂ reveal a suffix in transition between collective function on one end and assignment to the feminine singular or neuter plural on the other.

### 8. Collective-abstracts in *-t-e-h₂ and *-nt-e-h₂

The use of substantival collective-abstract formatives as animate agent noun suffixes conforms to a diachronic tendency or “drift” of Tocharian. The picture of the parallel conversion of collective-abstract formatives in *-t- and *-nt- into agent noun suffixes that we observed for *-tiēh₂ and *-ntiēh₂ is completed by the use of collec-
tive-abstracts in *-t-eh₂ and *-nt-eh₂ as animate agent nouns. Of these latter two agent-noun suffixes, however, *-t-eh₂ never became productive in Tocharian, whereas *-nt-eh₂ attained productivity in Tocharian contrary to the other Indo-European languages.

8.1 Collective-abstracts in *-t-eh₂

Outside Tocharian, the inherited PIE collective-abstract suffix *-t-eh₂ is used to derive abstracts from adjectives and substantives, e.g. Skt. devátā- ‘service, sacrifice’, Lith. nuogatā, OCS nagota ‘nakedness’, Germanic adjective-derived abstracts in Goth. -ifja, OHG -ida (< *-étā), Latin nausta, Elean Gk. τελέστατα ‘priest in charge of initiation’ (SCHWYZER DGE 413.78f.; according to LEUKART 1994: 44 in all likelihood vocative, see; and cf. HAUNAL 1998: 31f.); Myc. te-re-ta, interpreted as telestās (following the arguments adduced by LEUKART 1994: 42f.), and the morphologically and syntactically archaic Hom. Gk. ίπποτος Νέστορ (with generalization of the highly frequent vocative in -tā as nominative, cf. LEUKART 1994: 42). Alongside the archaic type of τελέστατα, Greek innovated the singulative formation in -tāς, -tης that was to become productive in the classical period, being added even to verbal roots.

8.2 Tocharian A present participles in -ant and Tocharian B agent nouns in -enta

The use of collective derivatives of nt-stems as substantive agent nouns recurs in the Tocharian A present active participles in -ant. The Tocharian A participle in -ant is desubstantival, as is proven by its Tocharian B correspondent in -enta (from PIE -nt-eh₂; B -enta is exempt from a-Umlaut, as noted by PETERS 1981: 243 n. 9; the failure of a-Umlaut to occur is to be ascribed to and indicates the overall productive status of the collective morpheme {a} in Tocharian, cf. e.g. the plural formative B -enta). Tocharian B -enta appears as a purely derivational agent noun suffix, thus preserving a stage prior to its integration in the verbal system, which has been completed in Tocharian A. Its substantive origin is further supported by a comparison with the type of Lat. clienta, iuventa. In sum, this Tocharian suffix illustrates the line of development from collective noun > abstract noun > agent noun > participle:

<table>
<thead>
<tr>
<th>Inflection</th>
<th>Participle B prekšėnca</th>
<th>Participle A praksant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Derivation</td>
<td>Agent noun B prekšenta</td>
<td></td>
</tr>
</tbody>
</table>

Cf. the following contrasting pairs of inflectional Toch. A -ant versus derivative Toch. B -enta:
A sne-pältikāñ prakṣāntāñ “unjust judges” (A 222 a2).
B prekṣallene waryārene prekṣentam weñāre “they took him to court, (and) the judges spoke” (B H149add 12b1, THOMAS 1967: 26n. 35).

A koṣānt- ‘killing, killer’, cf. e.g. koṣāntām (75a2), koṣāntās (71a6).
B kauṣentanā kr.i onolmi māka “if beings, a multitude, are murderers” (B K 8 a6);
kauṣentei kālpāsāi(n) kauṣenta su “the killer seizes the killer” (B34b2) = Skt. hantāran labhate hantā (Udv. 14.3a); kauṣentanne onolmenne “among killers, among men” (B TX 2b4) = Skt. himsakesu manusyesu (Udv. 30.46c).
Cf. also B su … weñentānne weñentānne weñentānne weñentānne posa śpālmeR walo rYākeRtsā “er, der allervorzüglichste unter den Sprechenden (Sprechern), der König der Weisen” (B K 3 b1, PINAULT 2007: 210).

The not altogether infrequent substantival properties of the Tocharian A participles in -ant can be explained as preserving morphosyntactic properties of the underlying collective formation, cf. e.g.
lok sām kāSSI, klopāntwās tsālpant “Far away is the teacher, the saviour of sorrows.” (MSN 1[I.10]a7, Ji / WINTER / PINAULT 1998: 64f.);
wāspā ne tāt p.kis e(sant) “Indeed, you are going to be an almsgiver to everyone” (MSN 16[I.6]a5, Ji / WINTER / PINAULT 1998: 44f.);
cu knānmunesi śol e(sant) “you, giver of the life of knowledge” (MSN 8[II.4]a2, Ji / WINTER / PINAULT 1998: 82f.);
puk kārsnānt “the knower of all knowledge” (MSN 14[II.5]b1, Ji / WINTER / PINAULT 1998: 90f.);
p.kis was praski arṣāntāñ “to all we (are) instigators of fear” (MSN 5[II.7]a8, Ji / WINTER / PINAULT 1998: 102f.).

As the preceding examples demonstrate, the Tocharian B agent nouns in -enta are comparable to the derivational type of Greek θελοντης (PETERS 1981: 243 n. 9), and Latin clienta ‘female client’. To Latin cliēns, an old aorist participle, an abstract noun in -tā, clienta, is formed which originally denoted ‘the property of leaning on another person for support/being professionally connected to another person’ and subsequently came to refer to a person leaning/depending on someone else. Old Latin clienta has been concretised (cf. Paul. Fest., Lindsay p. 61: clientam pro cliente Plautus dixit) and further specialized its meaning to signify ‘a female client’, cf. e.g., habeo ecelliam meam clientam, meretricem, adulascetulum (Pl. Mil. 789).

9. Conclusion

Returning to the initial question of how precisely to envisage the transition from collective to feminine, the Tocharian evidence offers new insights. With regard to
the development of the collective-abstracts in *-h₂ and *-eh₂, Tocharian exhibits the following three developmental stages.

Stage I: Like the other Indo-European languages, Tocharian attests both the preservation of lexicalized derivational collectives (as individualized singular nouns or as plurals) and the innovation of inflected collective-based plurals (morphologization of *-h₂ > Toch. B -a as a neuter plural morpheme).

Stage II: In contrast to other branches of Indo-European, however, Tocharian is peculiar in preserving a second stage, which precedes the functional extension of the collective-abstract to denote natural and grammatical feminine gender. At this intermediate stage, we observe the incipient association with male and female referents of those collective-abstract formants that are firmly associated with feminine grammatical gender in most other Indo-European branches, namely *-ih₂ and *-eh₂. The concretization and individualization of collective-abstracts in *-ih₂ and *-eh₂ to nouns denoting animate beings, with no restriction to males or females, is the preliminary stage to the restriction of *-ih₂ and *-eh₂ to the feminine at Stage III.

Tocharian shows a tendency toward the conversion of collective-abstract nouns in *-h₂ into animate agent nouns, without specification of masculine or feminine referent. As demonstrated above, collective-abstracts of the second column could optionally be concretized with individual male or female referents, depending on the sociological context and conventions and linguistic implicature, and such instances of concretization could be conventionalized over time. The pivotal role was unsurprisingly played by agent nouns, which are most likely to be associated with animate referents.

§ 6.1 Toch. B -tsa (*-tih₂, e.g. aknātsa ‘ignorant’).
§ 6.2 Toch. B -ca (*-tijeh₂, e.g. kārsauca ‘knower’; Lyc. kumaza ‘priest’; Lat. militia ‘military service, soldiers collectively, cavalry officer’).
§ 7.1 Toch. B -ntsa (*-ntih₂, e.g. mallāntsa ‘(grape) presser’; Gk. φόρουσα f. ‘carrying’).
§ 7.2 Toch. B -țca (*-ntijeh₂, e.g. preńca ‘bearing, bearer’; Lat. patientia ‘patience’).

This development complies with a general tendency of deverbal abstracts to undergo a conceptual shift to agent nouns. Paganl 1980: 304 has pointed out that this tendency can be seen as the natural result of the more basic nature of the verbal abstract and the more specialized semantics of the agent noun. This fits well with the crosslinguistically greater variety of expressions encoding agent nouns (Biales 2005: 58). For an instructive case study illustrating the shift of semantic parameters in the development from verbal abstract to substantival and eventually adjectival agent noun see Kim (2005: 279, 2010: 270-2, 400f.) on the Skt. formations in -ona-. 
§ 8.2 Toch. B -nta (*-n-teh₂, e.g. kauṣenta, ‘killer; killing’; Lat. *clientes ‘female client’).

The resulting Tocharian agent nouns appear as pseudo-adjectives characterized by the persistence of certain substantival characteristics, namely lack of gender contrast and a constraint on attributive use.

Stage III is marked by the functional restriction of collective-abstracts to the feminine singular. The prime example is the demonstrative pronoun *seh₂ > Toch. B sā ‘this’, from which the other Tocharian demonstratives are derived, e.g. Toch. B sām, sā₂, A sām, sām. The Tocharian state of affairs thus suggests that feminine grammatical gender first arose in the demonstrative pronoun (cf. already WACKERNAGEL 1928: 43, MEILLET 1930-31: 19f., SCHWYZER 1950: 36, STRUNK 1994: 155f.), while the same restriction to feminine singular function had not yet taken place in men-stems, t-stems, or nt-stems.

In sum, the Tocharian evidence points to the secondary character of feminine motion in the adjective. The idea of Early PIE collective-abstracts as the source for later feminine adjectives has a long pedigree, see MEILLET (1930-31:24) on Gr. ἰγίεια, Ion. ἰγειή ‘health’, and cf. e.g.

<table>
<thead>
<tr>
<th>animate (m. &amp; f.)</th>
<th>abstract-collective</th>
</tr>
</thead>
<tbody>
<tr>
<td>πρέσβυς ‘old(er)’</td>
<td>πρεσβεία ‘going ahead, mission’</td>
</tr>
<tr>
<td>θῆλης ‘female’, cf. feminine</td>
<td>θήλεια *‘womanhood’ → ‘female’</td>
</tr>
<tr>
<td>θῆλης, e.g., ὁ θῆλης ὄρης ‘the she-mule’ (Arist. HA 577b 22), which is superseded by the innovated type θήλεα ἰππος (Hdt. 3.86)</td>
<td></td>
</tr>
</tbody>
</table>

Parallel to these isolated Greek examples, but much more systematically than any other branch of Indo-European, Tocharian shows an intermediate stage of feminine motion in adjectives, intermediate insofar as the complex suffixes involved can be employed gender-indifferently or as singular feminines, while outside Tocharian they are restricted to the latter, cf.
Under the assumption of a purely feminine suffix *-ih₂, B *plaktukāña ‘doorkeeper/warden’ was traditionally analyzed as a feminine noun (German ‘Türhüterin’); cf. Krause (1955: 42), whose translation is by and large adopted by Schmidt (2001: 310). However, the profession of doorkeeper/warden was a predominantly male occupation in India and Central Asia.

<table>
<thead>
<tr>
<th>PIE</th>
<th>Tocharian: abstract-collective referring to males &amp; females</th>
<th>Outside Tocharian: feminine singular restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-n-ih₂</td>
<td>Stage III: B *plaktukāña ‘doorkeeper/warden’ (male and fem. ref.)</td>
<td>Greek τάξτρα ‘feminine carpenter’</td>
</tr>
<tr>
<td></td>
<td>Stage IV: B *klyomīña ‘noble’ (f.)</td>
<td></td>
</tr>
<tr>
<td>*-t-ih₂</td>
<td>Stage III: B *aknātsa (male and fem. ref.)</td>
<td>Greek λόσσα ‘rage’, μέλισσα ‘bee’</td>
</tr>
<tr>
<td>*-nt-ih₂</td>
<td>Stage IV: B *karstsā ‘good’ (f.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stage III: B *mallāntsā ‘(grape) presser’ (male and fem. ref.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stage IV: B *lāntsā ‘queen’</td>
<td></td>
</tr>
</tbody>
</table>

Finally, Tocharian confirms the longstanding hypothesis that the predicative use of substantival abstract-collectives in *-(e)h₂ as copular nouns or nominal appositions provided the catalyst for the reanalysis and formation of feminine adjectives. The morphosyntactic use of the Tocharian animate agent nouns exemplifies the syntactic prototypes posited by Hardarson (1987a: 102), Pinault (1996: 204), Nussbaum (1997: 117f.), Rieken (2005: 62), and Hackstein (2010a: 62-64). This fits well with the observable predilection of Proto-Indo-European and the ancient IE languages for nominal predication: substantives denoting properties come close to adjectives when used as predicate nouns or in close apposition (Hackstein 2010a, 2010b: 75f.).
It follows that in pre-Tocharian, and perhaps already in PIE, the distinction between substantive and adjective was expressed syntactically rather than morphologically (BALLES 2009: 18ff.). The phonological reconstruction of the following Tocharian sentences points in the direction of predicatively used PIE abstract-collectives:

<table>
<thead>
<tr>
<th>PIE *so ɟ-ɡneh₂-t-ih₂</th>
<th>Tocharian B se aknātsa.</th>
</tr>
</thead>
<tbody>
<tr>
<td>“He is ignorance.”</td>
<td>“He is ignorant.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PIE *seh₂ ɟ-ɡneh₂-t-ih₂</th>
<th>Tocharian B sā aknātsa.</th>
</tr>
</thead>
<tbody>
<tr>
<td>“She is ignorance.”</td>
<td>“She is ignorant.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PIE *so uʢebH-ont-ih₂</th>
<th>Tocharian B se wapāntsa</th>
</tr>
</thead>
<tbody>
<tr>
<td>“He is (concerned with) weaving.”</td>
<td>“He is a weaver.”</td>
</tr>
</tbody>
</table>

The Tocharian evidence therefore accords well with the often assumed secondary desubstantival character of adjectival inflection in Indo-European (see above, §2), and supports the view that adjectival gender is younger than substantive gender (SCHWYZER 1950: 36 Zusatz 3 with lit.). We have seen that adjectival abstracts in *-ih₂ provide the source for the feminine adjectives in Tocharian, as in other ancient and modern IE languages (BALLES 2009: 18; see §4ff. above).

Due to non-replacement or partial replacement of inherited form-function relations by their innovative counterparts, the Tocharian gender system yields a patchwork of synchronically persistent retentions of the collective category and innovated feminine gender distinctions, thus allowing a glimpse of the incipient morphologization of the derivational collective as an inflectional feminine (sg.). The Tocharian evidence demonstrates that the gradual conversion of adjective-abstracts in PIE *-ih₂ into feminine adjectives played a primary role in that process. For the same Indo-European formant *-i-h₂, Tocharian preserves the inherited gender-indifferent semantics of the derivational abstract-collective alongside their innovative inflectional employment as markers of (natural and grammatical) feminine gender and agreement, contrast e.g. PIE *-mn-ih₂ > substantival gender-indifferent B plaktukāñña ‘doorkeeper, warden’ (male and female reference) with inflectional feminine in adjectival B klyomña ‘noble’. In short, the seeds of the Indo-European feminine have not yet fully sprouted in Tocharian, where collective and abstract formations are in a state of transition between derivation and inflection.
Collective and Feminine in Tocharian

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