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***-bhi, *-bhis, *-ōis: following the trail of the PIE instrumental plural**

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As practicing historical linguists, we are accustomed to looking at languages and wondering how they “got that way.” When we notice, e.g., that the indefinite article in English is pronounced [ə] before consonants and [ən] before vowels, we will speculate, regardless of anything we may know or not know about the history of English, that it originally ended in [-n] everywhere. When we see the pattern *think* : *thought*, we will wonder whether the irregular past tense form *thought* could have lost a nasal + velar cluster before the *-t*. The habit, almost unconscious, of framing historical hypotheses on the basis of our typological knowledge of language change is the simplest and most intuitive form of internal reconstruction. In the two cases just mentioned, our naive hypotheses would be correct. The final *-n* of the indefinite article is found before consonants as well as vowels in Old and early Middle English. Eng. *thought* goes back to a Proto-Germanic preform **þanx-t-*.

There is a constant temptation when doing internal reconstruction, however, to attribute too much to our conclusions, to make them too definite. In the case of the English indefinite article, we would be right in assuming that there was once an invariant form in final *-n*, but not that this form was [ən]; the early Middle English indefinite article at the time of the loss of the final nasal was *an* [an], with unreduced *a-*. In the case of *thought*, we would be right in inferring the former presence of a nasal + velar cluster, but not in concluding that the velar was *-k-*, as in the present form *think*.¹ In fact, internal reconstruction affords only a partial, chronologically vague glimpse into past reality. Even in the famous case of Saussure’s “coefficients sonantiques” *A* and *Q* (subsequently joined by Møller’s *E*), there was no way for scholars to know whether these elements survived beyond the breakup of PIE until consonantal laryngeal reflexes were discovered

in Hittite. One of the things Saussure “got right” was to recognize the limitations, as well as the power, of internal reconstruction.

In Indo-European studies, a favorite domain for internal reconstruction is the plural inflection of nouns, adjectives, and pronouns. There are many reasons for this, including 1) the apparent internal structure of some of the plural case endings (e.g., the loc. pl. in **-su*, possibly consisting of a plural morpheme **-s-* and a deictic particle **-u*); 2) persistent uncertainties about the form of other endings (e.g., the gen. pl., variously reconstructed **-om*, **-ōm*, **-oHōm*, **-Hōm*, etc.); and 3) the generally simpler look of the plural cases in Hittite, where the total number of distinctively plural endings is only four (nom. pl. *-eš*, acc. pl. *-uš*, gen. pl. *-an*, dat.-loc. pl. *-aš*). All three factors come into play in the problem that will chiefly concern us here — the origin and structure of the ending(s) of the instrumental plural.

The basic form of the instr. pl. ending in late PIE was **-bhis*, with uncontroversial reflexes in Indo-Iranian (Ved. *-bhiḥ*, Av. *-bīš*), Celtic (OIr. *-(i)b*), and Armenian (*-bḱ*). Other reflexes include Germanic **-miz* (Go. *-m*, ON *-m(r)*, OHG *-m*, etc.) and (with **-ī-*; see below) Balto-Slavic **-mīs* (Lith. *-mīs*, OCS *-mi*), all showing the well-known “Northern IE” substitution of **-m-* for **-bh-*. The Mycenaean Greek instr. pl. in *-pi*, which could in principle go back either to **-bhis*, as in Indo-Iranian, etc., or to **-bhi*, as in the Homeric “adverbial” case form in $-\varphi\iota(v)$, is more problematic. But the major puzzle associated with the PIE instr. pl. is the thematic (“*o*-stem”) form of the ending, which was **-ōis* (cf. Ved. *-aiḥ*, Av. *-āiš*, Gk. $-\omicron\iota\varsigma$, Lith. *-aīs*, OCS *-y(?)*), with no sign of **-bh-* or **-m-* at all.²

Any attempt to explain the prehistory of the instr. pl. must address the question of the *bh*-endings as a whole. Late PIE had at least three “*bh*-cases” — the instr. pl. in **-bhis*, the dat.-abl. pl. in **-bh(i)os* (cf. Ved. *-bhyah*, GAv. *-biiō*, Lat. *-bus*, Osc. *-fs*, Gaul. *-bo(s)*, Celtib. *-Poś*; further OCS *-mъ*, Lith. *-mus* (with *-u-*)), and the harder to reconstruct ending of the dat.-abl.-instr. du. (cf. Ved. *-bhyām*, GAv. *-biiā*, OIr. *-(i)b^N*; OCS *-ma*, Lith. *-m*). Other preforms in *-bh-* are needed to account for Gk. $-\varphi\iota(v)$, the Armenian and Balto-Slavic instr. sg. in **-bhī* (cf. Arm. *-b/-w*,

Lith. *-mì*, OCS *-mь*), and the dat. sg. of the second person pronoun (Ved. *túbhya(m)*, GAv. *taibiiā*, Lat. *tibi* < *tebei*, Osc. *tefei*, OPr. *tebbei*, OCS *tebě*). The absence of grammaticalized *bh*-forms in Anatolian suggests that the creation of the *bh*-cases was a later development than the separation of Anatolian from the rest of the family.

For a schematic but plausible account of the rise of the *bh*-endings see, e.g., Kurylowicz (1964: 200 f.). The oldest reconstructable *bh*-forms were adverbs in **-bhi*, e.g.,

- 1) **h₁e/o-bhí* ‘thereabouts, by that way’, whence as a preposition ‘to, near, across, around’ (Ved. *abhí*, OCS *obь*, Go. *bi* (with aphaeresis)). Within PIE, **h₁e/o-bhí* gave rise to a demonstrative **h₁e/o-bh-ó-* ‘der dortige’, which appears in Hitt. *apāš* ‘that one’. Following the separation of Anatolian, this stem was restricted to the dual, giving the word for “both” in Balto-Slavic and Germanic (Lith. *abù*, OCS *oba*, Go. *bai* (with aphaeresis));
- 2) **h₂nt-bhí* ‘sidewise’ (cf. **h₂(e)nt-* ‘front, side’), whence as a preposition ‘around, on both sides of’ (Gk. ἀμφί, Lat. *am(b)-*, OIr. *imm*, OHG *umbi*, etc.). From **h₂nt-bhí* was back-formed a dialectal nom.-acc. du. **h₂nt-bhóh₁(u)* ‘both’ (Gk. ἀμφώ, Lat. *ambō*, Toch. B *āntpi*, *antapi*), copying the pair **h₁o-bhí* : **h₁o-bhóh₁(u)* ‘both’;³
- 3) **k^ho-bhi* ‘where, when’ (Hitt. *kuwapi*, Lat. *(alic)ubi*).

PIE **-bhi* thus probably began its career in the same way as the adverbial formatives **-ti*, **-dhe*, **-tos*, etc. The individual IE languages offer many instances of such morphemes becoming productive and taking on case-like functions: thus, e.g., **-ti* gave rise to an ablative in Anatolian (Hitt. *-(a)z*, Luv. (abl.-instr.) *-ati* < **(-e/o)-ti*), Armenian (*-ē* < **-e/oti*), and Tocharian (A *-äš* < **-V-ti*); **-tos* became semi-productive in Latin (cf. *caelitus* ‘from heaven’, etc.) and highly productive in Middle Indic (cf. Sauraseni Prakrit ablative *-do* < Skt. *-taḥ*); Greek *-θεν* ‘from . . .’, with no clear cognates in any other branch of the family, gave pronominal genitives in some of the dialects (*ἐμέθεν* ‘of/from me’, *σέθεν* ‘of/from you’, etc.).

*-bhi, at the outset, was a member of the same typological family. The chief difference between *-bhi and elements like *-ti, etc. was one of chronology: in the case of *-bhi, both the period of enhanced productivity and the period of grammaticalization must be dated to the parent language.

Thanks to this internal evolution, late or “post-Anatolian” PIE had both an assortment of true *bh*-cases and a residual class of adverbs in *-bhi. The variants *-bhi, *-bhis and *-bh(i)os had already been differentiated in the parent language: if a pre-PIE adverbial form that originally ended in *-bhi had instrumental-like value and was used as a plural case form (e.g., *The enemy were assaulted “arrow-wise” (= with arrows)*), it was remade to end in *-bhis; if an adverbial form that originally ended in *-bhi had dative-ablative-like value and was used as a plural case form (e.g., *Arrows were loosed “enemy-wise” (= at the enemy)*), it was remade to end in *-bh(i)os. This “scenario,” such as it is, is an inference from our initial assumptions, not an explanation. To understand *why* the specific forms *-bhis and *-bh(i)os — rather than unextended *-bhi or any of a hundred other possible choices — were selected for their respective functions, we will have to look for other kinds of evidence.

An instructive example to consider in this context is the dat. sg. of the second person pronoun (cf. above), the original shape of which was presumably *tebhi. No language continues this sequence exactly. What we find instead is a range of recharacterized forms with secondarily added dative morphology, such as Lat. *tibī* (= Osc. *tifei*) and OPr. *tebbei*, with *-i replaced by the *-ei of the dat. sg. of *i*- and consonant stems, and OCS *tebě*, with the dat. sg. ending of *ā*-stems. Even in Indo-Iranian the form is *tabhīa (> Av. *taibiiā*, Ved. *túbhyam* (with secondary *-m*)), with an appended case-like element that is perhaps to be identified with the fused postposition of the *a*-stem dat. sg. in Ved. *-āya*, GAv. *-āii.ā*.⁴

The post-PIE replacement of *tebhi by *tebhei, *tebhāi, etc. sheds light on the earlier, inner-PIE creation of the dat.-abl. pl. in *-bh(i)os. In Hittite, where there are no *bh*-endings, the universal dat.-loc. pl. ending, common to both nouns and pronouns, is *-aš* (cf., e.g., *antuḫšaš* ‘hominibus’, *uddanaš* ‘rebus’, *anzāš* ‘nobis’,

etc.). The affinities of this ending, which goes back to PIE **-os*, are notoriously obscure. We can now see, however, that the relationship of **-os* to **-bh(i)os* is the same as that of **-ei* to **-bhei* or **-āi* to **-bhāi* in the 2 sg. pronoun: the shorter form **-os* must have been the original PIE dat.-abl. pl. morpheme, which was replaced by the *bh*-ending in the “Inner” IE languages after the departure of Anatolian (and Tocharian?) from the rest of the family.⁵ The productive, traditionally reconstructed ending **-bh(i)os* actually *contains* **-os*. It is a hybrid form, with **-os* added to **-bhi* to distinguish the emergent dat.-abl. pl. from other *bh*-forms.⁶

This analysis of **-bh(i)os* has implications for our interpretation of **-bhis*. The sequence **-bhis* consists of **-bhi* followed by an added **-s* or **-is*. The added element has sometimes been identified with the “adverbial” **-s* of forms like Ved. *trīḥ*, Gk. *τρίς*, etc. ‘thrice’ (< **tri-s*), Gk. *πύξ* ‘with the fist’ (< **pug-s*), and the regular Greek adverbs in *-ῶς* (< abl. sg. **-o-h₂ed* + **-s*). Indeed, just such a secondarily (re-)adverbialized *bh*-form can be seen in Gk. *ἀμφίς* ‘apart, asunder, on both sides’, created within the post-IE history of Greek as a recharacterization of the preverb and preposition *ἀμφί*. But within PIE, it is unclear why the addition of an adverbial suffix (**-s*) to another adverbial suffix (**-bhi*) should have led to an ending with specifically instrumental plural value. Late PIE **-bhi*, like Gk. *-φι(v)*, covered a wide range of case functions — dative, ablative, instrumental, and locative. Adding an **-s* to the original form should not have eliminated the dative, ablative, and locative readings.⁷

A more productive way to look at the instr. pl. ending **-bhis*, drawing on the parallelism with **-bh(i)os*, would be to take the added **-s* or **-is* as a *case ending*. Potential evidence for an obsolete case form in **-is* — arguably with instr. pl. value — can be seen in Indo-Iranian and Greek adverbs such as the following:

- 1) Ved. *bahīḥ* ‘outside’, presupposing a root noun **bheḡh-*; the corresponding locative was **bhéḡh(i)*, seen in OCS, Latv. *bez* ‘without’, Lith. *bè* ‘id.’ Here too, with an *nt*-suffix, belongs Toch. A *pkänt* ‘obstacle’, *pkänt pkänt* ‘apart’. For the characteristically instrumental syntagma of the combinations *bahíṣ kṛ-* ‘put

aside' (: Toch. *A pkänt yām-* 'separate') and *bahír bhū-* 'come forth', see immediately below. The etymological sense of PIE **bheǵh-is* was presumably **'along the outer sides (of)'*;

2) Ved. *āvīḥ* (= Av. *āuuīš*) 'manifest', the antonym of *gúhā* 'concealed' < instr. sg. **ghuǵh-éh_i* lit. 'with concealment'. Both *āvīḥ* and *gúhā* function as predicate instrumentals with *kṛ-* and *bhū-* ('make/become manifest/hidden'); the construction with **-eh_i* was the source of the productive Latin type *cale-faciō, -fiō* 'make, become warm' (Jasanoff 1978: 122 f.; 2003: 155 ff.). OCS *javě* 'clear' shows substitution of "normal" stative *-ě* (< instr. sg. **-eh_i*) for original **-b* (< **-is*). The PIE form was **h₁ōu-is* (with unexpected *ō*-vocalism), presumably meaning **'in flashes'*, from the aoristic root **h₁eu-* 'appear' (> Hitt. *uḫhi* 'see', etc.);

3) Gk. *μόγισ* 'with toil, hardly' (: *μόγος* 'toil and trouble'), *μόλις* 'id.' (: *μῶλος* 'struggle' and/or Lat. *mōlēs* 'mass?'), *ἄνις* 'without', *χωρίς* 'separately; without' (: *χώρα* 'land, district'), *ἄλις* 'in heaps, sufficiently' (: (ϕ)*άλής* 'crowded'). Synonymous with the last of these, and possibly representing the same formation, is Lat. *satis, satis faciō* '(make) sufficient'.

These forms are suggestive but inconclusive.⁸ The datum that definitively establishes the case for an instr. pl. in **-is* is the *o*-stem instr. pl. in **-ōis*. The locus of this ending can be seen by comparing the plural declension of a consonant stem noun (e.g., **ph₂t(é)r-* 'father'), an *o*-stem noun (e.g., **u₁k^uo-* 'wolf'), and a demonstrative pronoun (e.g., **tó-* 'that'):

nom.	<i>*ph₂téres</i>	<i>*u₁k^uōs</i> (< <i>*-o-es</i>)	<i>*tói</i>
acc.	<i>*ph₂térns</i>	<i>*u₁k^uons</i>	<i>*tóns</i>
gen.	<i>*ph₂tróHom</i>	<i>*u₁k^uoHom</i>	<i>*tóisoHom</i>
dat.-abl.	<i>*ph₂trbhíos</i>	<i>*u₁k^uobhios</i>	<i>*tóibhios</i>
loc.	<i>*ph₂trúsú</i>	<i>*u₁k^uoisu</i>	<i>*tóisu</i>
instr.	<i>*ph₂trbhís</i>	<i>*u₁k^uōis</i>	<i>*tóis</i>

As in other cases where the *o*-stem paradigm departs from the expected pattern,⁹ such as the loc. pl. (*-*oisu* for expected ***-osu*) and the post-PIE nom. pl. (*-*oi* for expected *-*ōs* in Gk. -οι, Lat. -ī, etc.) and dat.-abl. pl. (*-*oibh̥ios* for *-*obh̥ios* in Ved. -*ebhyaḥ*, GA.v. -*aēbiiā*), the deviant ending *-*ōis* was an import from the pronominal declension. As a pronominal ending, *-*ōis* can be unproblematically explained. Four of the six pronominal plural forms (nom. **tóī*, gen. **tóisoHom*, dat.-abl. **tóibh̥ios*, loc. **tóisu*) contain the sequence **tóī-*; in effect, **tóī-* in these forms is the plural stem corresponding to non-plural **só-* / **tó-* (cf., e.g., Szemerényi 1996: 206). The instr. pl. **tóis* can therefore be analyzed as **tóī-* + *-*is*, with the plural stem in *-*oi-* and the “short” ending *-*is*. For the phonology (inner-PIE *-*oḷi-* > *-*ōi-*) compare acc. sg. **dhéghōm* ‘earth’ < *-*om-ṛ*, acc. sg. **d̥iém* ‘day’ < *-*ém-ṛ* < *-*éu-m*, Hitt. *pēr* ‘house’ < *-*er-ṛ*, perhaps loc. sg. *-*ēi* < *-*eḷi*.¹⁰ The general PIE rule can be written **VR_iR_i* > **VR_i*. There are no obvious exceptions.

The instr. pl. in *-*bhis* can thus be analyzed in exactly the same way as the dat.-abl. pl. in *-*bh(i)os* — i.e., as an adverbial case form in *-*bhi* that was adjusted to resemble the corresponding “real” case ending, which here was *-*is*, the original marker of the PIE instr. pl. The subsequent history of the *bh*-forms, both the adverbs in *-*bhi* and the true case forms in *-*bhis*, *-*bh(i)os*, etc., can be envisaged as follows:

- 1) in some branches (e.g., Indo-Iranian, Italic, Celtic) the adverbs in *-*bhi* were mostly lost, leaving just the “classic” *bh*-cases;
- 2) in other branches (e.g., Greek, Armenian, Balto-Slavic) the adverbs in *-*bhi* were at first retained alongside the *bh*-cases. Here
 - a) Armenian and Balto-Slavic reinterpreted *-*bhi* as an instr. sg. case ending, presumably because the *-*s* of *-*bhis* was perceived as a mark of plurality (cf. Arm. instr. sg. *harb*, pl. *harbk* < **ph₂tr₂-bhi(s)*; Balto-Slavic has instr. sg. *-*mi*);
 - b) Common Greek inherited both instr. pl. *-*phis* and adverbial *-*phi*. In Mycenaean, the instr. pl. in *-phis* (written *-pi*, but probably with *-s* re-

tained, *pace* Hajnal 1995: 133) was a fully productive case ending, while adverbial *-phi* was restricted to isolated forms like *wi-pi* = **ῥίφι* ‘violently’. In Homer, all functions merged under the single form *-φι(v)*.¹¹

3) in the dialects ancestral to Germanic and Balto-Slavic, the dat. pl. pronoun **smos* ‘eis’ (Hitt. *-šmaš*, Toch. B *-me*) was misanalyzed as **s-* + dat. pl. ending **-mos*, triggering a more general substitution of **-mos* for **-bh(i)os* and **-mi(s)* for **-bhi(s)*.¹² In Greek the opposite development took place: **smos* was remade to **sbhos*, eventually leading to the creation of a pronoun stem *σφ-* (*σφί(v)*, *σφίσι* ‘eis’, *σφεῖς* ‘ei’, etc.). See Rasmussen (1999: 272 f.) and Katz (1998: 248 ff.) for different but related views.

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The title of this paper promised to “follow the trail” of the instr. pl. endings. We have now done just that, extracting from **-bhis* and **-ōis* a common element **-is*, the oldest PIE instr. pl. ending we can recover. But the trail does not end here.

The derivation of **tōis* from **tōi-is* had the effect of confirming the status of **tōi-* as a kind of plural stem. Let us consider what this means. IE nominal paradigms normally do not distinguish between singular and plural *stems*; the category of number is expressed through portmanteau “case endings,” which actually denote case + number combinations (dat. sg., nom.-acc. du., gen. pl., etc.). Neuter plurals constitute the one exception to this pattern. Here the place of the nom.-acc. pl. in late PIE was taken by a collective in **-h₂*, which is represented by a variety of forms around the family (cf. Ved. *yugā*, Gk. ζυγά ‘yokes’ < **iugé-h₂*; GAv. *aiiqn* ‘days’ < **-ēn* < **-en-h₂*; etc.).¹³ This is the reason why neuter plural subjects anomalously take 3 sg. verbs in Greek, Hittite, and Gathic Avestan — the so-called “τὰ ζῶα τρέχει” rule. In late PIE the collective morphology of neuter plurals was confined to the nom.-acc. form itself. Thus, e.g., the dat.-abl. pl. of **iugé/ó-* ‘yoke’ was **iugó-bh(i)os*, with the ordinary plural ending added to the stem in **-o-* — not ***iugé-h₂-ei* or ***iugé-h₂-s*, with the dat. sg. or gen.-abl. sg. ending added to the collective stem in **-h₂-*. The restriction of **-h₂-* to the nom.-

acc. pl., however, was almost certainly secondary. **-h₂ qua* collective morpheme is merely a specialized variant of the abstract- and feminine-forming suffix **-h₂*, which in its other functions gave rise to a full “*ā*-stem” paradigm.¹⁴

The natural inference, then, is that **tói-* was originally a *collective* stem, with a meaning something like that of English “that mass” or “that bunch.” Like other derived collectives it was presumably neuter, with the same form — bare **tói* — serving in both nominative and accusative functions. In the oblique cases, the endings would theoretically have been those of the singular (dat. **tói̇-ei*, gen. **tói̇-s*, etc.). But such forms, if they ever existed, were pluralized within the IE period, giving the well-attested dat.-abl. pl. **tói̇-bh(i)os*, gen. pl. **tói̇-s-oHom*, etc. (cf. Ved. *tébhyaḥ*, *téṣām*, OCS *těmь*, *těxь*, etc.).¹⁵ At some intermediate stage on the way to late PIE the paradigm would have been

nom.	<i>*tói</i>
acc.	<i>*tói</i>
gen.	<i>*tói̇soHom</i>
dat.-abl.	<i>*tói̇bh̑ios</i>
loc.	<i>*tói̇su</i>
instr.	<i>*tói̇is (> *tói̇s)</i>

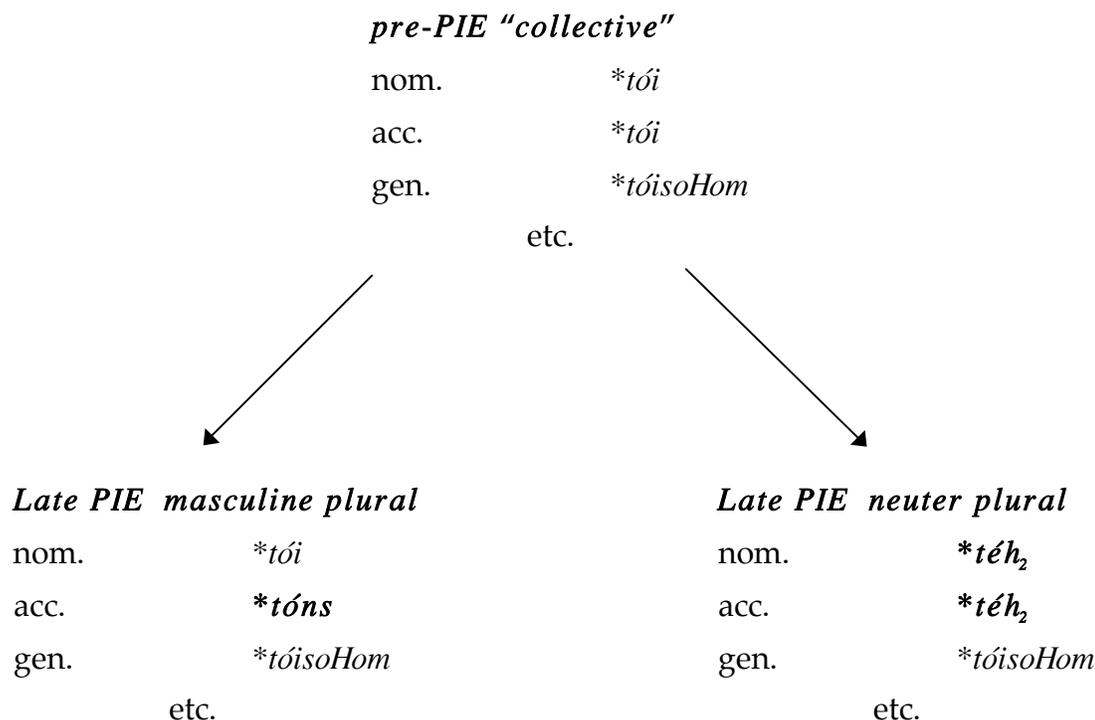
These or similar forms served, *inter alia*, as the neuter plural of the pronoun **tó-*.¹⁶ It is instructive to compare this paradigm with the “real” neuter plural of **tó-* — the forms routinely reconstructed for the neuter plural on the basis of the comparative evidence:

nom.	<i>*téh₂</i>
acc.	<i>*téh₂</i>
gen.	<i>*tói̇soHom</i>
dat.-abl.	<i>*tói̇bh̑ios</i>
loc.	<i>*tói̇su</i>
instr.	<i>*tói̇s</i>

The internally reconstructed declension with nom.-acc. **tói* was thus *ancestral* to the quasi-attested neuter plural with nom.-acc. **téh₂* (cf. Ved. *tá(ni)*, Gk. *τά*, OCS *ta*, etc.). In the course of the evolution from the earlier system to that of late PIE, older **tói* was replaced by **téh₂*, with **-eh₂* taken from the nom.-acc. pl. of neuter nouns (**iugé-h₂*, etc.).

But the paradigm of “collective” **tói-* was also clearly ancestral to the late PIE *masculine* plural. Outside the nominative and accusative, the PIE masculine and neuter paradigms are alike; indeed, the masculine nom. pl. preserves the original form **tói*, which in neuters was replaced by **téh₂*. The only difference between the pre-PIE declension of **tói-* and the standardly reconstructed masculine plural paradigm was in the accusative, where **tói* was renewed by the more masculine-looking **tóns*, with the nominal ending **-ons*.

We can represent this as follows:



Forms created within the internal history of PIE are shown in boldface. Insofar as the original nom.-acc. form **tói* meant “that bunch (of people), those guys,” the specifically collective sense was lost, and the accusative **tói* was disambig-

uated to **tóns*; **tói* was retained as a nominative, but as a nominative *plural*, requiring plural agreement. Insofar as **tói* meant “that bunch (of fruit, eggs, etc.),” it was interpreted as an ordinary nom.-acc. pl. neuter, but the inconvenient homophony with the masc. pl. **tói* triggered the replacement of **tói qua* neuter pl. by **téh₂*. We may posit a three-stage development:

	I.		II.		III.
	masc./nt. ¹⁷		masc. nt.		masc. nt.
nom.	<i>*tói</i>		<i>*tói</i> <i>*tói</i>		<i>*tói</i> <i>*téh₂</i>
acc.	<i>*tói</i>	→	<i>*tóns</i> <i>*tói</i>	→	<i>*tóns</i> <i>*téh₂</i>
gen.	<i>*tóisoHom</i>		<i>*tóisoHom</i>		<i>*tóisoHom</i>
	etc.		etc.		etc.

Note that the order I - II - III, with the introduction of the masc. acc. pl. **tóns* preceding the introduction of the neuter nom.-acc. pl. **téh₂*, yields a more plausible scenario than the theoretically possible alternative order with the creation of **téh₂* preceding that of **tóns*. Once speakers of pre-PIE had begun to impose separate masculine and neuter “readings” on the previously undifferentiated masculine/neuter paradigm, the anomaly of an emergent masculine inflection with identical nom. pl. and acc. pl. forms would have been far more “out of synch” with the general structure of the language than a neuter plural ending in **-oi*.¹⁸

The most dramatic successes of the method of internal reconstruction are those in which a hypothesized earlier form turns out, on closer inspection of the data, to be directly attested. That is the case here. Stage III above — the traditionally reconstructed PIE situation — is reflected in Indo-Iranian, Greek, and most of the other branches of the family. But stage II, though a purely *a priori* construct, corresponds exactly to the situation in Hittite. Note the nominative and accusative forms of the Hittite pronouns *apāš* ‘that, ille’, *kāš* ‘this, hic’, and (clitic) *-aš* ‘he, she, it’:

	sg.		pl.	
	anim.	nt.	anim.	nt.
nom.	<i>apāš</i>	<i>apāt</i>	<i>apē</i>	<i>apē</i>
acc.	<i>apūn</i>	<i>apāt</i>	<i>apūš</i>	<i>apē</i>
nom.	<i>kāš</i>	<i>kī</i>	<i>kē</i>	<i>kē</i>
acc.	<i>kūn</i>	<i>kī</i>	<i>kūš</i>	<i>kē</i>
nom.	<i>-aš</i>	<i>-at</i>	<i>-e</i>	<i>-e</i> (Old Hittite)
acc.	<i>-an</i>	<i>-at</i>	<i>-uš</i>	<i>-e</i> (Old Hittite)

The neuter plural forms in *-e*, which are Common Anatolian (cf. Palaic nom.-acc. nt. pl. *-e*), have never been satisfactorily explained as an innovation. The reason for this is now clear. The ending *-e* is the direct reflex of the stage II neuter plural in **-oi*. *The replacement of the pronominal nom.-acc. pl. in *-oi by *-eh₂ was an “Indo-Hittite” isogloss — an innovation common to the IE languages that remained after the separation of Anatolian from the rest of the family.*¹⁹

It is now possible to explain a minor but puzzling inner-Anatolian development. In Neo-Hittite the enclitic *-e* ‘ea’ was replaced by the corresponding singular form *-at*. This was part of a general trend in Anatolian, where the distinction between neuter singular and neuter plural was partly obscured by phonological changes and partly by the τὰ ζῶα τρέχει rule. More remarkably, however, Neo-Hitt. *-at* also functions as an *animate* nom. pl. The explanation must lie in the fact that during the period when *-e* (*qua* inherited neuter pl.) and *-at* (*qua* new neuter pl.) were in free variation, the synchronic rule interchanging the two forms was overgeneralized, leading to the substitution of *-at* for *-e* as an animate nom. pl. as well. Exactly the same development took place in Luvian, where the enclitic pronoun *-ata* has both neuter (‘id, ea’) and animate plural readings (‘ei, eos’).²⁰

We have come a long way from the *bh*-cases, yet each step — from **-bh(i)os* to **-bhis* to **-ōis* to the pronominal collective in **-oi-* — has followed from the one that preceded it. No doubt the ramifications of some of the conclusions we have

reached could be pressed further, and perhaps some day they will. But here, at least for now, the trail must come to an end.

Notes

¹ In fact, the preterite *thought* (PGmc. 1 sg. **panhtō^N*) owes its precise form to the participle *thought* < PGmc. **panhta-*, itself from a pre-Grimm's Law participle **tonkto-* (< **-g-t-*), with analogical *o*-grade from the corresponding iterative-causative present **tong-éje/o-* (: Lat. *tongeō*; cf. the pattern *doceō* : *doctus*, *spondeō* : *spōnsus*, etc.). The Germanic sound shift converted the **-g-* of the present to PGmc. **-k-* and the phonetic **-kt-* of the participle to PGmc. **-xt-* > **-ht-*.

² Thematic endings pointing to **-o(i)bhīs*, like Ved. *-ebhiḥ* and OIr. *-(a)ib*, are obviously secondary.

³ The reconstruction with **-nt-bh-* rather than **-m-bh-* is assured by the Toch. B forms; cf. Jasanoff (1976). Although the complex interrelationships of the words meaning 'both', 'around', and 'thereabouts' are open to multiple interpretations, the status of the adverbs **h₂e/o-bhí* and **h₂nt-bhí* seems secure.

⁴ This is not the only possibility. The *-a* could also be explained as a non-plural counterpart to the dat.-abl. pl. in **-os* (see below), or even as a "cognate" of the Hittite directional case in *-a* (cf. *parna* 'home(ward)', etc.), if this is not rather taken from **-h₂e* or **-eh₂*.

⁵ *Qua* dative, **-os* was Common Anatolian; it also underlies Luv. *-(nz)as* and Lyc. *-e*. For the term "Inner IE" and the motivation behind it, see Jasanoff (2003: 204 ff.). There are no clear *bh*-endings in Tocharian, although the obscure gen. sg. endings A *-(y)āp*, B *-epi* are obvious candidates for a *bh*-analysis.

⁶ Strictly speaking, then, we should write **-bhīos*, without parentheses, for the PIE form. The **-j-* was lost outside Indo-Iranian.

⁷ Note that the same objection would hold if the *-s of *-*bhis* were taken not as “adverbial” *-s but as the *-s of the plural.

⁸ In particular, it is impossible to exclude the possibility (though I consider it unlikely) that the Greek forms in -ις are simply adverbializations in -ς of locatives or *i*-stem neuter adjectives in -ι. On the supposed Gathic Avestan instr. pl. *nāmānīš* (: *nāman-* ‘name’) cf. Hoffmann-Forssman (1996: 144).

⁹ i.e., departs from what might have been expected if the normal case endings had simply been added to the stem vowel *-o-.

¹⁰ It is not clear what we should make of the case of *-*ēi* < *-*eĵi*, however, since it is impossible to separate the lengthened grade of the *i*-stem loc. sg. from the lengthened-grade loc. sg. of *u*-stems (*-*ēu*; cf. Ved. -*au*), *n*-stems (*-*ēn*; cf. Av. -*qn*) and root nouns (cf. GAv. *dqm* ‘in the house’, PIE **péd* in OIr. *ís*, Alb. *përposh* ‘below’ < **péd-su*, etc.).

¹¹ A different account is given by Rix (1976: 158-9), for whom bare *-*phi* was already specialized as an instr. pl. in Proto-Greek. The ν ἐφελκυστικόν of the Attic form of the ending could conceivably go back to the ending of the dat.-abl.-instr. du., where a final *-*n* may have been inherited (cf. OIr. dat. du. -(*i*)*b^N*).

¹² Although there is no direct evidence for a PIE instr. pl. *-*smis*, the existence of such a form can safely be assumed. The Balto-Slavic instr. pl. in *-*mīs* (Lith. -*mìs*, OCS -*mi*) appears to go back to *-*mins*, with contamination from the acc. pl.; the Lith. instr. sg. in *-*mī* (> -*mì*) either owes its length to the plural or reflects *-*mi-h₁*, with the addition of the “real” instr. sg. ending *-(*e*)*h₁* to bare *-*mi*.

¹³ For the lengthening of word-final *-*VR-H* to *-*VR*, parallel to the “Szemerényi’s Law” lengthening of word-final *-*VR-s* to *-*VR*, see Nussbaum (1986: 129 f.).

¹⁴ In a talk given at the First East Coast Indo-European Conference, held at Yale University in June, 1982, Alan Nussbaum explained the collective in $*-h_2$ as an abstract noun based on an internally derived possessive adjective ($*\underline{u}ód-r$ ‘water’ $\rightarrow *uéd-or$ ‘having water, watery’ $\rightarrow *uéd-or-h_2$ ($> *uéd-ōr$) ‘wateriness, mass of watery stuff, water (coll.)’).

¹⁵ Note that this line of reasoning unexpectedly yields an explanation for the intrusive $*-s-$ of the gen. pl. $*tói-s-oHom$. When the oblique cases were pluralized, the collective gen. sg. $*tói-s$ was recharacterized by the addition of the productive gen. pl. ending $*-oHom$.

¹⁶ Recall, however, our initial caveat: internal reconstruction affords a *glimpse* into past reality, not a high-resolution panorama. In the present case, it is the *structure* of the pre-PIE paradigm that can legitimately be discussed, not the phonetics of the individual forms, the precise number of cases, or any other such details.

¹⁷ The claim that the attested masculine and neuter plural paradigms go back to a single gender-indifferent original does not, of course, mean that there was no distinction between masculine and neuter plural at this stage, but simply that such a distinction, if it existed, was expressed by means that were lost in the daughter languages. Once again, internal reconstruction sheds light on only part of the picture.

¹⁸ Neuter plurals in late PIE, it must be recalled, could end in a great many things — $*-eh_2$, $*-C-h_2$, $*-ōr$ ($< *-or-h_2$), $*-ō$ ($< *-ōn < *-on-h_2$), etc. Of wholly different origin from the pre-PIE neuter plural in $*-oi$ was Lat. *hae-c* ‘these (things)’, with an *i*-element added to the collective in $*-eh_2-$; the form may have originated as an old dual in $*-eh_2-ih_1$.

¹⁹ The list of such isoglosses, though not long, is growing; a moderate Indo-Hittite view of the IE family tree is now probably the *communis opinio* among practicing Indo-Europeanists. The post-Anatolian replacement of **tói* by **téh₂* was apparently also operative in Tocharian (cf. Toch. B fem. pl. *tom* ‘those’ < nt. pl. **tā-n-*).

²⁰ And similarly, Luv. *zā* (< **-āt* < **-od*) means both ‘hoc’ (sg.) and ‘haec’ (pl.).

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