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The Second Singular Personal Pronoun in Anatolian

1. Previous Analyses

The forms of the second singular personal pronoun have long been a crux of Hittite studies. HROZNÝ, SH 107 ff, derives nom. *zig* from PIE **tǵ* + particle **-ge*, assuming a sound change **u > *ū > i*, and dat.-acc. *tug* from **two* + *-ge*, with **wo > Hitt. u*. He offers no support for either sound change, and the oblique stem **two-* appears to be invented on the spot.

PETERSEN, Lg 6 (1930) 174, suggests that Hitt. *zig* reflects PIE **tē*, comparing for the use of **tē* as a nominative Oscan *tiium*, *tiú* < **tē* + *om*. He derives dat.-acc. **tug* from **tū*, citing the accusatives Doric *tú* and Goth. *þuk*. PETERSEN accounts for the Hittite distribution (nom. **tē* : obl. **tū*) by assuming that the assignment of the two forms to different cases was not yet completed in PIE. Thus Hittite distributed them one way, and most of Indo-European the other. It remains suspicious, however, that the only evidence for a nom. **tē* beside *zig* itself is Osc. *tiium*, *tiú*. If the latter does in fact reflect **tē-om*, it may easily represent an independent leveling of the accusative: cf. Umb. *tiom* (see SCHMIDT, *Stambildung und Flexion d. idg. Personalpronomina* (1978) 114 ff). On the accusatives Doric *tú* and Goth. *þuk* see Section 3 below.

STURTEVANT, CGr¹ (1933) 191, citing PETERSEN, assumes IH nom. **tē*, obl. **tū*, **twe*. Obviously, this solves the distribution in Hittite, but we are offered no explanation of how IE developed the opposite distribution: e.g., Lat. *tū* : *tē*, OIce. *þū* : *þi-k*.

PEDERSEN, Hitt. 73 f, returns to the view that **tū* could function as both nominative and accusative in PIE. For **tē*, however, he assumes only an original accusative function. He must then suppose that **tē* took over both functions in Hittite after the ambiguous **tū*. The eventual fixing of **tē* as nominative is then after the first singular: **tēgō* (*zīga*) after **egō*. As PEDERSEN himself admits, this requires a sequence by which **eme(-ge)* first becomes *ammug* after *tug*, then **tēgō* is fixed after **egō*, and only then does **egō* become *ug(a)* after *ammug*.

BENVENISTE, HeI 73, attempts to alleviate this problem by comparing the oblique stem of the Hittite demonstrative pronouns: e.g. acc. sg. *apān* 'that', *kān* 'this'. He suggests that there is a very old opposition *e : u* in the pronouns marking nominative versus accusative. Thus **eg : *emug* is original, and this pattern is then imposed on the second singular: nom. **teg* : acc. **tug*. He immediately admits, however, that it then becomes hard to explain the apparent opposite distribution elsewhere: e.g. Grk. *tū : sé*.

In a review of BENVENISTE, BSOAS 27 (1964) 160, SZEMERÉNYI cites this difficulty and proposes yet another analogical explanation. Beginning with the plausible PIE preforms **egō/(e)me* and **tū/t(w)e*, he assumes first analogical spread of *u* from the second person to the first: **egu*, **tu*. There follows analogical spread of **egu* to the second person: **egu*, **tegu*. The **e* of the first person subject is replaced by **u* after the oblique **emug* (which has its **u* from second person oblique **tug*). Syncope of final **-u* produces subject forms *ug* and **teg* (whence *zīg*).

It may be noted that PEDERSEN's, BENVENISTE's and SZEMERÉNYI's explanations are based on a proportion **eg(ō) : *teg(ō)*, where the velar of the first person singular has

already been generalized. The evidence of Palaic nom. *tī*, dat.-acc. *tū* now makes this impossible. Pace SCHMIDT, Personalpron. 34 and 121, Palaic does not share with Luvian the loss of word-final stops: cf. nt. nom.-acc. sg. *kuīt* 'what', *kat* 'this' and also *kuwat* 'anyhow' (formally equals Hitt. *kuwat* 'why?'). Therefore Palaic *tī : tū* never had a final velar, and its spread to the second singular pronoun is Luvo-Hittite or specifically Hittite, as already correctly indicated by KAMMENHUBER, HbOr 250¹⁾. On the other hand, the distribution of the vocalism (nom. *tī* : obl. *tū*) must already be Common Anatolian.

The derivation of *zīg* from **tē+* faces another difficulty besides that of explaining its nominative function. First of all, the assibilation of PIE **t* to Hitt. *z* [ts] definitely does not take place before short **ē*: cf. second plural ending *-ten(i)* with Grk. *-te*, etc. Assibilation before **ē* cannot be disproved, but the alleged evidence for it will not stand scrutiny. GEORGIEV, KZ 92 (1978) 93 f, has argued persuasively that the Hittite abstract suffix *-zził* reflects a conglomerate of **-ti-ıl* (both well-established Hittite abstract suffixes) and has nothing to do with Lat. *tū-tēla*, as claimed by BENVENISTE, Origines 42-43, and others²⁾. Thus the only good example of **tē > zi* is precisely *zīg* itself, which is the problem to be explained.

The derivation of *zīg* from **tē+* is also phonologically impossible in terms of vocalism. As I will show in detail elsewhere, there are no good examples in OH manuscripts of Hitt. *i* < PIE accented **ē* or **ē*. Thus from orthotonic **tē(ge)* we would expect only **zēg* (if not indeed **tēg*)³⁾.

The popular derivation of *zīg* (and Palaic *tī*, Hluv. *tī*) from PIE **tē* is thus phonologically impossible and also highly dubious on functional grounds. Both problems have

been seen by SCHMIDT, Personalpron. 121 ff, who proposes an alternative. He derives Anat. **ti* 'you' from the well-established reflexive particle **-ti* (Luvian *-ti*, Hitt. *-z(a)*, etc.). SCHMIDT's support for such a functional shift is not compelling (he cites the apparent opposite shift of enclitic dative *-tu* 'tibi' to mean 'eī' in Luvian and Palaic and the use of Hittite dative *-šmaš* for both 'uōbīs' and 'eīs'). In principle, however, the use of a third person form for the second is not implausible⁴⁾.

The real difficulty, as SCHMIDT himself realizes, is that the reflexive *-ti* by its very nature must have originally been an oblique (object) form. He thus faces the same problem as others of motivating the appearance of this form exclusively as a second person nominative. Since he believes that Anatolian inherited distinct nominative, accusative and dative forms, the migration of **ti* into the nominative can only be accomplished by assuming a general Luvo-Hittite confusion of case forms in the personal pronouns. In the first place, such a period of 'case indifference' is entirely fictitious. Neither Old Hittite nor Palaic shows the slightest trace of such a development⁵⁾, while the alternation *ti/tu* in Hieroglyphic Luvian, if it is genuine⁶⁾, may reflect simply the general breakdown of case distinctions in the personal pronouns in Luvian. Furthermore, if such a period had existed, it is simply not credible that Hittite managed to restore the historically correct nominative and oblique forms in all the personal pronouns except precisely the second singular.

I believe it is clear that none of the explanations of *zig/tug* offered above is satisfactory. A new solution is called for.

2. A New Proposal

We may take as our starting point the Hittite paradigms of all four personal pronouns⁷⁾.

	1st Sg.	2nd Sg.	1st Pl.	2nd Pl.
Nom.	<i>ūg</i>	<i>zig</i>	<i>wēš</i>	<i>šumēš</i>
Dat.-Acc.	<i>ammug</i>	<i>tug</i>	<i>anzāš</i>	<i>šumāš</i>
Gen.	<i>ammēl</i>	<i>twēl</i>	<i>anzēl</i>	<i>šumenzan/šumēl</i>
Abl.	<i>ammēdaz</i>	<i>twēdaz</i>	<i>anzēdaz</i>	<i>šumēdaz</i>

One may note that for the first three, there is a clear contrast between the stem of the subject form and that of the oblique cases. Furthermore, in the first persons, the two stems reflect well-established PIE forms in the same function. Hitt. *ūg* represents **eǵh₂*⁸⁾, and *ammV-* is based on **eme-*⁹⁾. Likewise, Hitt. *wēš* may reflect either **wey-es* (PEDERSEN, Hitt. 75) or **wei-s* (OETTINGER, *Stambildung des heth. Verbums* (1979) 544), while *anz-* continues regularly **ns-*.

Let us assume that the second singular pronoun is derived in the same fashion. That is, let us first suppose that all the oblique forms are based on the same stem, like *ammV-* and *anz-*. If this is so, then *twēl* and *twēdaz* argue that Hittite inherited not the oblique stem **tē*, but rather **twē* (on the possible alternative **tū* see Section 3 below). There is really only one assured nominative form for PIE: **tū*. The priority and relationship of the alternants **tū* and **tū* are debatable. Both seem established for PIE. Since I cannot see any possible derivation for Anatolian from **tū*, I assume **tū* (I use **tū* as a cover symbol; for a possible interpretation as **tuh_x* see Section 3).

We are thus led to the following well-founded PIE forms as the basis for Anatolian¹⁰⁾:

	1st Sg.	2nd Sg.
subject	*eḡh ₂	*tū
oblique	*eme-	*twe-

It seems unavoidable to assume with others that the *u*-vocalism of the nominative and accusative of the first person is secondary after the second person. If the *u*-vocalism spread to the two forms of the first person, then it is virtually certain that it would have spread also to the accusative of the second person itself. We thus arrive at a second stage:

nominative	*ūg	*tū
dative-accusative	*emū	*twū

Of these forms, the first singular is directly attested in Hitt. *ūg*, while **emū* is reflected in HLuv. *amu*, Lyc. *emu* and (with secondary *-g* from the nominative) Hitt. *ammug*¹¹). We might well expect a sequence **twū* to be simplified to *tū*. The cuneiform and hieroglyphic orthography does not permit us to know whether Palaic and HLuv. *tū* represent /*twū*/ or /*tū*/. Hitt. *tug* may likewise be read /*twūg*/ or /*tūg*/, again with secondary velar from the first person¹²).

We have now derived all the attested forms except the second singular nominative, starting from recognized PIE bases, with no unexplained functional shifts or unwarranted phonological changes. As noted, the spread of the *u*-vocalism seems necessary by any analysis. However, we are now left with no other source for Pal. *tī*, HLuv. *tī* and Hitt. *zi-g* except PIE **tū*. As we have seen, HROZNY tries in fact to derive *zi-* < **tī* < **tū*. A priori, a change of *ū* > *ū̄* > *ī* is quite plausible: cf. Welsh *tī*, Alb. *tī* 'you'. However, short **ū̄* is well attested in Hittite as *u*: cf. in fact *inv.* 3rd sg. *-tu* = Skt. *-tu*. Examples for long **ū* in Hittite are hard to find, but there is a clear argument against an

unconditioned change **ū* > **ū̄* > *ī*. If the *u*-vocalism of *ūg*, *ammug* and *tug* is secondary after **tū*, then they also necessarily have long *ū* and should undergo the same change.

What is needed is a conditioned change of *ū* to *ī*. Evidence for fronting of *u* by a preceding dental consonant (the only conditioning present in **tū*) is scanty. Fante (West Africa) does apparently show fronting of *u* and nasalized *ū* to *ū̄* and *ū̄̃* between alveolars (*t*, *d*, *n*, *s*) and a following vowel (all examples given have *a*): see WELMERS, *A Descriptive Grammar of Fanti* (1945) 17¹³).

There is, however, more than one way to get from *u* to *i*. In certain Southern Italian dialects, *ū* is 'broken' to *īu*, which in some cases then becomes *i*: cf. Vasto *liupə* 'wolf' with Matera and Bellante *lip* (see ROHLFS, *Hist. Gram. d. ital. Sprache* (1949) I.106-109). One may thus reckon with not only *ū* > *ū̄* > *ī* but also *ū* > *īū* > *ī*.

There remains the problem of the conditioning. We require a breaking of *ū* to *īū* only after a dental consonant (in **tū* but not in **ūg*, **emū* and **twū*). Parallels for such a conditioned change do appear to exist. According to PULLEYBLANK, *Asia Major* 9 (1962) 108, there was a general breaking of long vowels from Old to Middle Chinese. In the case of the back vowels *ā*, *ō* and *ū*, however, this only took place after dental consonants: e.g., OC **ḍū* > MC *yu* 'liquor', **nūp* > *hīp* 'enter' (cf. Tib. *nub-pa* 'enter')¹⁴). The value of this parallel is unfortunately diminished by the fact that the starting point is reconstructed, and indeed PULLEYBLANK's own revised reconstruction for Old Chinese is radically different: cf. *Monumenta Serica* 33 (1977-78) 180 ff.

Happily, there are more solid parallels within Indo-European. C. WATKINS has reminded me that in Oscan short *ū* becomes *iu* after dentals: e.g., *tiurri* : Lat. *turris* 'tower'

(for further examples see BUCK, Gram. of Oscan and Umbrian 40). Despite the difference in vowel length, the key point remains: Oscan directly attests a conditioned breaking of *u* to *iu* after dentals. Furthermore, B. JOSEPH and J. SCHINDLER have each pointed out to me that 3rd-century Beotian shows the same development: e.g., *tioukha* = *túkhē*, *diou* = *dúo*, *oniouma* = *ónuma*. The picture here is clouded slightly by the fact that the spellings with *iou* for *ou* are not consistent, while there is also one example in initial position: *iouio* = *huioū* (for details see BUCK, Gr. Dial. § 24). Fortunately, both the dental conditioning and the phonetic reality of the spelling *iou* are confirmed by the reappearance of the same development in the modern Greek Tsakonian dialect. The latter shows *gunéka* for *gunaika* and *múza* for *muia*, but *ju* after dentals *t*, *đ*, *p*, *n*, *s*, *z*, *l*, and *r*: *njútha* for *núkta*, *psjúxa* for *psukhē* and *ljúkhu* for **lúskō* (i.e. *lúō*). Both THUMB-KIECKERS, Hb. d. gr. Dial.² (1932) 93, and HATZIDAKIS, KZ 34 (1897) 91 f, view this feature of Tsakonian as inherited from Old Laconian and imply a direct connection with the same change in Beotian. This would make the change very old indeed, and one may wonder whether we are not dealing with two independent but parallel developments. In any case, the Tsakonian and Beotian provide at least one more unambiguous example of the breaking of *u* to *iu* after dentals.

There is thus no obstacle to assuming a similar conditioned change in Anatolian of **tū* to **t̥iū*, which then in turn becomes **t̥i* as in some Italian dialects. We may thus derive the Anatolian second singular subject pronoun **t̥i* (> Pal., HLuv. *t̥i*, Hitt. *zi-g*) from the well-founded PIE form **tū* by a plausible conditioned phonological change. No unmotivated functional shifts in the pronominal paradigm are required.

3. Further Considerations

Several aspects of the proposed derivation require further comment. First of all, it has been pointed out to me that, if the awkward sequence **twū* were immediately dissimilated to **tū*, then the dative-accusative form ought to undergo the same change to **t̥i* as the nominative. As noted above, we have no way of knowing whether the **w* was ever eliminated, but to assume its continued presence merely to forestall **tū* > **t̥i* obviously is ad hoc. No such assumption is necessary, however. Remember that the change **tū* > **t̥iū* > **t̥i* consists of two parts, only the first of which is conditioned. We may therefore easily assume the following sequence. The conditioned change *ū* > *iū* after dentals takes place first, before (perhaps long before) the spread of the *ū*-vocalism to the other pronouns. Thus we have not the second stage given above but rather:

nominative	<i>*eg(h)</i>	<i>*t̥iū</i>
dat.-acc.	<i>*eme</i>	<i>*twe</i>

The sequence **t̥iū* may be analyzed as a cluster *t̥i* plus vowel *ū* just as well as *t-* plus rising diphthong *iū*. Since Anatolian hardly had a class of rising diphthongs, the former analysis is in fact more likely. Thus only the vowel *ū* spread to the other forms:

nominative	<i>*ūg</i>	<i>*t̥iū</i>
dat.-acc.	<i>*emū</i>	<i>*t(w)ū</i>

Even if one assumes immediate dissimilation of **twū* to **tū*, there is now no chance that dat.-acc. **tū* will become **t̥i*, since the conditioned change **tū* > **t̥iū* is no longer operative¹⁵. Nom. **t̥iū* may have become **t̥i* at any subsequent stage.

There is yet another way to view the proposed change. According to BHAT, 'A General Study of Palatalization', in J. GREENBERG, *Universals of Language* 2 (1978) 54, palatalization of apical consonants is conditioned not by the frontness of a following vowel, but by its height. He gives examples of such palatalization by *i*, *e* and *u* and by *ĩ*, *u*, *y* and *w*. Thus we could also assume for pre-Anatolian the palatalization of dentals before $*\check{i}$ and $*\check{u}$. The reason for palatalization before long $*\check{u}$ but not short $*\check{u}$ could be that the long vowel was 'closer' (higher) than the corresponding short vowel, a common enough situation in such pairs. We would thus have $*t\check{u} > *t^y\check{u}$ (and likewise $*t\check{i} > *t^y\check{i}$). Obviously, from this viewpoint only the vowel $*\check{u}$ would subsequently spread to the other pronominal forms $*\check{u}g$, $*em\check{u}$ and $*t(w)\check{u}$. Again, $*t\check{u}$ could immediately become $*t\check{i}$ without any chance of ever becoming $*t\check{i}$. Later, $*t^y\check{u} > *t^y\check{i}$ by the fronting of the back vowel after the palatalized consonant: for examples of this change see BHAT, p. 74. Note that the assumption of a palatalized preform $*t^y\check{i}$ would make the eventual assibilation to [ts] in Hittite even more natural, while of course Palaic and Luvian $t\check{i}$ may well have a palatalized consonant in this position.

I have, of course, offered no parallels within Anatolian for the conditioned change $*\check{u} > *i\check{u}$ after dentals (or alternatively, the palatalization of dentals by $*\check{u}$). If $*t\check{u}$ reflects a secondarily lengthened $*t\check{u}$, as often suggested, then a priori there are not likely to be any parallels. However, it is quite possible that $*t\check{u}$ represents $*tuh_x$: see SCHMIDT, *Personalpron.* 117 f, for references and a discussion of $*t\check{u}$ versus $*tuh_x$. If SCHMIDT is right in comparing the final laryngeal of the first person singular, then we are dealing with $*h_2$: for $*e\check{g}h_2$ see note 8 above. In this case there ought to be parallels. WATKINS, *Indo-*

European Studies IV, Harvard University (1981) 254 ff, has shown that Hitt. $\check{a}\check{s}\check{s}\check{u}$ 'goods' represents a neuter plural (collective) in $*-uh_2$, with loss of word-final $*h_2$ and compensatory lengthening. With its preceding *s*, Hitt. $\check{a}\check{s}\check{s}\check{u}$ should appear by the rule proposed above as $*\check{a}\check{s}\check{s}\check{i}$. However, the collective plural in Hittite is still an integral part of the paradigm. Hence one would expect an aberrant $*\check{a}\check{s}\check{s}\check{i}$ to be leveled after the rest of the paradigm in any case. A reliable parallel or counterexample to the above rule would come from a sequence dental + $*\check{u}$ ($< *uh_{1/3}$) in a root syllable. I have thus far found neither¹⁶). Unhappily, since the sequence $*t\check{u}$ of the second singular pronoun is virtually unique in Anatolian, any sound change affecting it will necessarily also be virtually unique.

Finally, I have assumed above an oblique preform $*twe$, instead of $*te$, based on the clear evidence of $tw\check{e}l$ and $twedax$ for the presence of a labial element. Obviously, the Hittite oblique forms could also be derived phonologically starting from an oblique stem $*t\check{u}-$ ($> tw-$ before vowels). Since one could still assume a distinct subject form $*t\check{u}/tuh_x$, the rest of the above derivation would remain the same, except that there would now be multiple possibilities for the spread of the *u*-vocalism to the first person (one could imagine $\check{u}g$: $amm\check{u}g$ after $t\check{u}g$: $t\check{u}g$ as well as complete generalization of long \check{u}).

SCHMIDT, *Personalpron.* 120 ff, argues at length for $*t\check{u}$ as the original orthotonic form of the accusative, starting with a set: nom. $*tuh_x$, ortho. acc. $*t\check{u}$, encl. acc. $*t\check{e}$. The evidence he presents for an accusative $*t\check{u}$ (besides Hitt. tug) consists of Goth. $\check{p}uk$, Doric $t\check{u}$ and OIr. suffixed $-t$ (with *u*-quality in the accusative). SCHMIDT rejects the explanation of Goth. $\check{p}uk$ (vs. OHG dih etc.) as secondary

after *þu*. However, his argument that *þeina/þeins* is not replaced by **þāna/þāns* is irrelevant. First, the genitive and possessive adjective do not form an integral part of the paradigm like nominative, accusative and dative. More crucially, the vocalism of the genitive differs from the nominative and accusative in the first singular as well. Thus one could well have *ik : mik :: þu : x* (→ *þuk*), but still *meina, þeina*. The above analogy seems to me equally as likely as SCHMIDT's assumption of a leveling in North and West Germanic of **mek, *þuk, *sek* to **mek, *þek, *sek*.

As for the Doric accusative *tū*, SCHMIDT properly rejects the explanation that it is merely the nominative used as the accusative. Evidence for this sort of leveling is lacking in Greek. However, in claiming that it is evidence for a PIE orthotonic accusative **tū*, he has overlooked the point cited by BONFANTE, Riv. fil. class. 63.233, who indicates that the 40+ occurrences known to him are all enclitic (emphasis mine - HCM). Starting from SCHMIDT's PIE set of nom. **tuh_x*, ortho. acc. **tū* and encl. acc. **tē*, one can hardly derive the true Doric situation of nom. *tū*, ortho. acc. *té*, encl. acc. *te/tu*. I have no ready explanation for Doric enclitic accusative *tū*, but it hardly constitutes evidence for a PIE orthotonic accusative **tū*¹⁷).

Regarding OIr. suffixed *-t*, a careful reading of THURNEISEN, Gram. of Old Irish 281, shows that there has been considerable leveling of the consonantal quality of suffixed pronouns with prepositions: acc. *frit* beside *friut*, dat. *ocut*, *húasut*, *íarmut* beside *húait*, etc. The same holds for the first singular: acc. *lemm*, *limm*, and *liumm*. The etymological value of the *u*-quality in the accusative forms is thus questionable.

Obviously, a PIE accusative **tū* (SCHMIDT, BONFANTE, et al.) cannot be entirely excluded. The assembled evidence for it

remains for me unconvincing, and I have chosen to assume the better established **twe* for Anatolian. As already noted, an assumption of **tū* in the accusative would not materially affect the derivation of *zig* proposed above¹⁸).

4. Conclusion

Most previous attempts to account for Hitt. *zig* and cognates are phonologically impossible, and all require unmotivated functional shifts within the pronominal paradigm. By assuming a sound change of *ū > iū (> ī)* conditioned by a preceding dental consonant, we have been able to derive the Anatolian second singular pronoun straightforwardly from well-established PIE preforms. Due to the isolation of the sequence **tū* in Anatolian (< PIE **tū* or **tuh_x*), no direct corroboration for the change can be offered, but the basic plausibility of such a conditioned change is supported by parallels from Oscan, from Beotian and Tsakonian (and perhaps also from Chinese). It also seems possible to view the change not as the breaking of *ū* to *iū* but as the palatalization of the preceding dental by *ū*, a change which again has solid typological parallels.

Notes:

- 1) This also means that there is no direct connection between the final velar of Hitt. *zig, tug* and that of Goth. *þuk*, etc., as claimed by SCHMIDT.
- 2) GEORGIEV's own sound change **tw > z* (**twege > zig*) is impossible. Pace HAMP, KZ 94 (1980) 64, none of GEORGIEV's examples for **tw > z* is persuasive, while the preservation of **tw* is proven by *tuekka-* 'body' < **twek-* (Skt. *tvāc-* 'skin' etc.) and by the oblique forms *tweł* and *twedaz* of the second singular pronoun. GEORGIEV's claim that the *u* of the latter forms is vocalic [u] is not only egregiously

- ad hoc, but in fact falsified by consistent OH spellings with *tu-V-*. A sequence /tu(w)V-/ in OH would be spelled with scriptio plena: *tu-u/ú-V-*. Compare *šu-ú-iz-zi* 'rejects' /suwetsi/ < **suh₁-ye/o-* with a genuine vocalic *u*. HAMP's derivation of *-zzil* from **-tu-el* instead of **-ti-il* is also falsified by Luvian *-til* : *puwatil* 'past'.
- 3) The common spelling *zi-ig* or *zi-ga* is, of course, ambiguous, but the complete lack in all of Hittite of a plene spelling *zi-e-eg* or *zi-e-ga* is incomprehensible if the word were really /tsëg/. Compare occasional *an-zi-e-da-az* beside more frequent *an-zi-d/ta-az* for /antsedats/ 'by us', a word attested far less frequently than *zig*.
 - 4) It is awkward for SCHMIDT's analysis that reflexive *-ti* is an enclitic form, while *zig* is of course orthotonic, making the functional shift all the more problematic.
 - 5) Pace SCHMIDT, Personalpron. 33, there are no examples of *ammug* as a nominative in authentic OH or MH texts.
 - 6) MORPURGO-DAVIES, KZ 94 (1980) 90, implies that *tī* and *tū* are mere alternants, which 'may reflect earlier case distinctions'. She immediately admits, however, that she knows of no good examples of *tū* in nominative function. The only example of orthotonic *tī* known to me is, on the other hand, nominative: see MORPURGO-DAVIES, p. 106, and already MERIGGI, ManEG II.49-50. It thus seems that even in Hieroglyphic Luvian the orthotonic forms *tī* and *tū* may not be in free variation.
 - 7) I ignore here, of course, the secondary use of *ammug*, *anzaš* and *šumaš* in Neo-Hittite for the nominative. All forms cited with scriptio plena also occur without.
 - 8) For **eḡh₂* with no further 'participle' see already PETERSEN, Lg 6.167. The basic Hittite form is *ūg*. The *-a* of *ug-a* 'but I' and *ugg-a* 'and I' are well-established Anatolian enclitic conjunctions: see HOUWINK TEN CATE, Fest. Otten (1973) 121 ff, with references. I reconstruct a cluster **ḡh₂* to account for the contrast of Skt. *aḥám* and Grk. *egō*: cf. Skt. *mah-* 'great' = Grk. *mégas* 'idem' = Hitt. *mekk(i)-* 'much' (in Hittite word-final **h₂* > ∅; hence no gemination in *ug-a* vs. *mekk-i*).
 - 9) The initial **e-* is surely taken from the nominative, as generally assumed. Whether **eme-* already existed in PIE or was created independently in the various traditions may be left open.

- 10) I cannot accept the premise of SCHMIDT, Personalpron. 18 (and passim), that PIE possessed a fully elaborated case system in the personal pronouns. A full critique of his method and results is not in order here. I merely wish to make clear that I share rather the widespread view expressed by PETERSEN, Lg 6.144 ff, that the case system of the personal pronouns was still rudimentary in PIE. Compare also the remarks of SEEBOLD in his review of SCHMIDT, *Kratylos* 23 (1978) 68.
- 11) The change of **ē* to *a* here in Hittite, which is not regular, is tied up with the gemination of the *-m-* to *-mm-*. The details cannot be pursued here, but in brief I assume that Hittite had a restricted version of the rule established for Luvian by ČOP, IF 75 (1970) 85 ff: **ēC₁V* > *aC₁C₁V*.
- 12) I stress again that Palaic *tī*, *tū* precludes direct comparison of Hitt. *-g* with the particle *-ge* elsewhere.
- 13) That dentals may condition the fronting of *u* is also shown by Selepet (New Guinea), where *u* and *o* are fronted before dentals: see MCELHANON, Selepet Phonology (1970) 23. I am indebted to my colleague L. STEPHENS for these references as well as that to the article by BHAT in Section 3 below.
- 14) In the second example, which I have chosen because the OC reconstruction is supported by a genuine Tibetan cognate, we seem to have a perfect parallel for *ū* > *i*u > *i*. In Chinese, however, the second part of the change (*i*u > *i*) is conditioned (dissimilation of the *u* due to the following labial).
- 15) Compare the situation in Tsakonian cited by HATZIDAKIS, where secondary *u* from an old diphthong *ou* does not undergo breaking after dentals like original *u*.
- 16) Since effectively one is limited to zero-grades of PIE roots in dental + **eu*h_{1/3}, there are not many possibilities to begin with.
- 17) It is worth noting that Hittite shows an enclitic dat.-acc. *-ttu* (in *nu-ddu-za*) beside usual *-tta*. I hasten to point out, however, that Hitt. enclitic *-ttu* may reflect not only original **-tu*, but also **-twe*: cf. for the phonology enclitic *-kku* 'and; if; or' < **-k^we*.
- 18) It would not even permit an unconditioned change *ū* > *i* in the nominative **tū*, since it is virtually certain that at least *ūg* has its vowel after nominative **tū*. A configuration **ūg*, **emū*, **tū*, **tū* would be strange indeed.