

PIE $*\widehat{gn\bar{e}}$ - ‘recognize, know’

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A significant number of etymologies have been cited in support of “Eichner’s Law”, according to which $*\bar{e}$ remained uncolored by a contiguous $*h_2$ in Proto-Indo-European (cf. MSS 31 (1973) 71f.). None of the alleged examples of the rule, taken in isolation, is absolutely probative; it is a disquieting fact, for example, that word equations with $*\bar{e}$ preserved in two or more branches of the family are thus far unknown. Nonetheless, when the whole body of evidence is taken together, the need for a systematic way of explaining pairs like OIcel. *ægir* ‘sea’ (< $*h_2\bar{e}k^u\text{-}j\acute{o}$ -): Lat. *aqua* ‘water’ (< $*h_2\acute{e}k^u\text{-}eh_2$ -), Hitt. 3 sg. *wehzi* ‘turns’ (< $*u\acute{e}h_2$ -): 3 pl. *wahhanzi* (< $*u\acute{e}h_2$ -) or OIcel. *ái* ‘great-grandfather’ (< $*h_2\bar{e}uh_2\acute{o}\text{-}n$ -): Lat. *avus*, Hitt. *huhha-* ‘grandfather’ (< $*h_2\acute{e}uh_2\text{-}o$ -) makes the case for Eichner’s hypothesis fairly strong.¹

The evidence for a corresponding absence of coloration in the neighborhood of $*h_3$ is much less abundant. Here, so far as I am aware, only two reasonably plausible cases have been proposed for the treatment IE $*\bar{e}h_3 >$ dialectal $*\bar{e}$.² The first is in the IE word for ‘name’ (Ved. *náman-*, Gk. *ónoma*, Lat. *nōmen*, etc.), where Toch. A *ñom*, B *ñem* point, according to Rasmussen, *Collectanea Indoeuropaea* I, 104 (Ljubljana 1978), to an immediate preform $*n\bar{e}m(n)$ -, reflecting a possible earlier $*h_1n\acute{e}h_3\text{-}m\eta$. The example of this word, however, is not decisive. That $*n\bar{e}m(n)$ - would have yielded CToch. **ñām*, whence the attested forms, is indisputable. But under normal circumstances a lengthened-grade preform would imply an acrostatic paradigm $*h_1n\acute{e}h_3\text{-}m\eta$, gen. $*h_1n\acute{e}h_3\text{-}m\eta\text{-}s$ for the parent language, while the other IE branches point rather to a proterokinetic $*h_1n\acute{e}h_3\text{-}m\eta$, gen. $*h_1\eta h_3\text{-}m\acute{e}n\text{-}s$.³ Both the vocalism and initial palatalization of CToch.

¹Examples cited from Mayrhofer, *Indogermanische Grammatik. Band I. 2. Halbband: Lautlehre*, 133, with references.

²A possible example of $*h_3\bar{e} > *e$ is provided by the well-known Hitt. *É_hestāš* ‘bone house’, if this represents original $*h_3\acute{e}stojo$ -. But it is not clear that the initial laryngeal was $*h_3$ - rather than $*h_2$ -; cf. Eichner, *ibid.*

*ñām, moreover, can be explained via purely Tocharian processes. In a weak case form like the gen. sg., the stem *h₁ǵh₃-mén- would probably first have developed to *ǎn'm'ǎ-, with palatalization of the -nm- cluster; this would in turn have given *ǎn'm'ǎ-, with the same change of word-initial *ǎ- to *ǎ- as in the privative prefix A a(n)-, B e(n)- (< *ǵ-). After the depalatalization of labials, *ǎn'm'- would presumably have become *ǎñm-. Such a form, with analogical metathesis under the influence of the strong stem *nām- (< *nōm(n)- < *h₁néh₃-mǵ), could easily have been remade to CToch. *ñǎm-.⁴

The second, and more interesting, alleged case of *ē < *ēh₃ is found in the verb *ǵneh₃- (“*ǵnō-”) ‘recognize, know’. It has long been known that this root shows an apparent full-grade *knē- in Germanic, where OE *cnāwan* ‘know, perceive’, OHG *irknāen* (*bi-*, *in-*) ‘id.’ and OIcel. 1, 3 sg. *kná* ‘can, know(s) how to’ can all be referred to a *verbum purum* *knējan.⁵ Unfortunately, *knējan is not demonstrably old: it is easy enough to reconstruct an ad hoc *ǵnēh₃-je/o-, but impossible to reconcile the vocalism of this form with that of OCS *znajō* ‘I know’ (< *ǵnō-), the only comparable je/o-present elsewhere. We shall return to the problem of *knējan below. For the moment it is more important to note that Germanic is not the only IE branch to attest a virtual *ǵnē-. Forms of the same type are also found in Hittite and Tocharian, and in these languages, as we shall see, the evidence for inherited *-ēh₃- is considerably more secure.

The etymological relationship of Hitt. *ganeš-* (OH 3 sg. *ga-ne-eš-zi*, *gani-eš-zi*) ‘find, recognize, identify’ to the family of ‘know’ was first seen by Laroche, *RHA* 19/68 (1961) 27–9. This identification is so obviously superior to the alternatives listed by Tischler, *Hethitisches Etymologisches Glossar* I, 478ff. (Innsbruck 1983), that its correctness will be taken for granted in what follows.⁶ The analysis of the stem *ganeš-*, however, is not self-evident.

³For the IE inflection of this word cf. Peters, *Untersuchungen zur Vertretung der indogermanischen Laryngale im Griechischen*, 244, fn. 198 (Vienna 1980).

⁴Similar accounts are given by Lindeman, *The triple representation of Schwa in Greek and some related problems of Indo-European phonology*, 65 (Oslo-Bergen-Tromsø 1982), and Hilmarsson, *Studies in Tocharian Phonology, Morphology and Etymology, with Special Emphasis on the o-vocalism*, 142 (Reykjavik 1986).

⁵The OE form shows the usual insertion of -w- into the hiatus left by the disappearance of intervocalic *-j-. OIcel. *kná*, 1 pl. *knegum* has secondarily joined the preterito-present class, with an inflection modelled on that of the nearly synonymous *má* (= Go. *mag*), 1 pl. *megum*.

⁶The more important other suggestions are Sturtevant’s comparison (*Lg.* 8 (1932) 120) with Ved. *kan-*, *can-* ‘be pleased’; Machek’s (*Lingua Posn.* 7 (1959) 78) with Lat. *honōs* ‘honor’; and Neumann’s with Gk. plpf. *ekékasto* (509) ‘was distinguished’. Oettinger, *Die*

Laroche was unable to account satisfactorily for the phonology of the stem-final * $\widehat{e}\check{s}$ -, which he tried to explain by positing a reduced-grade root * $\widehat{g}^o n\bar{e}$ - followed by the *-s- of the sigmatic aorist. An important step forward was taken ten years later by Lindeman, *NTS* 24 (1971) 7ff., who showed that *ganeš-* forms a virtual word equation with the isolated Toch. A 2 sg. pres. *kñasāstu* (= *kñasāst tu*) 'du kennst dich aus'. The latter form is a class XI present in *-*sās(k)*- to the descriptive root *kñā-* < CToch. **kñā-* < * $\widehat{g}n\bar{e}$ - (cf. Krause-Thomas, *Tocharisches Elementarbuch* I, 215f. (Heidelberg 1960)). Like the few other class XI presents, it arose through the addition of the productive Tocharian suffix *-(*ä*)s(k)- (< **ske/o-*) to an inherited stem or enlarged root in *-s-; cf. A *āksisam*, B *aksaskau* 'I proclaim' beside Lat. *axāmenta* 'religious hymns' (root * $\widehat{h}_2\widehat{e}g(s)$ -), A *oksisam*, B **auksaskau* 'I increase' beside Gk. *a(w)éksō*, *auksánō* 'id.' (root * $\widehat{h}_2\widehat{u}eg(s)$ -). Taken together, the Hittite and Tocharian forms point unequivocally to a stem which, after the loss of laryngeals, must have had the shape * $\widehat{g}n\bar{e}s$ - or (dissyllabic) * $\widehat{g}n\bar{e}s$ -.⁷ The question is, what was the structure of this form in Proto-Indo-European?

Lindeman himself assumed that the underlying root was * $\widehat{g}enh_1$ - or * $\widehat{g}neh_1$ -, and that the frequent appearance of * $\widehat{g}n\bar{o}$ - for expected * $\widehat{g}en\bar{o}$ -, * $\widehat{g}n\bar{e}$ - and * $\widehat{g}n\bar{a}$ - in the daughter languages (cf. Gk. *gignóskō*, *gnōtós*, Lat. (*g*)*nōscō*, (*g*)*nōtus*, etc.) arose from the need of speakers of dialectal Indo-European to distinguish the forms of 'know' from those of the homophonous root * $\widehat{g}enh_1$ - 'beget/be born' (Gk. *gígnomai*, *gnētos*, Lat. *gignō*, (*g*)*nātus*, etc.). This is most unlikely. Whether or not they had the same laryngeal, the full-grade forms of 'know' and 'beget' consistently show different patterns of vocalization, "state II" being preferred by the former root and "state I" by the latter (cf. Ved. fut. *jñāsyati*, perf. *jajñau* < *jñā-* 'know', but fut. *janīsyati*, perf. *jajana* < *janī-* 'beget'). The *ō*-vocalism of 'know' is by no means confined to forms for which there was danger of homophony with 'beget'; in Greek, for example, the aorist of *gignóskō* is *égnōn* rather than **égnēn*, despite the fact that the only aorist of *gígnomai* is the deponent

Stambbildung des hethitischen Verbums, 199 (Nürnberg 1979), favors a derivation from * $\widehat{g}nes$ -, an otherwise unknown "Parallelwurzel" to * $\widehat{g}neh_3$ -.

⁷Oettinger (*ibid.*) objects to the derivation of *ganešzi* from * $\widehat{g}n\bar{e}s$ - on the grounds that the Hittite spellings without *scriptio plena* favor a preform with * \widehat{e} -. But a glance at his documentation (pp. 238-55) for the "fientives" in -*eš(š)*- (see below), which clearly have * $\widehat{e}s$ - < -*eh_1-s*-, shows that *scriptio plena* is quite rare and sporadic in these forms except in the special case where the preceding nominal stem ends in -*u*-. The spelling *ka-ni-e-eš-zi* is attested in any event; Oettinger's attempt to dismiss it as a purely graphic imitation of *ták-ki-e-eš-zi* 'undertakes' is not convincing.

egenómēn. And even if all the $\widehat{gn}\bar{o}$ -forms in the daughter languages could be dismissed as secondary, the survival of $*\widehat{gn}\bar{e}s-$ < $*\widehat{gn}eh_1-s-$ in Hittite and Tocharian would continue to pose a problem, for it would then be necessary to explain the survival of $*\widehat{gn}\bar{e}-$ before $*-s-$ and — apart, perhaps, for Gmc. $*kn\bar{e}jan$ and a phonologically ambiguous Armenian form to be discussed below — nowhere else.⁸

Since there is thus no reason to reject the traditional reconstruction of 'know' as $*\widehat{gn}eh_3-$, a special mechanism must be found to account for the $*-e-$ of *ganešzi* and *kñāsāšt*. Eichner's Law offers a potentially useful device for this purpose; for circularity to be avoided, however, the assumption of a lengthened-grade preform must be justified on independent grounds. Autonomous evidence for an original $*\widehat{gn}\bar{e}h_3-s-$ might be sought in several ways. One possible strategy would be to establish a link between the Hittite and Tocharian forms and the IE sigmatic aorist, a category known to have had \bar{e} -vocalism in at least part of its active paradigm (cf. Ved. *ávāt*, Lat. *uēxit* 'carried' < $*u\bar{e}gh-s-$). But the likelihood that an *s*-aorist $*\widehat{gn}\bar{e}h_3-s-$ actually existed in the parent language is vanishingly small. The original root aorist of the verb $*\widehat{gn}eh_3-$ is preserved in Gk. *égnōn*, beside which Ved. *jñās-* is almost certainly an innovation (cf. Narten, *Die sigmatischen Aoriste im Veda*, 122 (Wiesbaden 1964)). It is significant, moreover, that Hittite and Tocharian are precisely the two IE languages in which the $*-s-$ of the sigmatic aorist is confined, at least in the active indicative, to the third person singular (cf. Hitt. 3 sg. *dāš* 'took' vs. 1 sg. *dāhḥun*, 2 sg. *dātta*, etc.; Toch. B 3 sg. *preksa* 'asked' vs. 1 sg. *prekwa*, 3 pl. *prekär*, etc.). This feature is probably an archaism — a fact which means that the prototype of the *s*-aorist in pre-Hittite and pre-Tocharian, being only partly sigmatic, would have been a distinctly unlikely starting point for the creation of fully sigmatic *s*-presents.⁹ In Hittite the 3 sg. in $*-š(ta)$ is restricted to the preterite of verbs of the *hi*-conjugation, which in general show no inclination to acquire back-formed presents in $-šmi$, $-šši$, $-šzi$; the few Hittite verbs in stem-final $-š-$ that have been alleged to derive from IE *s*-aorists (e.g., *pāš-* 'take a sip'; cf. Oettinger, *op. cit.*, 435f.) are all better explained in other ways.¹⁰

⁸Toch. A *āknats*, B *aknātsa* 'ignorant' < $*\widehat{p}\bar{g}\bar{n}\bar{o}-t-$ shows that in Tocharian, as elsewhere in the family, the "normal" forms of this root had \bar{o} -vocalism.

⁹In taking the position that the *s*-aorist was — somewhat paradoxically — only partly sigmatic in the parent language, I follow the opinion of Ivanov, *Toxarskie Jazyki*, 31 (Moscow 1959), and Watkins, *Indo-European Origins of the Celtic Verb. I. The Sigmatic Aorist*, 65ff. (Dublin 1962). I do not, however, wholly agree with what these scholars have to say about the origin of the *s*-element; my own views will be presented elsewhere.

¹⁰Probably the best case of a Hittite verb in $-š-$ that can be identified with an *s*-aorist is

Nor, despite superficial indications to the contrary, do inherited sigmatic aorist indicatives yield *s*-presents, or forms implying *s*-presents, in Tocharian. Here, to be sure, "s-preterites" of the type *preksa*, *prekār* are very commonly associated with fully sigmatic presents in *-*se/o*- (cf. B *preksau*, 'I ask', 3 sg. *prekšäm*, 3 pl. *prekseṃ*, etc.). The latter forms, however, are not displaced lengthened-grade indicatives, but, as I have tried to show in the forthcoming *Studies in Memory of Warren Cowgill* (C. Watkins, ed.), transformations of the IE *s*-aorist subjunctive with full grade (cf. the type Ved. 3 sg. *vákṣat* < **uēgh-se/o*-). Such stems are never subject to the formal renewal *-*s*- > *-*sāsk*- implicit in the form *kñasāšt*, and conversely, none of the attested presents in *-*sāsk*- is correlated with an *s*-preterite or any other recognizable reflex of the IE sigmatic aorist. To explain either *ganešzi* or *kñasāšt* individually on the basis of an inherited *s*-aorist would be difficult enough; to explain them both in this way would simply fly in the face of the evidence.

A different approach is taken by Peters, *op. cit.*, 314f. In the course of a discussion of the Greek aorist 3 sg. *egéra* 'grew old', which he derives from an acrostatic stem **ǵerh₂*-/**gerh₂*- with "Narten" ablaut, Peters cites the allegedly parallel aorist **ǵnēh₃*-/**gneh₃*-, the vocalism of which he supposes to have spread analogically to the pre-Germanic *ie/o*- present **knējan* and the pre-Hittite and pre-Tocharian *s*-present **ǵnēh₃-s*-.¹¹ The plausibility of this account is wholly dependent on the legitimacy of positing a lengthened-grade root aorist as the source of the Greek form. Peters' derivation does not adequately explain the quantity of the final -*ā* of *egéra*, which is unlikely to have been lengthened simply because speakers felt the need "ein im System eher isoliertes **égērā* zu normalisieren." For this reason it is perhaps better to take -*ā* as a contraction product and to start from **egérahe* — a true

paḥš- 'protect': here at least there is a weakly attested *s*-aorist subjunctive *pāsa*- in Vedic Sanskrit, and the common Hittite imperative *paḥši* can be interpreted as an Anatolian cognate of the corresponding *si*-imperative **pāsi* (< **pāsasi* by haplology; cf. Szemerényi, *Lg.* 42 (1966) 1ff.). But there are problems: in no IE language is **peh₂*- actually attested with an *s*-aorist indicative, and the 3 sg. of the Hittite verb is not the expected **pēh(h)ašzi* or **paḥhašzi* but (deponent) *paḥša(ri)*. These facts, together with the presence of *-*s*- in OCS *pasq* and Lat. *pāstor* 'shepherd', show that we have rather a sigmatic root-enlargement, one of the functions of which was to make an athematic present stem ("s-present") and its thematic subjunctive in *-*se/o*-. The same analysis can be applied to other roots, notably including **peh₃(-s)*- 'drink' (> Hitt. *pāš*-), for which there is not the slightest evidence for an *s*-aorist in Proto-Indo-European.

¹¹I use the terms "Narten" ablaut' and "Narten" present' to refer to the inflectional type of Ved. *tāṣti*, pl. *tákṣati*, the IE status of which was convincingly demonstrated by J. Narten, *Pratidānam* 9-19 (The Hague 1968).

s-aorist with regular lengthened grade (cf. Barton, *Glotta* 60 (1982) 31ff.).¹² Wherever the truth may lie, it is clear that the isolated \bar{e} -vocalism of *egéra* furnishes a very slender basis for the assumption of an apophonically novel category for Proto-Indo-European. Still less does it justify the reconstruction of an aorist $*\widehat{gn\bar{e}h}_3$ -, a stem for which there is no unambiguous evidence in any attested language.

Nevertheless, Peters' discussion of *ganešzi* and *kñasäšt* contains an important insight. These forms are based not on an inherited s-aorist, but on an s-present; and if this is to be explained in terms of Eichner's Law, it must have had the stem $*\widehat{gn\bar{e}h}_3$ -s- in all or part of its paradigm. Peters' attempt to motivate the $*\bar{e}$ - of $*\widehat{gn\bar{e}h}_3$ -s- by assuming a secondary transfer of lengthened grade from the root aorist is gratuitous. The essential point is that the $*\bar{e}$ -, whatever its origin, was almost certainly already present in the common ancestor of the Hittite and Tocharian verbs, for it is difficult to believe that these two languages could have inherited a stem $*\widehat{gn\bar{o}}$ -s- or $*\widehat{gnoh}_3$ -s- (< $*\widehat{gneh}_3$ -s-) and independently remade this to $*\widehat{gn\bar{e}}$ -s- or $*\widehat{gn\bar{e}h}_3$ -s-. In theory, of course, the vocalism of late IE $*\widehat{gn\bar{e}h}_3$ -s- could have been borrowed from some completely different morphological category, such as Peters' "Narten" aorist, within the period of the protolanguage. But such an explanation, which merely substitutes one unknown for another, can hardly be taken seriously except as a last resort. The obvious alternative is to consider the possibility that $*\widehat{gn\bar{e}h}_3$ -s- is exactly what it appears to be — an athematic s-present with inherited $*\bar{e}$: $*\check{e}$ ablaut.

The s-presents of the attested IE languages present a bewildering variety of formal types. The most widely distributed are the productive desiderative/future formations, of which four varieties can be distinguished: 1) the Indo-Iranian and Balto-Slavic future in $*\text{-sje/o-}$, normally accompanied by full grade of the root (cf. Ved. *dāsyāti* 'will give', ptcp. *dāsyánt-*; Av. *būšiiēiti* 'will be', ptcp. *būšiiānt-*; Lith. ptcp. *dúosiant-* 'about to give', *būšiant-* 'about to be'; OCS *byšqšt-* 'id.');

¹³ 2) the Indo-Iranian desiderative and

¹²Why $*\text{-s-}$ would not subsequently have been restored for $*\text{-h-}$, however, is unclear; perhaps the influence of the noun $*\widehat{g\acute{e}ras}$, gen. $*\widehat{g\acute{e}rahos}$ caused the $*\text{-h-}$ of $*\widehat{eg\acute{e}rahe}$ to be perceived as part of the synchronic "root" rather than the tense sign. Alan Nussbaum (personal communication) suggests the possibility that *egéra* is not an s-aorist at all, but an analogical creation to the present *géráskō*, formed on the model of *báskō* 'I go', aor. 3 sg. *ébā*.

¹³I do not find convincing the attempt by Aitzetmüller, *Gedenkschrift Brandenstein* 11ff. (Innsbruck 1968), to discredit the antiquity of the Slavic form. The exceptional zero-grade of the participle $*\widehat{bh\bar{u}sjont-}$ reflects an idiosyncrasy of the root $*\widehat{bhuh}_x$ -, which seems to have been apophonically invariant in its primary verbal derivatives.

Old Irish future in *-se/o-, with original zero grade and *i*-reduplication (cf. Ved. *cíkitsati* 'desires to perceive', OIr. 3 sg. *gigis*, *gig*, pl. *gigsit*, *gigset* 'will pray' (< *ǵ^uhi-ǵ^uhedh-se/o-);¹⁴ 3) the Greek future in *-se/o-, with full grade and, in a number of cases, unmotivated deponent inflection (cf. *déksomai* 'I will bite' (: pres. *dáknō*), *peísomai* 'I will suffer' (: *páskhō*); and 4) the unreduplicated athematic *s*-future of Baltic, Old Irish, and Osco-Umbrian, again with apparent full grade (cf. Lith. *duōs* 'will give', *būs* 'will be' (< *dō-s-t(i), *bū-s-t(i)); OIr. *reiss*, *ré* 'will run' (< *ret-s-ti); Osc. Umbr. *fust* 'will be' (= Lith. *būs*).¹⁵ Of these, 1) and 2) are clearly independent of each other and of the other two types; in the parent language they presumably differed in distribution or in some nuance of meaning which can no longer be recovered.¹⁶ Types 3) and 4), on the other hand, bid fair to rest on the same original formation. As I have pointed out in my *Stative and Middle in Indo-European*, 103ff. (Innsbruck 1979), the *-i-* which serves as a union vowel in the dual and plural forms of the Baltic future (cf. Lith. 1 pl. *dúosime*, 2 pl. *dúosite*, etc.) probably arose by false segmentation from a pre-Baltic 3 pl. in *-(s)int(i) < *-(s)pti. This ending implies a pattern of stable root accentuation, and hence an acrostatic paradigm with lengthened grade in the singular. No trace of apophonic alternation is actually retained in Lithuanian, which synchronically makes its future by adding *-s-* to the infinitive stem. In Old Irish, the vocalism of the unreduplicated *s*-future is likewise invariant, being based on that of the present; here, however, it is suggestive that of the six verbs for which such futures are attested, four are associated with lengthened-grade formations elsewhere. Thus, *rethid* 'runs' (future stem *ress-) and *techid* 'flees' (fut. *tess-) form suffixless preter-

¹⁴The inflection of the Old Irish *s*-future is fundamentally the same as that of the other two sigmatic categories, the *s*-preterite and the *s*-subjunctive; all three show a mixture of thematic and athematic forms. Proof that in the *s*-future it is the thematic forms which are old is furnished, e.g., by the inflection of the related "ē-future" (type *célaid* 'will hide' < *keklāti < kīklāseti): here intervocalic *-s- was lost so early that the 3 sg. escaped the otherwise regular replacement of *-seti by *-sti.

¹⁵The Irish unreduplicated *s*-future must have undergone early thematization under the influence of the normal reduplicated future and the *s*-subjunctive, since roots ending in a velar show the intervocalic treatment of *-ks- in this formation (cf. future stem *aness- < *aneg-s- + vowel vs. preterite stem *anecht-* < *aneg-s-t). Another category which belongs here despite its synchronically thematic appearance is the Latin type *faxō* 'I will do', which has either been mechanically thematized from *fak-s-mi or continues the corresponding "short vowel" subjunctive.

¹⁶The type in *-sje/o-, for example, may originally have been confined to the participle, as in Balto-Slavic; Ved. *dāsyāti* would then represent a back-formation from the participle *dāsyánt-*.

ites 3 sg. *ráith* (< **rōte*) and *táich* (< **tōke*), with *ō*-grade; *at reig* 'arises' (fut. **ress-*) is based on a root which underlies a "Narten" present in Vedic Sanskrit (cf. *rāṣṭi* 'rules' < **h₃rēg-ti*); *saidid* 'sits' (fut. **sess-*) corresponds to a lengthened-grade iterative-causative **sōd-(e)ie/o-* in two languages (cf. OIr. *sáidid* 'implants', OCS *saditi* 'set, plant'), a present **séd-ti* (cf. Lith. *sėda* 'sits down', 1 sg. *sėdmi* (Ruhig)), and a variety of apophonically similar nominal forms (cf. Lat. *sēdēs* 'seat', OE *sōt* 'soot', etc.). A growing body of evidence indicates that lengthened-grade presents, perfects and iterative-causatives were derivationally related in Proto-Indo-European; the groundbreaking study, focusing mainly on the iterative-causatives, is by Klingenschmitt, *KZ* 92 (1978) 1ff. It is thus *a priori* likely that the marginal Old Irish future class consisting of **ress-* (: **h₃rēg-*), **ress-* (: **ret-*), **sess-* and **tess-*, together with **aness-* (: Celt. **aneg-* 'protect') and **less-* (: **legh-* 'lie'), represents the corresponding desiderative formation — a conclusion which accords perfectly with the evidence for an acrostatic paradigm provided by Baltic **-(s)nti*. We may accordingly reconstruct an *s*-present 3 sg. **rét-s-ti*: 3 pl. **rét-s-nti* for the common ancestor of the Celtic, Baltic and Osco-Umbrian forms.¹⁷ It is interesting to note that the characteristically deponent Greek future in **-se/o-* can be derived by simple thematization from the corresponding middle, which would have had a paradigm with consistent *ě*-vocalism (3 sg. **rét-s-or*, etc.). From a purely formal point of view, the relationship of OIr. *lee* 'will lie' (< **légh-s-ti* for **légh-s-ti*) to Gk. *léksetai* 'will lie down' is exactly comparable to that of Ved. 3 sg. act. *stáuti* 'praises' (< **stéu-ti*) to 3 sg. mid. *stávate* 'id.', thematized from *stáve* (< **stéu-oi*).

Not all sigmatic presents in the daughter languages are desideratives or futures. Hittite, for example, has two groups of forms which fit into neither category — the highly productive inchoatives or "fientives" in *-eš(š)-* (type *daššešzi* 'becomes strong'; cf. Oettinger, *op. cit.* 238ff.), and the much less common iteratives in *-šš(a)-* (type OH *iššai* 'performs'; Oettinger, 507ff.). The former class has been shown by Watkins, *TPS* 1971 [1973] 51ff., to be based on the IE denominative stative type in **-ē* < **-eh₁-* seen in Lat. *rubēre* 'be red'; an allied formation, although with **-ske/o-* for simple **-s-*, is found in the corresponding Latin inchoative class in *-ēscere* (*rubēscere*

¹⁷No light is shed on the original ablaut pattern by the Italic forms, which are included here solely because of their athematic inflection. On the other hand, it is just conceivable that a petrified lengthened-grade desiderative is preserved in the problematic Younger Avestan form *nāismī* 'I abuse, revile'; see, for discussion of the alternatives, Kellens, *Le verbe avestique*, 90–1 (Wiesbaden 1984).

'turn red', etc.). The structure of the šš(a)- iteratives, which are mainly associated with roots in final *-eh₁-, is less clear: ǵšš(a)- itself, which serves as the synchronic iterative of ie-/iya- 'do' (< *ǵeh₁- or *h_xǵeh₁-), is probably best taken from a reduplicated stem *ǵǵih₁-s- or *h_x(ǵ)ǵih₁-s-.¹⁸ Like the *-s- of the daššēšzi-type, this "iterative" *-s- has a doublet *-s̄ke/o-, with productive reflexes in Hittite (cf. *akkiškittari* 'there is dying, people die', *úiškitta* 'comes (repeatedly)', etc.) and Ionic Greek (cf. *phéreske* 'would bear', *kalésketo* 'would call', etc.). The substitution of *-s̄ke/o- for *-s- is also found in a few inherited presents with a clearly desiderative sense, e.g., *pǵ(k)-s̄ke/o- 'ask' (cf. Ved. *pǵcchāti*, Lat. *poscit*, OHG *forscōn*, etc.), *h₂(ē)is-s̄ke/o- 'seek, ask, wish' (Ved. *icchāti*, Arm. *hayc'em* (cf. Klingenschmitt, *Das Altarmenische Verbum*, 63f. (Wiesbaden 1982)), Lith. *ieškóti* (pres. *ieška*), OCS *iskati*, OHG *eiscōn*), and *uǵh_x-s̄ke/o- or *u(ē)n-s̄ke/o- 'wish' (Ved. *vāñchati*, OHG *wunscen*).¹⁹ Note also Arm. *k'alc'* 'hunger' < *suǵ-s̄k- (: Av. *x^var-* 'eat', **syel-* in Gmc. **swelgan*, NE *swallow*).

The desiderative, inchoative and iterative values of *-s- are semantically very close. Modern European languages use desiderative expressions with inanimate or impersonal subjects as a kind of metaphor for the inchoative: sentences like "the sun is wanting to come out" or "es will Nacht werden" have very nearly the same meaning as Lat. *lūcēscit* and Hitt. *nanakušzi*, respectively.²⁰ It is at least possible that, starting from locutions like these, *-s- and *-s̄ke/o-, which were originally purely desiderative, acquired a secondary inchoative value within the PIE period. Indeed, the argument can be pursued further, for the iterative sense of *-s- and *-s̄ke/o- can be derived from the desiderative as well. An obvious channel for the semantic development desiderative > iterative would have been the typologically common tendency of IE languages to employ the future or desiderative, inflected as a preterite, in the role of a habitual past — a usage familiar from the preterital value of NE *would* beside *will*. The fact that inchoatives and iteratives can in principle arise from desideratives does not, of course, prove that they

¹⁸ Similarly perhaps *šišša-* (: *šāi-* 'press') < **sí-sh₁-s-* and *mešša-* (: *māi-* 'prosper') < **mí-mh₁-s-*; *ǵalzešša-* (: *ǵalzāi-* 'call') may be analogical to these. Luv. *pipišša-* 'give (iter.)' is a reduplicated form of the postulated type, but it is impossible to tell whether it properly belongs with the non-iterative stem *piya-* or with the reduplicated **pipiya-* presupposed by Lyc. *pibije-*.

¹⁹ The Germanic forms are actually denominatives from desiderative abstracts in **skō(n)* or **ska-* (< **skā* and **sko-*, respectively). These are likewise inherited; cf. Ved. *pǵcchā*, *icchā*, Class. Skt. *vāñchā* beside OHG *forsca* (*-ōn-), *eisca* (*-ōn-), *wunsc* (*-a-; but note Olcel. *ósk* < **wunskō*). See further note 22.

²⁰ The verb *nana(n)kuš-* 'grow dark' is discussed by Watkins, *MSS* 45 (1985) 249ff.

actually did so in Proto-Indo-European. Nevertheless, the thoroughgoing morphological parallelism of the three groups of sigmatic formations provides important circumstantial evidence for deriving them from a common source. Simple **-s-* is associated with the longer variant **-s̄ke/o-* in its desiderative, inchoative and iterative functions alike; the athematic inflection of the desiderative/future **rét-s-ti* recurs in the denominative inchoatives in **-eh₁-s-ti*; the reduplicated desideratives of the *cíkitsati*-type have a close formal counterpart in Hitt. *ĩšš(a)-*, particularly if the *hi*-conjugation inflection of the latter verb is ultimately identical with the thematic inflection of Indo-Iranian and Celtic.²¹ Given all these facts, it is tempting to conclude that the *s*-presents of the daughter languages rest on a single original suffix.

We are now in a better position to evaluate the status of the present **gnē-s-*. The **-s-* of this form is clearly of the "inchoative" type; like the related **-s̄ke/o-* of Lat. *gnōscō* and Gk. *gignōskō*, its grammatical function is to derive a stem with processual meaning from an inherently punctual root. An athematic active paradigm is virtually guaranteed by the inflection of Hitt. *ganešzi*. Theoretically this paradigm could have had either the normal (**e : zero*) or the acrostatic (**ē : *ě*) ablaut pattern; the issue is decided by the apophony of the parallel desiderative type **rét-s-ti*, pl. **rét-s-ṽti*, which imposes **gnéh₃-s-ti*, pl. **gnéh₃-s-ṽti* as the IE preform. Note that since the choice of "Narten" ablaut is dictated by purely morphological considerations, the development of **gnéh₃-s-* to **gnēs-* in Hitt. *ganeš-* and Toch. A *kñas-* assumes the status of a major piece of evidence for the correctness of Eichner's non-coloration rule.

Possible further traces of the present **gnéh₃-s-* are found in Albanian and Armenian. Alb. *njoh* 'I know' can be taken by regular sound change from an earlier **gnēs̄kō* (so Pokorny, *IEW* 376); such a preform, if genuine, could have arisen as a compromise between **gnéh₃-s-* and a zero-grade *s̄ke/o-* present **gṽh₃-s̄ke/o-* (cf. perhaps Lith. *pa-žĩstu*, inf. *-žĩnti* 'confess'). But the facts admit of more than one interpretation, and if Klingenschmitt, *op. cit.*, 68, is correct in deriving *njoh* from **jnās̄cō*, with **-nā-* directly from **-nh₃-*, the assumption of *ē*-vocalism is unnecessary.²² More important is

²¹I have argued elsewhere (in E. Neu, W. Meid, eds., *Hethitisch und Indogermanisch*, 79ff. (Innsbruck 1979)) that the Hittite *hi*-conjugation is the reflex of an IE present type characterized in the singular by the endings **-h₂e*, **-th₂e*, **-e*. Since such presents are most often represented by thematic forms in the non-Anatolian daughter languages (cf. Hitt. *kānki* 'hangs (tr.)' = Gmc. **hanhiþ* 'id.'), the *hi*-inflection of *ĩšš(a)-* and the thematic inflection of the *cíkitsati*-desideratives can be derived from a common "*h₂e*-conjugation" prototype.

²²Cf. also Pedersen, *KZ* 36 (1929) 339. Regardless of how the Albanian form is ex-

the testimony of Arm. *caneay*, aorist of *čanač'em* 'I know'. Klingenschmitt, 283–4, rightly traces this form to a stem **cani-* extended by the aorist passive marker *-a-*, a morpheme abstracted from the 3 pl. middle ending **-anto* < **- \widehat{gto}* . He further takes pre-Arm. **cani-* from an earlier sequence of 2 sg. impv. **can(u)* < * $\widehat{g\bar{u}\bar{o}}$ + preverb *i*. The latter derivation, however, is scarcely credible: not only is there no evidence for such a preverb anywhere else in the paradigm of *čanač'em*, but the supposedly parallel case of 2 sg. impv. *ari* 'rise!', which Klingenschmitt takes from a basic **ar* followed by the same *i* (cf. aor. *y-areay* 'rose', pres. *y-ařnem*), is better referred to a root * h_3reih_1- (: Gk. *orínō* 'I stir up', Hitt. *arāi* 'rises'; cf. *Annual of Arm. Ling.* 2 (1981) 15–20). In fact, the obvious immediate source of **cani-* is * $\widehat{g\bar{u}\bar{e}}$, the phonetic variant of * $\widehat{gn\bar{e}}$ - produced by "Lindeman's Law" from an underlying monosyllabic preform of the type 3 sg. * $\widehat{gn\bar{e}h_3-t}$ or * $\widehat{gn\bar{e}h_3-s-t}$ (cf. *NTS* 20 (1965) 38ff.). There is no phonological basis for determining whether the stem *canea-* ultimately rests on a sigmatic 3 pl. **canis-anto* or an *s*-less **cani(i)-anto*, both of which would have yielded the attested *canean*. Morphologically, however, the former alternative is much more attractive: an original **cani(i)-anto* would necessitate the assumption of an otherwise undocumented lengthened-grade imperfect or root aorist (cf. the discussion of *egēra* above), while a preform **canis-anto* would merely confirm the presence in a third IE language of the sigmatic stem already familiar from Hittite and Tocharian. From a functional point of view, the development of the present/imperfect * $\widehat{gn\bar{e}h_3-s}$ to an aorist in Armenian would have been no more remarkable than the development of, e.g., IE **ebheret* (impf.) 'carried' to Arm. *eber* (aor.) 'id.'²³

Our survey of the evidence for a PIE * $\widehat{gn\bar{e}}$ - began with a brief discussion of Germanic **knējan*, and we can now better assess the status of this form. In principle, a pre-Germanic * $\widehat{gn\bar{e}ie/o}$ - could have come about in

plained, there is reason to suspect that ablauting *s*-presents may have influenced the vocalism of *sk*-presents in other cases. The hesitation between Ved. *icchāti*, Gmc. **aiskōn* and Balto-Slavic *ěiskō*, for example, suggests the possibility of contamination between an original * $h_2is-s\bar{k}e/o-$, with zero-grade, and a parallel ablauting * $h_2\bar{e}is-s-/h_2eis-s-$. An *s*-present * $\widehat{u\bar{e}n-s}/\widehat{u\bar{e}n-s}$ - may have left an apophonic trace in Ved. *vāñchati*, if the seeming agreement of this form with Middle Dutch *wenschen* is not illusory.

²³To be sure, a sigmatic **canis-anto* would be quite isolated in Klingenschmitt's system, since he regards the bulk of the aorists in *-eay* as continuing the same morphological type as the Greek aorist "passives" in *-ēnai* (282). But there is no reason why this comparison should be preferred to the possible equation with the Greek type in *-ēsai* (*anthēsai* 'bloom', etc.); indeed, a derivation of *-ean* from **-ēs \widehat{gto}* is marginally more attractive, since the "ē-aorist" seems originally to have lacked middle forms.

many ways: by direct inheritance from a lengthened-grade *ie/o*-present; by thematization from an ablauting *i*-present **gnēh₃-i-/*gnēh₃-i-* (cf., with different apophony, the type Hitt. *dāi* 'puts', 3 pl. *tiyanzi*);²⁴ by the secondary addition of **ie/o-* to a "Narten" present **gnēh₃-/*gnēh₃-* or — Peters' suggestion — to an acrostatic aorist. None of these scenarios can be absolutely excluded. While no other IE language actually preserves a stem-form **gnēh₃-*, **gnēh₃-i-* or **gnēh₃-ie/o-*, the existence of the lengthened-grade *s*-present **gnēh₃-s-* makes it reasonable, or at least not unreasonable, to suppose that **gnēh₃-* may once have figured in other acrostatic paradigms as well (cf. the pattern OIr. *reiss* (< **h₃rēg-s-*): Ved. *rāṣṭi* (< **h₃rēg-*)). Nevertheless, it is simpler to take **knējan* as a purely Germanic creation. The synchronic grammar of Germanic is notoriously "regular", the great majority of archaic, but descriptively anomalous, morphological alternations having been eliminated in favor of a few productive patterns. The only tense stem of 'know' with solid comparative support elsewhere is the preterite **keknō(w)-* (cf. OE *cnēow*), a reduplicated perfect traditionally connected with Ved. *jajñau* 'I know' and Lat. *gnōuī* 'id.'²⁵ It is significant that **knējan* is one of only two presents that might regularly have stood beside **keknō(w)-*, the other being **knōjan*. Nothing would have been more natural than for Germanic to substitute **knējan* or **knōjan* for an inherited present of some more archaic type, such as a vanished cognate of Ved. *jānāti* or Lat. *gnōscō*. The question of interest is why, faced with a choice between **gnē-ie/o-* and **gnō-ie/o-*, Germanic ignored the analogical pressure of the full-grade *gnō* < **gnēh₃-* and selected the form with *ē*-vocalism, while Slavic, its neighbor to the east, more conventionally opted for **-ō-* (cf. OCS *znajō*).²⁶ Here we can only speculate. The Slavic form was presumably created on the basis of the root aorist 1 sg. *zna(xǔ)*, 2, 3 sg. *zna* (= Gk. *égnō*). In Germanic, on the other hand, it is just possible that the original present of **gnēh₃-* was **gnēh₃-s-ti*, as in Hittite, and that the vocalism of the resulting **knēsan*, pret. **keknō(w)-*, was simply maintained unchanged when **ie/o-* was mechanically substituted for **-s-*. An equally viable solution — the road not taken — would have been the generalization of **-s-* to the preterite; it is perhaps worth noting that this is what seems to have happened in the case

²⁴In theory, we would then derive **knējan* and OCS *znajō* from different ablaut grades of the same paradigm. But cf. note 26.

²⁵The rationale for the **μ*-element in these forms, of course, remains obscure.

²⁶Like *knējan*, *znajō* is too predictable in its synchronic context to be a plausible archaism; the absence of a comparable *ie/o*-present in Baltic strengthens the impression that it is an innovation.

of $\widehat{bl\bar{e}san}$ (< $\widehat{bl\bar{e}h_2-s}$ -), pret. $\widehat{bebl\bar{o}s}$ 'blow' (cf. OE *blæsan*, *blēos*, OHG *blāsan*, *blios*, etc.).²⁷ In any event, the preservation of \widehat{s} - in the present alone would have been virtually unthinkable: the only *s*- and *sk*-presents preserved in Germanic are those in which the sigmatic element has lost its identity as a segmentable morpheme.

The forms of 'know' with \bar{e} -vocalism are thus instructive from both a morphological and a phonological point of view. Outside Germanic, where $\widehat{kn\bar{e}jan}$ is almost surely secondary, the only reliable evidence for a root form " $\widehat{gn\bar{e}}$ -" comes from the *s*-extended present stem $\widehat{gn\bar{e}s}$ -, which is attested with certainty in Hittite (*ganeš*-) and Tocharian (A *kñas(äs)*-), and with a fair degree of probability in Armenian (*canea*-). The origin of the \bar{e} - in these forms cannot, of course, be determined by direct inspection. Its source must be inferred from the apophonic structure of the formally similar *s*-presents which underlie the athematic unreduplicated futures of Baltic, Celtic and Italic; for these there is the strong presumption of an acrostatic ablaut pattern, with lengthened grade in the active singular and full grade elsewhere. It follows that the Proto-Indo-European paradigm of $\widehat{gn\bar{e}h_3-s}$ - was $\widehat{gn\bar{e}h_3-s-ti}$, pl. $\widehat{gn\bar{e}h_3-s-nti}$, with an \bar{e} - in the strong forms that resisted laryngeal coloration and yielded Hitt. *-e*-, Toch. A *-a*- and Arm. *-i*-. The reflexes of this paradigm constitute a genuine word equation — one which not only contributes materially to the overall body of evidence for Eichner's Law, but which further allows us to generalize the rule, already probable for long vowels in the neighborhood of $\widehat{h_2}$, to the case of a following $\widehat{h_3}$.

²⁷The vocalism of $\widehat{bl\bar{e}san}$ has possibly influenced that of the nearly synonymous $\widehat{bl\bar{e}jan}$ (OE *blāwan*, etc.); the presence of root-final $\widehat{h_2}$ - is suggested, though not conclusively shown, by Lat. *flō*, *-āre* 'id.'. That $\widehat{kn\bar{e}jan}$ is secondary was seen already by Rix, *Krat.* 14 (1969) [72] 184-5, who does not, however, explain the choice of the root form $\widehat{kn\bar{e}}$ - rather than $\widehat{kn\bar{o}}$ -.