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Inhaltsverzeichnis

What happened to the perfect in Hittite?
A contribution to the theory of the h_2e-conjugation[*]

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Abstract: The present author and others have maintained that the PIE resultative-stative perfect is historically a kind of reduplicated present. It is argued here that this view is incorrect, and that both the meaning of the perfect and its formal position in relation to other verbal categories suggest that it was not originally a present, but a type of reduplicated aorist. Evidence from Anatolian corroborates this finding.

1 *ḫi*-conjugation, h_2e-conjugation, perfect

The *ḫi*-conjugation, with its distinctive endings 1 sg. pres. *-ḫi* (pret. *-ḫun*), 2 sg. *-ti* (pret. *-ta*), 3 sg. *-i* (pret. *-š*), is historically the most problematic category in the Hittite verbal system. There are two main theories as to its origin. The "perfect theory," classically formulated by Eichner (1975) but in fact going back to the early years of Hittite philology, holds that the original core of *ḫi*-verbs was made up of canonical perfects with **o* : zero ablaut, resultative-stative meaning, and the perfect endings (1 sg. **-h₂e*, 2 sg. **-th₂e*, 3 sg. **-e*, 3 pl. **-(é)rs*). The problems with this approach are well known: the semantics are wrong (*ḫi*-verbs have same range of meanings as *mi*-verbs); the formal match is poor (most *ḫi*-verbs are unreduplicated and many are built to characterized present stems in *-šš(a)-*, *-i-*, *-aḫḫ-*, etc.); and there are few word equations with well-documented perfects elsewhere in the IE family. See HIEV: 7–17 for a full critique.

Since the late 1970's, and especially in HIEV, I have argued for the "h_2e-conjugation theory," according to which various types of active presents and aorists, as well as the perfect itself, took the (inaccurately named) "perfect" endings in the parent language. Such "h_2e-conjugation" forms yielded *ḫi*-conjugation verbs in Anatolian and Hittite. Here belong, *inter alia*,

1) root presents with **o* : **e*/zero ablaut[1] ("*molō*-presents"), e. g., **mólh₂-e* : **mélh₂-n̥ti* 'grind(s)' (cf. Hitt. 1 sg. *mallaḫḫi*, 3 sg. *mall(a)i*);[2]

2) *i*-presents, of two types: i) with **e* : zero ablaut, e. g., **dʰéh₁-i̯-e* : **dʰh₁-i̯-énti* 'suck(s)'; and ii) with *ē* : *e* (Narten) ablaut, e. g., **spéh₂-i̯-e* : **spéh₂-i̯-n̥ti* 'prosper(s)' (cf. Hitt. 3 sg. *išpāi* 'eats to satiety');[3]

3) presents with *i*-reduplication and zero grade of the root, e. g., **mímn-e* : **mímn-n̥ti* 'stands firm' (cf. Hitt. 3 sg. *mimmai* 'refuses');[4]

4) *s*-presents, of two types: i) with $*o : *e$/zero ablaut, e. g., $*h_2u\acute{o}g\text{-}s\text{-}e : *h_2u\acute{e}g\text{-}s\text{-}\underset{.}{n}ti$ 'grow(s)';[5] and ii) with *i*-reduplication and zero grade, e. g., $*k^u\acute{\imath}k^uit\text{-}s\text{-}e, *\text{-}s\text{-}\underset{.}{n}ti$ 'seek(s) to understand (*vel sim.*)';[6]

5) denominative factitives in $*\text{-}e\text{-}h_2\text{-}$, e. g., $*n\acute{e}ue\text{-}h_2\text{-}e, *\text{-}e\text{-}h_2\text{-}\underset{.}{n}ti$ 'make(s) new' (cf. Hitt. 3 sg. *newaḫḫi*);[7]

6) root aorists with $*o : *e$/zero ablaut, mostly associated with roots denoting a change of state, e. g., $*u\acute{o}h_2\acute{g}\text{-}e : *u\acute{e}h_2\acute{g}\text{-}\underset{.}{r}s$ 'broke (intr.)' (cf. Hitt. 3 sg. *wāki* 'bites');[8]

7) root aorists with $*o : *e$/zero ablaut, formally identical to the above, but associated with activity verbs and partly suppleted by sigmatic forms, e. g., $*n\acute{o}ih_1\text{-}e (\rightarrow *n\acute{e}ih_1\text{-}s\text{-}t) : *n\acute{e}ih_1\text{-}\underset{.}{r}s$ 'led' (cf. Hitt. 3 sg. pres. *nāi* 'leads', pret. *naiš*).[9]

Here too originally belonged two highly visible formations that were thematized within PIE, but which retain a h_2e-conjugation 1 sg. pres. in $*\text{-}o\text{-}h_2 < *\text{-}o\text{-}h_2e$:[10]

8) full-grade root-accented thematic presents, e. g., 1 sg. $*b^h\acute{e}r\text{-}o\text{-}h_2$, 2 sg. $*\text{-}e\text{-}si$, 3 sg. $*\text{-}e\text{-}ti$ 'bring';[11]

9) zero-grade thematic presents and (though lacking a 1 sg. in $*\text{-}o\text{-}h_2$) aorists, e. g., pres. $*ui\acute{k}\text{-}\acute{e}\text{-}ti$ 'enters', aor. $*uid\text{-}\acute{e}\text{-}t$ 'found'.[12]

The conceptual backdrop to the h_2e-conjugation theory is the idea, rooted in work by Kuryło-wicz (1932), Stang (1932), and Pedersen (1938: 80–86), and quite widely shared in one form or another, that pre-Proto-Indo-European originally had two diatheses or "conjugations."[13] One of these was the "active," functionally unmarked and characterized by endings that included the familiar 1 sg. in $*\text{-}m$, 2 sg. in $*\text{-}s$, 3 sg. in $*\text{-}t$, and 3 pl. in $*\text{-}(\acute{e})nt$.[14] The other was what I have called the "protomiddle," with a 1 sg. in $*\text{-}h_2e$, 2 sg. in $*\text{-}th_2e$, 3 sg. in $*\text{-}e$, and 3 pl. $*\text{-}(\acute{e})rs$. No attempt was made to spell out the precise value of the protomiddle in HIEV, other than to state that the protomiddle endings must have been "at least broadly comparable in function to the middle endings of Greek and Indo-Iranian" (59). According to the HIEV account, the "true" middle emerged from the protomiddle by a process of functional specialization and formal renewal within PIE. By the time of the late protolanguage, the familiar middle, with its well-known range of "internal" (reflexive, reciprocal, passive, stative, self-benefactive) functions, had assumed its conventionally reconstructed form, marked by a number of formal innovations vis-à-vis the protomiddle. Conspicuous among these innovations were

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5   *Ibid.*, 75, 133. There are only a few lexicalized examples of this type.

6   *Ibid.*, 132–139, where it is argued that the Hittite iteratives in -*šš(a)*- (e. g., *iššai, -anzi* 'perform') were formally of this type as well.

7   *Ibid.*, 139–141.

8   *Ibid.* 153 ff. This is the so-called "stative-intransitive aorist," which will figure importantly below. The transitive meaning in Hittite is discussed in section 3. I here write the root as $*ueh_2\acute{g}$- rather than $*ua\acute{g}$-, the reconstruction favored in HIEV.

9   The so-called "presigmatic aorist"; *ibid.*, ch. 7.

10 *Ibid.* 60–63.

11 An apparent Anatolian case is HLuv. *tamari* 'builds' < $*d\acute{e}mh_2\text{-}e\text{-}ti$. Building on Watkins 1969 *passim*, I provisionally take the thematic vowel of full-grade thematic presents from a former h_2e-conjugation 3 sg. active in $*\text{-}e$. The corresponding athematic middle ending is seen in OIr. ·*berar* 'is carried' < $*b^h\acute{e}r\text{-}or$.

12 Cf. Jasanoff 2017 and section 7 below.

13 For an account of the early history of the "two-series" idea see Watkins 1969: 66 f.

14 For both practical and substantive reasons, the 1–2 pl. and the dual will mostly be ignored in what follows.

1) the creation of the *o*-colored third person endings *-*o* (3 sg.) and *-*ro* (3 pl.) and their later variants *-*to* and *-*nto*;[15]

2) the introduction of the specifically middle endings *-*med^{h}h$_2$* and *-*d^{h}ue* (*vel sim.*) in the 1 pl. and 2 pl., respectively, with corresponding developments in the dual;

3) the use of *-*r* as a *hic et nunc* particle in the present; and

4) the abandonment of paradigm-internal ablaut.

Not all protomiddles, however, were renewed as "true" middles. Of those that were not, the larger and more varied class consisted of presents and aorists that continued to inflect with the unaltered protomiddle endings in late PIE but were reinterpreted as h_2e-conjugation actives. Such forms became the core of the Hittite and Anatolian ḫi-conjugation; the present *mólh$_2$-* : *mélh$_2$-*, which may originally have meant 'grind away (at)' (see below), but which clearly meant simply 'grind' in late PIE, was a typical case. Outside Anatolian, the characteristic h_2e-conjugation inflection was lost, most frequently through thematization (cf. Lat. *molō* 'grind', Go. *malan*, Lith. *malù*, etc.). From the evidence of Hittite and, indirectly, the other branches, it can be inferred that h_2e-conjugation presents eventually introduced a distinction between primary (i. e., *hic et nunc*) forms in *-*h$_2$ei*, *-*th$_2$ei*, *-*e*, ... *-(é)nti* from secondary (i. e., imperfect and "injunctive") forms in *-*h$_2$e*, *-*th$_2$e*, *-*e[t]*, ... *-ér* ~ *-r̥(s)*.[16]

Distinct from the typical h_2e-conjugation presents and aorists just described was the particular class of unrenewed protomiddles we know as the perfect. The perfect, formally characterized by *e*-reduplication and *o* : *e*/zero ablaut, was functionally a resultative-stative present (e. g., 3 sg. *memón-e* 'has in mind (from having brought to mind)', *b^{h}eb^{h}óud^h-e* 'is awake (from having awoken)'). A link between the perfect and the middle is evident from pairs like Gk. perf. *pépoithe* 'believes, trusts' : pres. mid. *peíthetai* 'comes to believe, is persuaded' (vs. act. *peíthei* 'persuades'), perf. *ólōle* 'is lost' : pres. mid. *óllutai* 'perishes' (vs. act. *óllusi* 'destroys'), or Ved. perf. *vavárdha* 'is/has grown great' : pres. mid. *várdhate* 'increases, grows great' (vs. act. *várdhati* 'augments, makes great'). Yet the direct reflexes of the perfect, where they appear in the daughter languages, are grammatically aligned with the active and sometimes opposed to a synthetic or periphrastic perfect middle or passive.[17] Unlike ordinary h_2e-conjugation actives, the perfect in the parent language made no distinction between *hic et nunc* forms in *-*h$_2$ei*, *-*th$_2$ei*, etc. and secondary forms in *-*h$_2$e*, *-*th$_2$e*, etc.; the imperfect/injunctive of the perfect (= pluperfect), where there is one, is differently formed.

The h_2e-conjugation framework undoubtedly provides a better account of how Hittite fits into the picture of the IE verb than the perfect theory. But it raises problems of its own. Our focus here will be on three points that are still obscure: 1) How did the perfect acquire its distinctive resultative-stative meaning? 2) Why was it treated differently from ordinary h_2e-conjugation presents and aorists? and 3) What became of the perfect in Hittite? The search for answers to these questions will bring us face to face with a range of other issues.

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15 A core assumption of two-series models is that the perfect and middle endings were originally identical, and that *-*to* and *-*nto* were later forms of *-*o* and *-*ro*, respectively. The traditional older position, influentially upheld by Rix (1988) and presupposed in LIV², distinguishes separate "stative" endings from those of the active and middle.

16 HIEV: 86–90. I reconstruct *-*et* for the 3 sg. secondary ending; here and below, the notation *-*e[t]* is intended to show that this was etymologically *-*e* + "clarifying" *-*t*, taken from the *m*-series.

17 Indo-Iranian and Greek have an inflected perfect middle, with a morphological counterpart in Old Irish (e. g., *ro·génair* 'has been born' < *-*gegnor* (+ palatalization) ≅ Ved. *jajñé* 'id.'). Latin has a periphrastic perfect passive (*factum est* 'has been done', etc.).

2 Reduplicated perfects in Hittite?

Complicating the question of the fate of the perfect in Anatolian is the fact that Greek and Indo-Iranian have present-like perfects that are neither resultative nor stative. In Greek these include the onomatopoetic verbs *mémēke* 'bleats', *mémūke* 'lows' (of cattle), *bébrūkhe* 'roars', and *kékrāge* 'screams', along with the semantically related *verba sonandi ánōge* 'orders' and *gégōne* 'shouts'. Similar Indo-Iranian forms are Ved. *ā́ha*, OAv. *ādā* 'says' and Ved. *mimā́ya* 'roars', to which can be added others with long or intensive reduplication, such as 3 pl. *vāvaśúr* 'bellow' (*vāś-*), *nonā́va* 'roars', *lelā́ya* 'trembles', etc.[18] These non-resultative, non-stative iteratives and *verba sonandi*, which we will informally call "iterative-intensive perfects" regardless of their reduplication type, are best not seen as perfects at all. In Greek, the two "perfect" types are morphologically distinct formations. The preterite, or pluperfect, of an ordinary stative perfect is characterized by special endings, including a 1 sg. in -*ea* (e. g., *pepoíthea*), a 3 sg. in -*ei*/-*ee* (*epepoíthein*) and a 3 pl. in -*(e)san* (*epepoíthesan*, Hdt.); for the prehistory of these forms, which probably rest on an older pluperfect type $^*(e)pepoíth$-$m̥$, *-s, *-t, etc., see now Jasanoff and Katz 2017. The iterative-intensive perfects *mémēke*, *ánōge*, and *gégōne*, by contrast, have thematic preterites alongside their regular pluperfects in Homer: cf. 3 pl. *(e)mémēkon*; 1 sg./3 pl. *ánōgon* (*ḗn-*), 3 sg. *ánōge* (*ḗn-*) beside 1 sg. -*ea*, 3 sg. -*ei*; 3 sg. *(e)gégōne* beside -*ei(n)*. These thematic forms, whatever their pedigree in IE terms, cannot be very recent, since they also occur outside Attic-Ionic and are in the process of being replaced by "regular" pluperfects in Homer.[19] The simplest explanation is that *mémēke*, etc. were never perfects in the strict sense at all, but simply a subclass of semantically marked reduplicated h_2e-conjugation presents. Owing to their formal resemblance to perfects, they were drawn into the orbit of the perfect (i. e., not thematized like normal h_2e-verbs) in their *hic et nunc* forms (hence *mémēka*, -*e*, not $^*memḗkō$, *-*ei*), but were thematized in the usual way in the imperfect/injunctive (hence *(e)mémēkon*, -*e*[*t*]).

An iterative-intensive perfect in Hittite is the *ḫi*-conjugation verb *wewakk-* (3 sg. *wewakki*) 'demand, ask for', from the same root (PIE $^*u̯ek$- 'wish') as Hitt. *wēkzi* 'id.'. My earlier analysis of this verb as an ordinary perfect (HIEV: 36–38 and *passim*) can no longer be upheld. Apart from the fact that the root $^*u̯ek$-, being already stative, would hardly have formed a resultative-stative perfect in the parent language,[20] the synchronic function of *wewakk-*, as Oettinger has pointed out (2006: 38–39), is to serve as an iterative of *wek(k)-*. The correct analysis of *wewakki* is therefore as a h_2e-conjugation present of the same type as Gr. *mémēke* and Ved. *mimā́ya*, forming a word equation with Ved. 3 pl. *vāvaśuḥ* if the latter form means 'wish' as well as 'bellow'.[21] The preserved -*e*- in *wewakki* and in the parallel *mēmai* 'speaks', which (*pace* Kloekhorst 2008: 575) almost certainly forms a word equation with Ved. *mimā́ya*, points to another difference between the iterative-intensive and resultative-stative perfects: the accent in the iterative-intensive type was on the reduplication syllable.[22] "Normal" resultative-stative perfects, with accent on the root in the strong forms, are not recognizably attested in Anatolian.

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18   *lelā́ya* and its congeners are discussed by Narten (1981), who considers them to have been back-formed from the imperfect/injunctive of the corresponding intensive presents (pres. *leleti* (Gram.), impf. $^*álelet$). This would certainly have been possible in individual cases, but an inherited nucleus of semantically comparable pairs would have been needed to provide a model.

19   The forms are collected by Tichy (1983: 62 ff.).

20   The point that inherently stative roots did not form resultative-stative perfects is strongly made by Kümmel (2000: 69).

21   On the status of *vāvaśuḥ* 'wish' see Kümmel 2000: 483 ff.

22   From which location it was analogically moved to the root in *lelā́ya*, etc.

3 The meaning of the protomiddle

Surveying the whole h_2e-conjugation scene, one cannot fail to be struck by the wide functional range of the renewed (i. e., synchronically middle) and unrenewed (i. e., synchronically active) reflexes of the protomiddle around the IE family. We find, on the one hand, conspicuously intransitive actual middles like the Indo-Iranian "passive" aorists in 3 sg. *-i, 3 pl. *-ra (e. g., Ved. *áceti* 'appeared') and the related so-called "stative" presents in 3 sg. *-ai (Ved. *cité* 'appears'), both with cognate formations elsewhere.[23] At the other extreme, there are highly transitive h_2e-conjugation formations like the Hittite "*newaḫḫi*-type" ('makes new'; cf. above) and the *molō*-presents, which typically denote vigorous physical activities ('grind', 'chop', 'dig', etc.). Synchronic middle status is no guarantee of middle-like meaning: Hittite, for example, famously has transitive deponents in 3 sg. *-a(ri)* with meanings like 'protect' (*paḫša*), 'split' (*iškallāri*), 'cut off' (*tuḫša*), and 'hit' (*ḫatta*).[24] Sometimes a single protomiddle-descended form is transitive in one language and intransitive in another. Thus, the perfect *$\acute{g}e\acute{g}(ó)nh_1$- means 'is/has been born' in Greek (*gégone*) but 'begot, engendered' in Vedic (*jajā́na*), and the h_2e-conjugation aorist *$\underline{u}(ó)h_2\acute{g}$- means 'bite' in Hittite (3 sg. pres. *wāki*) but 'bloom' in Tocharian (3 sg. subj. B *wākaṃ*).

The problem of why the descendants of the protomiddle vary so markedly between highly middle-like and highly active-like readings is far from trivial. Sometimes the unexpected transitivity of a perfect or h_2e-conjugation form can be attributed to polarization with an actual renewed middle. The Vedic perfect active *jajā́na*, for example, is transitive because it is synchronically opposed to an innovated perfect middle *jajñé* 'is/has been born', which was created to agree in voice with the middle present *jā́yate* 'is (= gets) born'. In HIEV: 172 I used this argument to explain the transitivity of Hitt. *wāki*, invoking polarization with an intransitive middle *$wak(k)āri$ 'is/becomes bitten'. But no such form is actually attested, and even if (as is not unlikely) it once existed,[25] it is reasonable to wonder how much influence it could have had. The possibility of polarization does not arise in the case of the *newaḫḫi*-type, where there is precious little evidence for an intransitive middle at all. Among the *molō*-presents, the core of the type may have been made up of object-demoting (and hence intransitive) frequentatives of the type 'grind (chop, dig) away at' (*ibid.* 145). But this interpretation cannot be extended to *$\acute{k}(ó)nk$- 'hang', which has nothing to do semantically with the "grind/chop/dig" group and yet is decidedly transitive in both Hittite (3 sg. OH *kānki* 'hangs, suspends') and Germanic (Go. *hahan*, -*iþ* 'id.'). Polarization with the middle *$\acute{k}énk$-or or *$\acute{k}\underline{n}k$-ór (cf. Hitt. *gangattari* 'hangs (intr.)', Gmc. class III weak *$hangai[þ]$ 'id.', Ved. (ŚB) *śáṅkate* 'worries'),[26] while not inconceivable in this case, would have to have taken place within the protolanguage itself.

There remains, then, much to clarify about the value of the protomiddle and its devolution into the attested categories of middle, perfect, and h_2e-conjugation. The excursus

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23　The pattern *áceti* : *cité* is extensively documented by Kümmel (1996) within the framework of a "three-series" model of the PIE verb (cf. note 15). According to the view taken here, the Indo-Iranian 3 sg. "stative" ending *-ai (secondary *-a) goes back to PIE *-o(r), the older variant of the middle ending *-to(r). The middle *hic et nunc* particle *-r was analogically replaced by *-i in Indo-Iranian, Greek, and Germanic.

24　With Hitt. -*a* < *-or. The forms in this group illustrate the essential meaninglessness of the term "stative" as a semantic characterization of the ending *-(o)r.

25　Compare the parallel pair *lāki* 'bends, lays low' : *lagāri* 'is bent'. The analogue of expected *$wak(k)āri$ is seen in Toch. B pres. *wokotär*, ultimately < *$\underline{u}_eh_2\acute{g}$-ór.

26　On the analysis of Gmc. *-*aiþ* as 3 sg. mid. *-oi, later clarified by the addition of *-ti/*-þi, see Jasanoff 2004: 156–158 and the earlier works there cited. The ablaut of the middle of this particular word is a puzzle. Gmc. *$hangaiþ$ has the *o*-grade of the active but points to final accent; Ved. *śáṅkate* has *e*- or *o*-grade and root accent; Hitt. *gangattari* is multiply ambiguous.

that follows, offered as "healthy speculation" in the tradition of Cowgill (1979: 33 ff., with note 19), is intended as a step in that direction.[27] Early pre-PIE, I conjecture, had an active ("*M-*") conjugation, with ordinary nominative-accusative alignment, and a patient-oriented intransitive ("*H-*") conjugation, in which the agent, if there was one, was expressed by an agentive case not identical with the later instrumental. Some roots and stems were confined to one or the other conjugation; others could inflect both ways. When the agentive case associated with the *H*-conjugation ceased to be usable in any way *other* than to denote the agent of a *H*-conjugation verb, it became in effect an ergative. Speakers at this stage might have said things like

(1)   WEAPON$_{\text{NOM. (= ABSOL.)}}$ $^{*}\acute{k}\acute{o}nk\text{-}e$
       weapon   hang-3sG/H-conj.

i. e., 'the weapon is hanging' (e. g., on a peg). In the presence of an overt agent the construction would have been

(2)   HERO$_{\text{AGENTIVE (= ERG.)}}$ WEAPON$_{\text{NOM. (= ABSOL.)}}$ $^{*}\acute{k}\acute{o}nk\text{-}e$
       hero   weapon   hang-3sG/H-conj.

i. e., 'the hero is hanging (up) the weapon' (e. g., on a peg), but literally and etymologically more like 'at-the-hands-of-the-hero the weapon is hanging (intr.)'. The logical object was demoted to an oblique case in "unergative" sentences like 3):

(3)   WOMAN$_{\text{NOM. (= ABSOL.)}}$ GRAIN$_{\text{OBLIQUE}}$ $^{*}m\acute{o}lh_2\text{-}e$
       woman   at-grain   grind-3sG/H-conj.

i. e., 'the woman is grinding (away at) the grain'. *M*-conjugation verbs, meanwhile, took nominative and accusative arguments in the usual way, e. g.,

(4)   HERO$_{\text{NOM.}}$ MONSTER$_{\text{ACC.}}$ $^{*}g^{uh}\acute{e}n\text{-}ti$
       hero   monster   slay-3sG/M-conj.

i. e., 'the hero is slaying the monster'.

     The overall system at this stage was thus of a split-ergative type. But the ergative alignment associated with the *H*-conjugation was eventually lost. When this happened, nominative-accusative alignment was mechanically extended from the *M*-conjugation to the *H*-conjugation.[28] Sentences 2) and 3) thus became

(5)   HERO$_{\text{NOM.}}$ WEAPON$_{\text{ACC.}}$ $^{*}\acute{k}\acute{o}nk\text{-}e$
       hero   weapon   hang-3sG/H-conj.

(6)   WOMAN$_{\text{NOM.}}$ GRAIN$_{\text{ACC.}}$ $^{*}m\acute{o}lh_2\text{-}e$
       woman   grain   grind-3sG/H-conj.

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27   Which should be seen, as Cowgill intended his account of the prehistory of the *ḫi*-conjugation to be seen, more as an explanatory *mythos* than as a detailed reconstruction of actual events.

28   We can think of the extension as involving a two-step process. First, the morphological ambiguity of *H*-conjugation sentences like 2), where both the agent and patient were 3 sg., would have led juvenile speakers to interpret the verb as agreeing with the agent (HERO$_{\text{ERG.}}$) rather than with the patient (WEAPON$_{\text{ABSOL.}}$). Then, generalization of the misanalysis to sentences like 'I hang up the weapon' (I$_{\text{ERG.}}$ WEAPON$_{\text{ABSOL.}}$ $^{*}\acute{k}\acute{o}nk\text{-}e$) and 'The hero hangs up the weapons' (HERO$_{\text{ERG.}}$ WEAPONS$_{\text{ABSOL.}}$ $^{*}\acute{k}\acute{e}nk\text{-}\underset{\,}{r}s$) led to the replacement of 3 sg. $^{*}\acute{k}\acute{o}nk\text{-}e$ by 1 sg. $^{*}\acute{k}\acute{o}nk\text{-}h_2e$ in the first case and the replacement of 3 pl. $^{*}\acute{k}\acute{e}nk\text{-}\underset{\,}{r}s$ by 3 sg. $^{*}\acute{k}\acute{o}nk\text{-}e$ in the second. Once the verb came to agree everywhere with the logical subject, nominative marking could be extended to all subjects and accusative marking to all direct objects.

In the wake of the replacement of ergative-absolutive by nominative-accusative alignment, a verb form like *$\acute{k}$ónk-e was now intransitive in the presence of one argument (WEAPON *$\acute{k}$ónk-e 'the weapon is hanging') and transitive in the presence of two (HERO WEAPON *$\acute{k}$ónk-e 'the hero is hanging (up) the weapon'). From this point forward we can speak of "active" and "protomiddle" rather than "*M*-conjugation" and "*H*-conjugation." *The distinctive property of the protomiddle was that it was systematically transitive or intransitive according to syntactic context.* When the "true" middle came to be differentiated from the protomiddle at a later stage in the protolanguage, the active : middle contrast was in some cases exploited to distinguish between the transitive and intransitive readings. Thus, the form *$\acute{k}$ónk-e (active, h_2e-conjugation) became exclusively transitive (Hitt. *kānki*, Go. *hahiþ*), while the newer *$\acute{k}$énk-or or *$\acute{k}$n̥k-ór (middle) took over the intransitive sense (Hitt. *gangattari*, etc.). But this step was not predictably or automatically taken. Especially in the aorist, both the transitive and intransitive senses often continued to be associated with the "active" (i. e., h_2e-conjugation) mode of inflection. Thus, the h_2e-conjugation aorist *$u̯óh_2\acute{g}$-e (1 sg. *$u̯óh_2\acute{g}$-h_2e, 2 sg. *$u̯óh_2\acute{g}$-th_2e, etc.) retained both senses in PIE, eventually becoming specialized as transitive in Hittite (*wāki*) and intransitive in Tocharian (*wākaṃ*). There is no evidence at the PIE level for an aorist middle (3 sg.) *$u̯óh_2\acute{g}$-o, *$u̯éh_2\acute{g}$-o, or *$u̯_eh_2\acute{g}$-ó distinct from *$u̯óh_2\acute{g}$-e.[29]

4 Stative-intransitive systems

Many PIE roots denoting punctual entry into a state underlie "stative-intransitive systems" (HIEV: 154 ff.), in which an originally intransitive ("stative-intransitive") root aorist is associated with 1) a perfect, denoting the state proper; 2) a zero-grade root present in 3 sg. *-ór, denoting the process of entering the state; and/or 3) a thematic present in *-$i̯é/ó$-, likewise denoting the process of entering the state, but a younger formation. A familiar, though in some respects atypical example is the family of *men- 'bring to mind, think of':

3 sg. aor. *mén-to[30]	perf. *memón-e	pres. *m(n̥)n-ór	pres. *mn̥i̯é-tor
OAv. *maṇtā*	Gk. *mémone*, etc.	PGmc. *munai[þ][31]	Ved. *mányate*, etc.
Ved. *ámata*		BSl. *minĭ̆-[32]	

The transitivity of the root *men-, which probably originally governed the genitive (cf. Ger. *gedenken*), is no doubt secondary.[33] An exceptional feature of this particular word is the form of the aorist. While *men- and a few other roots of the structure *CeR- (e. g., *mer- 'disappear, die', *h_1er- 'start moving') have normalized middle root aorists of the standard type in 3 sg.

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29 This point is made by Villanueva Svensson (2007–2008), who argues that *$u̯óh_2\acute{g}$-e and similar forms simply *were* the 3 sg. mid. forms in aorists of this type. Distinct from the h_2e-conjugation and/or middle aorist was the *present* middle *$u̯_eh_2\acute{g}$-ó(r), the indirect source of Toch. B *wokotär* (< pre-Toch. *wagotor ← *wagor).

30 For pre-PIE *món-e; cf. below. It is surprising that Rix (LIV²: 435) and the Rix school prefer to set up the preform with the zero grade of Ved. *ámata*, beside which OAv. *maṇtā* is the clear *lectio difficilior*.

31 See note 26. Rix (LIV²), following Harðarson 1998, assigns forms of this type to a putative "essive" in *-$h_1i̯é/ó$-, presupposing a development that I consider phonologically impossible.

32 The stative presents in Baltic -*i*- (Lith. 3 p. *mìni* 'remember(s)' < *-*īti*) and Slavic -*i*- (OCS 3 sg. *mьnitъ* 'believes' < *-*īti*), with infinitives in *-$ēt(e)i$ (Lith. *minḗti*, OCS *mьnĕti*), are likewise assigned by the Rix school to the supposed "essive." In my view (2004: 152–155 and earlier publications), the Balto-Slavic stem vowel was *-*ĭ*-, analogically extracted and generalized from the 3 pl. in *-*intar* (or *-*intai*) < *-*ṇtor*. BSl. *-*ĭ*- was analogically replaced by *-*ī*- (< *-*ei̯e/o*-) in Slavic.

33 Note the LIV² gloss 'einen Gedanken fassen'.

-to ($mén$-to, *$mér$-to, *$h_1ér$-to), stative-intransitive systems more typically have root aorists of the unrenewed h_2e-conjugation type. We thus find
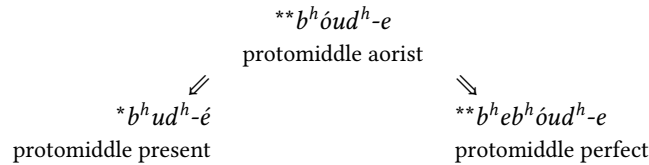
3 sg. aor. *$b^hóud^h$-e	perf. *$b^heb^hóud^h$-e	pres. *b^hud^h-$ór$	pres. *$b^hud^h i̯é$-tor
Ved. *ábodhi*[34]	Ved. *bubudhāná*	Toch. B *pautotär*,[35]	Ved. *búdhyamāna*-
Toch. B subj. V *pauta*-		BSl. *$budĭ$-	

and

3 sg. aor. $u̯óh_2ǵ$-e	perf. *$u̯eu̯óh_2ǵ$-e	pres. *$u̯_eh_2ǵ$-$ór$	(no pres. *$u̯eh_2ǵi̯é$-tor)
Hitt. *wāki*	Gk. *(w)é(w)āge*	Toch. B *wokotär*	
Toch. B subj. V *wākaṃ*			

Other cases (henceforth omitting the largely irrelevant $i̯e/o$-presents) are *$lóuk$-e – *$lelóuk$-e – *luk-$ór$ (: *$leuk$- 'become bright'), *$lóg^h$-e – *$lelóg^h$-e – *l_eg^h-$ór$ (: *leg^h- 'lie down'), *$mórs$-e – *$memórs$-e – *$mr̥s$-$ór$ (: *$mers$- 'forget'),[36] and probably *$sód$-e – *$sesód$-e – *s_ed-$ór$ (: *sed- 'sit down').[37] More examples can be quoted in which one or another term is fortuitously absent. The special case of *$u̯eid$- 'find, recognize, notice', with its semantically and formally anomalous perfect *$u̯óid$-e 'knows', is discussed below *passim* and in note 67.

The logic of stative-intransitive systems becomes clear when we "demedialize" the late PIE forms back into protomiddles, i. e., when we strip the renewed present middles *b^hud^h-$ór$, *$m(n̥)n$-$ór$, *luk-$ór$, etc. of their overtly middle inflection and project them back to the protomiddle forms **b^hud^h-$é$, **$m(n̥)n$-$é$, **luk-$é$, etc. The result, as I first pointed out in HIEV: 173, can be displayed as a schema:

$$**b^hóud^h\text{-}e$$
protomiddle aorist

$$↙ \qquad\qquad ↘$$

*b^hud^h-$é$	**$b^heb^hóud^h$-e
protomiddle present	protomiddle perfect

where the aorist emerges as the obvious derivational basis of the zero-grade present and the reduplicated perfect. The case of *men- is parallel, except that here we must also demedialize the renewed aorist *$mén$-to to **$món$-e:

$$**món\text{-}e$$

$$↙ \qquad\qquad ↘$$

**$m(n̥)n$-$é$	**$memón$-e
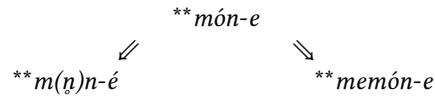
What these examples show is that stative-intransitive systems have to be understood against the background of the pre-PIE verbal system, with its still undifferentiated protomiddle. The same holds for their meaning. Thus, the root *sh_2ei-,[38] normally glossed 'bind', underlies a

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34 With IIr. *-i for *-a; cf. HIEV: 207 f.
35 With o-grade generalized from the class V subjunctive; cf. Jasanoff 2013: 116, note 38.
36 Perhaps originally with the genitive, like *men-.
37 See HIEV: 159–173 for exemplification and further discussion.
38 So correctly reconstructed in LIV². The case for setting up the root as *seh_2-i- or *sh_2eh_1-i-, which I earlier favored, is undercut by Kümmel's arguments (2000: 555–557) for taking Ved. *áva, ví sā*- 'release' from *seh_1-i- 'let go'.

h_2e-conjugation aorist *$sh_2ói$- : *$sh_2éi$- (cf. Hitt. 3 pl. *išḫāi* 'binds', pl. *išḫiyanzi*), a perfect *$sesh_2ói$-e (cf. Ved. *siṣāya*, OAv. *hiš.hāiiā* 'holds bound'), and (perhaps) a stative-intransitive root present *$sh_2ii̯$-ór (cf. Lith. 3 pl. *sỹji*, infin. *syjě̇ti* 'be connected'?).[39] From a purely formal point of view, the protomiddle forms pattern exactly like the stative-intransitive system of *b^heud^h-:

$$**sh_2ói̯\text{-}e$$
$$\swarrow \qquad\qquad \searrow$$
$$**sh_2ii̯\text{-}é \qquad\qquad\qquad **sesh_2ói̯\text{-}e$$
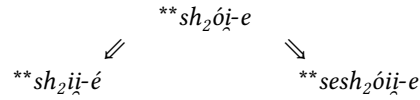
It may seem incongruous to speak of forms meaning 'bind' as constituting a "stative-intransitive system." But the gloss 'bind' is misleading. Under the conception of the pre-IE verbal system outlined above, the root *sh_2ei- would originally have had two series of forms with two sets of meanings: 1) an active (earlier *M*-conjugation) series meaning 'bind', of which Ved. *sináti* 'binds' is a typical later representative, and 2) a protomiddle (earlier *H*-conjugation) series originally meaning 'be(come) attached, bound', but with the transitive reading 'bind' emerging in two-argument contexts. While it is true that the protomiddle-descended forms of this root are prevailingly transitive, this is simply a reflection of the tendency, partly post-PIE, to generalize the more active-like meaning in protomiddles that have not been overtly medialized. The individual forms are worth looking at more closely:

1) h_2e-conjugation aorist *$sh_2ói$-: *$sh_2éi$-. Aorists of this formal type are normally represented by passive aorists in Indo-Iranian (*ábodhi*, etc.) and by transitive *ḫi*-verbs in Hittite (cf. *wāki* 'bites' < *$u̯óh_2ǵ$- : *$u̯éh_2ǵ$-; further *lāki* 'bends' < *$lóg^h$- : *$lég^h$- 'lie down'). The meaning 'binds' is thus entirely expected for Hitt. 3 sg. *išḫāi*. If the aorist system of the root *si*- had survived in Indo-Iranian, the Vedic reflex would have been *$ásāyi$ 'became bound'.

2) Perfect *$sesh_2(ó)i$-. In principle, the perfect corresponding to the aorist *$sh_2ói$- : *$sh_2éi$- should have meant 'be in the state of having come into a bound/connected condition' in the presence of one argument, and transitive 'be in the state of having bound/connected X' in the presence of two. The intransitive sense is seen in Mycenaean perf. mid. ptcp. *a-ja-me-no*- (i. e., *$aihai(s)meno$-) 'inlaid' < *'attached' (cf. García Ramón 1995). In Indo-Iranian, where the meaning in both Vedic and Old Avestan is 'hold bound', the "active" perfect has, as is typical, become aligned with the active present (Ved. *sináti*). The case thus recalls that of Ved. *jajā́na* (transitive) beside Gk. *gégone* (intransitive).

3) Root stative-intransitive present *$sh_2ii̯$-ór. Although some zero-grade protomiddle presents of the type 3 sg. **$sh_2ii̯$-é, **b^hud^h-é, etc. underwent formal differentiation into a true middle in 3 sg. *-ór and a h_2e-conjugation active in 3 sg. *-e[t] (see below), there is no sign of such a split in this verb.[40] Lith. *sỹji*, if genuine, would go back to the renewed middle.

The example of *sh_2ei- shows that even transitive verbs with a well-established active profile and a conventional transitive gloss can have a parallel protomiddle-based system with a

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39   With analogical -*y*- (for -*i*-), presumably taken from related forms like non-stative *(su)sýti* 'connect' < *sih_2-, with laryngeal metathesis from *sh_2i-. As Miguel Villanueva Svensson informs me, the authenticity of this verb is not beyond question.

40   At least not if Ved. (*áva, ví*) *syáti* goes with *seh_1-i- 'let go' rather than with *sh_1ei- 'bind' (cf. note 38). YAv. *hiiąn* (Yt. 8.55), traditionally analyzed as 3 pl. subj. of *hiia*- 'bind', is taken by Kümmel (2000: 677) as equivalent to *hiiārə*, 3 pl. opt. of *ah*- 'be'.

h_2e-conjugation aorist, a perfect, and a zero-grade present in 3 sg. *-ór. Some of the best-known roots in the PIE lexicon display a transitive : intransitive duality of this type, including the verbs "hear" and "see":

*ḱleu-　**act.** 'hear': aor. *ḱl(é)u- (: Ved. *áśrot*), pres. *ḱl̥-n(é)-u (: Ved. *śr̥ṇóti*, etc.)
　　　　　protomid. 'be heard, be famed (as)': aor. *ḱl(ó)u- (: Ved. *śrā́vi*),
　　　　　pres. *ḱluu̯-´ (: Latv. *sluv, -êt* 'be known for')

*derḱ-　**act.** 'see, glimpse': aor. *d(é)rḱ- (: Ved. *dárśam*)
　　　　　protomid. 'appear': aor. *d(ó)rḱ- (: Ved. *ádarśi*)[41]

The associated perfects *ḱeḱl(ó)u- and *ded(ó)rḱ-, although semantically aligned with the active in the attested languages and possibly already in late PIE (cf. Ved. *śuśrā́va*, OIr. *ro·cualae* 'has heard'; Ved. *dadárśa* 'has seen', Gk. *dédorke* 'gazes at'), must originally have meant 'is famed as' and 'is visible', respectively, with transitivity emerging in the presence of an actual hearer or seer.[42] Note too the remarkably similar distribution of forms in the verb traditionally glossed 'strike, slay':

*$g^{u̯h}$en-　**act.** 'strike': pres. *$g^{u̯h}$(é)n- (: Ved. *hánti*, Hitt. *kuenzi*, etc.)
　　　　　protomid. 'fall stricken': aor. *$g^{u̯h}$(ó)n- (: YAv. aor. *jaini*), pres. *$g^{u̯h}$(n̥)n-´
　　　　　(: YAv. *ni-γne*, pl. *γnāire*)[43]

It follows that the corresponding perfect *$g^{u̯h}eg^{u̯h}$(ó)n-, medialized in Gk. *péphatai* 'lies slain' and transitivized in Ved. *jaghā́na* 'slew' (cf. YAv. ptcp. *jaγnuuāh-*) and OIr. *geguin* 'slew', once basically meant 'lies stricken'.

　　Whether triads like *sh₂ói̯-e – *sesh₂ói̯-e – *sh₂i̯-ór, *ḱlóu̯-e – *ḱeḱlóu̯-e – *ḱluu̯-ór, *dórḱ-e – *dedórḱ-e (– **dr̥ḱ-ór), and *$g^{u̯h}$ón-e – *$g^{u̯h}eg^{u̯h}$ón-e – *$g^{u̯h}$(n̥)n-ór should properly be characterized as "stative-intransitive systems" is largely a matter of terminology. Some scholars may prefer to restrict the term "stative-intransitive" to roots where there was no old (i. e., early pre-PIE *M*-conjugation) active, and/or where the change of state expressed by the aorist was unaccompanied by a salient physical act like striking or binding. For our purposes, however, the cardinal fact is that the formal relationship of the three terms to one another is the same in roots of the type *$b^h eud^h$-, for which the expression "stative-intransitive" was devised, as in roots of the type *sh₂ei- and *$g^{u̯h}$en-, where agency is central to the associated event. Since the focus in what follows is precisely on this formal relationship, the more inclusive usage will be adopted here.

41　Since the root was defective in the present system, there is no present *dr̥ḱ-ór.
42　As pointed out by Barnes (2014), Gk. *dédorke* can still have the older function: cf. Pi. *O.* 1. 93–5 *tò dè kléos tēlóthen* **dédorke** *tãn Olumpiádōn en drómois Pélopos* 'And far **shines** that fame of the Olympic festivals gained in the racecourses of Pelops' (tr. Race 1996: 57). In Vedic this sense is taken over by the perfect middle *dádr̥śe*.
43　*$g^{u̯h}$en- is the only example known to me of a PIE root with both a "normal" (i. e., non-Narten) active root present (cf. Ved. *hánti, ghnánti*, Hitt. *kuenzi, kunanzi*) and a well-developed protomiddle-based system of the type under discussion here. The juxtaposition is so unusual that it is barely acknowledged in LIV², where the perfect is listed as a probable "Neubildung" and YAv. *jaini* and *-γne, -γnāire* are not mentioned at all. The form *jaini*, of course, cannot be old as it stands, since an inherited *$g^{u̯h}$ón-e would have given *$g\bar{a}ini$ in Avestan. But it is easier to take *jaini* as an analogically altered form of *$g\bar{a}ini$, remade under the influence of pres. *jaiṇti*, than as a creation from whole cloth, especially in the presence of the archaic-looking *-γne, -γnāire*, the unexpected perfect *jaγnuuāh-*, and (as we shall see below) the reduplicated aorist *-jaγnaṭ*. Without being unduly tendentious, it could be argued that what really stands out as deviant in the profile of the root *$g^{u̯h}$en- is not the complex of protomiddle-based forms, but the root present *$g^{u̯h}$én-ti.

5 Theories of the origin of the perfect

We can now ask a simple question: in the schema

$$**b^h \acute{o}ud^h\text{-}e$$
$$\swarrow \qquad\qquad\qquad \searrow$$
$$**b^h ud^h\text{-}\acute{e} \qquad\qquad\qquad\qquad **b^h eb^h \acute{o}ud^h\text{-}e$$

what precisely was the resultative-stative perfect? At the most literal level we know the answer; full descriptions of the perfect as a synchronic category have been provided in recent years by Kümmel (2000) and di Giovine (1990), (1996). But the morphology of the perfect is so distinctive, and its meaning so marked in the typology of tense and aspect categories, that attempts have repeatedly been made to identify a more basic starting point from which the perfect as we know it could have evolved. In my own discussion of the problem in HIEV: 169 I likened the protomiddle pair $*b^h\acute{o}ud^h\text{-}e : *b^h eb^h\acute{o}ud^h\text{-}e$ to the active pair $*d^h\acute{e}h_1\text{-}t$ 'put' (aor.) : $*d^h\acute{e}d^h eh_1\text{-}ti$ (pres.) and surmised that the perfect "originated within PIE as a kind of h_2e-conjugation (< protomiddle) reduplicated present, characterized by the same endings and the same ablaut pattern as the h_2e-conjugation (< protomiddle) root aorist on which it was derivationally based." The idea that the perfect was originally some variety of present is compatible with more than one theoretical framework. Thus, Oettinger (2006: 39 ff.), in his critical review of HIEV, offers his own present-based theory, in which the point of departure is a class of iterative presents that he calls "proto-intensives." He uses the roots $*sh_2ei\text{-}$ and $*b^h eih_2\text{-}$ 'take fright' to illustrate the presumed evolution from iterative to resultative-stative:

$*sh_2\acute{e}\text{-}sh_2oi\text{-}e$ 'er bindet wiederholt, bindet fest' > 'bindet so, daß es fest ist'
                    > 'hält gebunden' > 'hat gebunden'

$*b^h\acute{e}\text{-}b^h oih_2\text{-}e$ 'er zittert (vor Angst)' > 'fürchtet sich'
                    > 'ist in Furcht geraten, hat sich gefürchtet'

Both Oettinger and I, when these lines were written, took it for granted that the iterative-intensive type *mémēke/mimāya/wewakki* was an essential part of the perfect "story"—a non-resultative, non-stative way station between ordinary presents and the fully developed resultative-stative category seen in $*b^h eb^h\acute{o}ud^h\text{-}e$, $*sesh_2\acute{o}i\text{-}e$, and $*b^h\acute{e}b^h oih_2\text{-}e$. Since then, however, it has become clear that the iterative-intensive perfect was an independent formation, unrelated to the normal perfect or to the larger stative-intransitive derivational complex in which the perfect is embedded. There is thus no support for the "present" theory of the perfect in forms of the type *mémēke* or *wewakki*.

There is a more particular reason why a derivation of the resultative-stative perfect from a present is problematic. That reason is semantic, and it can best be formulated as a question: if the perfect was etymologically a present, where did the persistent resultative sense come from? How could a form like 3 sg. $*b^h eb^h\acute{o}ud^h\text{-}e$, if it originally meant 'is in the process of waking up, is gradually moving from sleep/unconsciousness to consciousness', have come to mean '(has awoken and) is conscious', with the specific, grammatically coded implication that the waking process is complete? One might suppose that since the process of waking up implies an intermediate state of partial wakefulness, juvenile speakers could wrongly have interpreted $*b^h eb^h\acute{o}ud^h\text{-}e$ to mean 'is now partly awake', whence eventually simply 'is awake, is conscious'. Such a development would not have been unthinkable in itself; the real world is full of situations in which processual and stative expressions are apt to be confused. When someone says, e. g., "John is turning red" or "Mary's arm is swelling up," we expect to

see an already visibly red face or an already swollen arm. But the perfect does not simply mean 'is awake', 'is red', or 'is swollen'. The specific meaning of the perfect is (or originally was) 'woke up (turned red, swelled up) *at some point in the past* and is now awake (red, swollen)'. It is this "completed in the past" component that leads to the common post-IE development of the perfect into an actual past tense (Sanskrit, Italic, Celtic, Germanic).[44] Processual presents without this component, like the presents in *-eh_1-ie/o- (*-$\bar{e}ie$/o-), the present type 3 sg. *$mn\underset{.}{i}étor$ (Ved. *mányate*, etc.), and the present type *$m(n)nór$ (Go. *munaiþ*, etc.),[45] readily develop into stative presents around the family, but never into preterites.[46]

A more plausible source for the perfect, *a priori*, would have been a construction in which the required resultative meaning was conveyed by a participle or other deverbal nominal form. The "perfect" tenses of the modern European languages, in which the verbs "have" and "be" combine with a past participle, are classic formations of this type. Precise analogues of the modern compound tenses would not have been an option in PIE, where overt auxiliaries were evidently not in use. But the perfect could still theoretically have been a predicatively employed nominal form. Well-known advocates of a "nominal" perfect, if only in passing, have included Brugmann (1916: 594), Szemerényi (1970: 306), and Kuryłowicz (1964: 62), whose notional paradigm

$$
\begin{array}{ll}
\text{*}gh^wen\text{-}\underset{.}{a}_2ó & \text{'occisus — ego'} \\
gh^wen\text{-}t\underset{.}{a}_2ó & \text{'occisus — tu'} \\
gh^wen\text{-}é & \text{'occisus'}
\end{array}
$$

was adopted and put to multiple uses by Watkins (1969: *passim*). A more elaborate scenario along the same lines was proposed by Cowgill (1979), who started from *active* verbal nouns. These, in his view, gave rise to Indo-Hittite "nominal verbs" of the type *$d^hóh_1$-e 'is) a placer', *$sh_2ói$-e '(is) a binder', etc., which in turn became the source of the ḫi-conjugation in Anatolian (cf. Hitt. *išḫāi*) and the perfect in IE proper (Ved. *siṣāya*).

The fatal flaw in all these nominal proposals, apart from their completely aprioristic character, is that they take the reduplication of the perfect to be "facultative," i. e., as an after-the-fact, more or less optional add-on to the unreduplicated formation that is assumed to be the "real" perfect. This is a century-old misconception, based on the unique unreduplicated perfect *$\underset{.}{u}óid$-e 'knows' (Ved. *véda*, etc.) and the Neogrammarian tendency to overvalue the evidence of Germanic, where the perfect was subject to large-scale dereduplication (cf. Go. *man* = Gk. *mémone*, *ga-dars* 'dares' = Ved. *dadhárṣa*, etc.). PIE *$\underset{.}{u}óid$-e, however, was an isolated form with a special history (see note 67). Apart from the case of this one particular verb, the evidence for PIE perfects without reduplication is very poor. The reason

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44   It goes without saying, of course, that the "past" or resultative component could be lost in individual lexical items. Apart from the obvious and special case of *$\underset{.}{u}(ó)id$- 'know', for example, it is clear that the perfect *$mem(ó)n$-, lit. 'have in mind from having brought to mind' was already lexicalized as a simple stative present in the parent language; neither Gk. *mémone*, 1 pl. *mémamen* 'intend, be eager for', nor Lat. *meminī* 'remember', nor Go. *man* 'think' retains any link to the underlying change-of-state aorist, which has been lost in these languages. Greek and Indo-Iranian have a considerable number of such "pure" stative perfects; so does Germanic, where they constitute a distinct morphological class, the preterito-presents.

45   The point would be equally valid under the "essive" interpretation of these forms (*$mnh_1ié/ó$-, etc.); see notes 26 and 31.

46   The parallel or cognate formations represented by the Greek intransitive $\bar{e}$-aorist (type *emánē* 'ran mad') and the Lithuanian intransitive e-preterite (type *mìnė* 'remembered', also *gìmė* 'was born', *mìrė* 'died', *vìrė* 'boiled') are not counterexamples to this statement, because there is no evidence that they developed out of processual presents. Their actual source is uncertain. One possibility is that they were back-formed from some nominal derivative, such as an adjective in *-$éh_1$-nt- (so Jasanoff 2004: 161–165); alternatively, they may simply have been hypostasized from periphrastic expressions of the type *$m(n)n$-$éh_1$ b^huH-t 'become mindful (of)'.

is that, nominal theories notwithstanding, the reduplication of the perfect—or rather, of its protomiddle ancestor—was precisely what distinguished it from its derivational base, the protomiddle ancestor of the stative-intransitive aorist ($*b^h\acute{o}ud^h$-$e \Rightarrow *b^h eb^h \acute{o}ud^h$-$e$, etc.). Reduplication in the perfect was in no way redundant; the *real* unreduplicated "perfect" was not a perfect at all, but an aorist.

6 A new idea: the perfect as aorist

The view I will defend here is that the perfect, before it "became" the perfect, so to speak, was a species of reduplicated *aorist*. In other words, rather than assume a pre-PIE derivational schema

aorist $*b^h\acute{o}ud^h$-e 'awoke' $\Rightarrow$ iterative present $*b^h eb^h \acute{o}ud^h$-e 'is gradually waking up',

I propose a derivation

aorist $*b^h\acute{o}ud^h$-e 'awoke' $\Rightarrow$ intensive aorist $*b^h eb^h \acute{o}ud^h$-e 'woke up completely',

where the perfect sense developed directly out of the intensive aorist. Other cases of this type include

aor. $*\underaccent{\smile}{u}\acute{o}h_2\acute{g}$-$e$ 'broke (intr.)' $\Rightarrow$ intens. aor. $*\underaccent{\smile}{u}e\underaccent{\smile}{u}\acute{o}h_2\acute{g}$-$e$ 'broke to bits (intr.)'
aor. $*l\acute{o}g^h$-e 'lay down' $\Rightarrow$ intens. aor. $*lel\acute{o}g^h$-e 'lay down flat'
aor. $*g^{uh}\acute{o}n$-e 'sustained a blow' $\Rightarrow$ intens. aor. $*g^{uh}eg^{uh}\acute{o}n$-e 'fell gravely stricken'
aor. $*m\acute{o}n$-e 'came in mind (of)' $\Rightarrow$ intens. aor. $*mem\acute{o}n$-e 'became well aware (of)'
aor. $*sh_2\acute{o}\underaccent{\smile}{i}$-$e$ 'became attached' $\Rightarrow$ intens. aor. $*sesh_2\acute{o}\underaccent{\smile}{i}$-$e$ 'became tightly attached'
aor. $*l\acute{o}uk$-e 'lit up (intr.)' $\Rightarrow$ intens. aor. $*lel\acute{o}uk$-e 'lit up brightly (intr.)'
etc.

To understand how a pre-PIE intensive aorist $*b^h eb^h \acute{o}ud^h$-e 'woke up completely' could have developed semantically into the familiar late PIE perfect $*b^h eb^h \acute{o}ud^h$-e 'is awake', we have only to reflect on the fact that any change-of-state aorist, intensive or not, implies the possibility of the state continuing into the present. When a Vedic poet says that Agni "(has) appeared" (*ádarśi*, aor.), he understands Agni to be present and visible before him (*dádr̥śe*, perf.).[47] The more definitive a change of state in the recent past, the greater the pragmatic likelihood of the state continuing into the present. Other things being equal, someone who wakes up "completely" is more likely to remain awake an hour later than someone whose waking is only 75% complete, and something bound "tightly" is more likely to remain attached the next day than something bound loosely. My proposal, then, is that pre-PIE had a series of protomiddle reduplicated aorists that shifted within the protolanguage from intensive eventive ('thoroughly became X') to resultative stative ('became X and now is X'). The resultative component of the meaning of the perfect—a mystery under the assumption that the perfect was originally a present—is unproblematic if we assume that the completedness of the change of state was "built into" the perfect from the beginning. The stative present component

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47   This sense is indeed quite palpable in the aorist in Vedic, which is routinely translatable by the present perfect in English ('has X-ed'). Greek is full of examples in which the aorist has acquired present stative force, e. g., Attic *epḗinesa* (: *epainéō*) 'I approve, commend', *hḗsthēn* (: *hḗdomai*) 'I am amused', later *Khristòs anéstē* 'Christ is risen!'. Homeric examples (from Chantraine 1963: 184) are Od. 16.181 *alloĭós moi, xeĭne, **phánēs** néon ēè pároithen* 'Of a different sort you now **seem** to me, stranger', Il. 2.323 *típt' áneō **egénesthe**;* 'why **are** you thus silent?', 3.415 *hōs nŭn ekpagl' **ephílēsa*** 'as I now **love** [you] terribly', etc.

of the perfect's meaning was originally a pragmatic inference, later grammaticalized, from the extra degree of thoroughness (= intensivity) with which the change of state was accomplished.

An unlooked for byproduct of the "aorist" theory of the perfect is that it provides an explanation for why the perfect endings, unlike those of the regular h_2e-conjugation, make no use of the *hic et nunc* particle $*\text{-}i$. Compare:

perf.	1 sg.	$*b^heb^hóud^h\text{-}h_2e$	$\neq$	h_2e-conj.	$*mólh_2\text{-}h_2ei$ ("$*\text{-}ai$")
	2 sg.	$*b^heb^hóud^h\text{-}th_2e$	$\neq$		$*mólh_2\text{-}th_2ei$
	3 sg.	$*b^heb^hóud^h\text{-}e$	$=$		$*mólh_2\text{-}e$
	3 pl.	$*b^heb^hud^h\text{-}ér$	$\neq$		$*mélh_2\text{-}ņti$

As an etymological aorist, the perfect would simply never have had primary endings in PIE. This did not, of course, prevent the post-PIE creation of perfect endings with $*i$ in some of the daughter branches (cf. Lat. *meminī*, etc., OCS *vědě* 'I know' < $*a + i$).[48]

7 Excursus: two types of thematic aorist

The reduplicated/intensive stative-intransitive aorist—an invented category, as it may seem, whose only *raison d'être* thus far has been to provide a source for the perfect—is in fact independently motivated. The argument can be summarized as follows.

In Jasanoff 2017 I proposed a protomiddle/h_2e-conjugation interpretation of the PIE simple thematic aorist, a formation guaranteed for the parent language by the striking three-way word equations Gk. *é(w)ide* 'saw' = Ved. *ávidat* 'found' = Arm. *egit* 'id.', and Gk. *éluthe* 'came' = OIr. *luid* 'went' = Toch. A *läc* 'went out'.[49] The starting point for the thematic stem $*u̯idé/ó\text{-}$ 'notice', I argued, was the protomiddle stative-intransitive aorist $*u̯óid\text{-} : *u̯(é)id\text{-}$ 'be noticed' (3 sg. $*u̯óid\text{-}e$; cf. Ved. *ávedi* 'was found'). From this was formed, according to the normal stative-intransitive pattern, a zero-grade protomiddle present:

3 sg. aor. $*u̯óid\text{-}e$ 'was noticed; noticed' $\Rightarrow$ pres. $*u̯id\text{-}é$ 'is noticed; notices'[50]

The subsequent split of the protomiddle into a renewed "true" middle and an unrenewed h_2e-conjugation active led to the emergence of two daughter paradigms, one active, the other middle:

$*u̯idé$ ↗ act. $*u̯id\text{-}é$ 'notices' (1 sg. $*\text{-}h_2ei$, 2 sg. $*\text{-}th_2ei$, … 3 pl. $*\text{-}énti$)[51]

↘ mid. $*u̯id\text{-}ór$ 'is noticed; attends (to)' (1 sg. $*\text{-}h_2er$, 2 sg. $*\text{-}th_2er$, … 3 pl. $*\text{-}ror$)

The middle treatment survives in the Vedic "stative" present *vidé* 'is found/known as', the Gothic class III weak verb *witai*[þ] 'observes', and OCS *viditъ* 'sees'. In the active, the h_2e-conjugation paradigm was thematized. The *Scharnierform* was the 3 sg. imperfect/"injunctive" form $*u̯id\text{-}é$[t], which was reinterpreted (following Watkins 1969: 100) as $*u̯id\text{-}é\text{-}t$, generating a stem $*u̯id\text{-}é/ó\text{-}$. In some roots with a stative-intransitive profile such thematized

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48 Kümmel (2000: 55 ff.), by contrast, takes the forms with $*\text{-}i$ to be inherited, and classifies the familiar i-less forms of Indo-Iranian, Greek, Celtic, and Germanic as perfect "injunctives."

49 In the latter case the Celtic and Tocharian forms are completely isolated in their respective branches. Both equations are surprisingly denied by LIV².

50 With both transitive and intransitive glosses at the outset, according to the regular protomiddle pattern.

51 With the primary h_2e-conjugation endings, including the imported 3 pl. $*\text{-}énti$; cf. note 2.

stems became "*tudáti*-presents"; cf., e. g., OCS *čьtǫ* 'I count, read' (< *$k^{u}it$-*é/ó*-) beside Ved. *cité* (: *$k^{u}it$-*ór*) 'appears', aor. *áceti* (: *$k^{u}óit$-e*). In the specific case of *$\underset{.}{u}id$-*é/ó*- and the parallel *h_1lud^h-*é/ó*- 'go, go out', however, there are no primary-ending forms. Whether or not full-blown *tudáti*-paradigms ever existed for these verbs, by the end of the PIE period the thematic imperfect/injunctives *$\underset{.}{u}id$-*ó-m*, *-*é-s*, *-*é-t* and *h_1lud^h-*ó-m*, *-*é-s*, *-*é-t* had been reanalyzed as aorists.[52]

The relevance of this derivational history to the problem of the perfect comes from the fact that PIE also had a *reduplicated* thematic aorist. In Greek, where the reduplicated thematic aorist is archaic and unproductive, it is remarkable how many of the attested forms are paired with old-looking perfects:[53]

REDUPLICATED THEMATIC AORIST[54]	PERFECT
arareĩn 'fit together (tr.)'	*árāre* 'is joined'
dedaeĩn 'teach'	ptcp. *dedaṓs* 'skilled'
enenkeĩn 'bring'	*enḗnokhe* 'has brought'
lelatheĩn 'make forget'	*lélēthe* 'is unnoticed/ unnoticing'
lelakheĩn 'put in possession of'	*lélonkhe* 'has by lot'
ororeĩn 'rouse'	*órōre* 'is roused'
pepitheĩn 'persuade'	*pépoithe* 'believes'
pephneĩn 'slay'	mid. *péphatai* 'is slain'[55]
tetukeĩn 'prepare'	ptcp. *teteukhṓs* 'made'[56]

The list can be extended. In the great majority of cases the active of the reduplicated thematic aorist has transitive factitive value vis-à-vis the state denoted by the perfect. In Indo-Iranian and Tocharian, the two branches where reduplicated thematic aorists have become productive, the transitivizing function has been grammaticalized. The morphologically renewed reflex of the reduplicated thematic aorist in Indo-Iranian is the "causative" aorist (type *ájījanat* [= YAv. *zīzana-*][57] 'engendered' : caus. pres. *janáyati*, *ábūbudhat* 'caused to awaken' : caus. pres. *bodháyati*, etc.). In Tocharian A, the cognate class II causative preterite is correlated with the class IX causative present in -*äs(k)*- (type *śaśärs* 'caused to know, announced' : caus. pres. *śärs-äs-*, *wawik* 'removed, made to vanish' : caus. pres. *wik-äs-*).

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52   It is interesting and noteworthy that when protomiddle presents of the type 3 sg. *$\underset{.}{u}id$-é*, *$k^{u}it$-é*, *h_1lud^h-é*, etc. split into an active and a middle, the active in such cases was telic and prone to become an aorist (as in *ávidat*), while the middle was atelic and prone to become a stative (as in *vidé*). The telic *Aktionsart* of the active forms was probably original, a direct transfer from the underlying aorist (*$\underset{.}{u}óid$-e*, *$k^{u}óit$-e*, *$h_1lóud^h$-e*). The durative and atelic *Aktionsart* of the overwhelmingly intransitive middle forms in 3 sg. *-ór* was an inner-IE development, perhaps a consequence of the crosslinguistic tendency of transitivity to be aligned with telicity, and vice versa.

53   The discussion that follows is based on the data collection in Bendahman 1993.

54   Forms are cited in the infinitive. To avoid confusion, the Greek and PIE "reduplicated aorist," as it is usually simply known, is here called the "reduplicated *thematic* aorist."

55   Perfect middle, replacing inherited *$g^{u\!h}eg^{u\!h}óne$*, which originally had this meaning when only one argument was present.

56   With secondary full grade; the expected zero grade appears in Myc. nt. pl. *tetuk^hwoha*.

57   With cancellation of the "*neognós*-rule," substitution of *i*- for *e*-reduplication, and lengthening of the reduplication vowel to produce the canonical dactylic metrical pattern of the regular causative aorist. As already suggested in HIEV (128, note 1), YAv. 3 pl. pres. *zīzanǝnti* is in my view a back-formation from 3 pl. aor./impf. *zīzanǝn*; *pace* LIV², there is no connection between these forms and the inherited "*mímnō*-present" *$\acute{g}i$-$\acute{g}n\hbar_1$-e/o*- seen in Gk. *gígnomai* and Lat. *gignō*.

The PIE status of the reduplicated thematic aorist is confirmed by a small number of high-quality word equations, including Gk. *pephneĩn* (*épephnon*, etc.) = YAv. *jaγnaṯ* 'slew',[58] and Gk. *(w)eipeĩn* 'say' (< *$\underset{\sim}{u}eik^u$-, dissimilated from *$\underset{\sim}{u}e$-uk^u-)[59] = IIr. *$\underset{\sim}{u}auca$- 'id.' (cf. Ved. *ávocat* 'said', Av. *vaoca*-). Significantly, both *$g^{uh}en$- 'strike' and *$\underset{\sim}{u}ek^u$- 'say' have well-entrenched stative-intransitive systems. The protomiddle-based forms of *$g^{uh}en$- have been quoted already:

> stative-intransitive aorist *$g_2^{uh}ón$-e 'fell stricken' (YAv. *jaini*; cf. note 43)
> root stative-intransitive present *$g^{uh}(n)n$-$ór$ 'falls stricken' (YAv. *γne*)
> perfect *$g^{uh}eg^{uh}ón$-e *'lies stricken' > 'has struck' (Ved. *jaghắna*, YAv. *jaγnuuāh*-)

The profile of *$\underset{\sim}{u}ek^u$- 'say' is virtually identical:

> stative-intransitive aorist *$\underset{\sim}{u}ók^u$-e 'got said' (Ved. *avāci*, OAv. *auuācī*)
> root stative-intransitive present *uk^u-$ór$ 'gets said' (OAv. 3 sg. impv. -*ūcąm*?)[60]
> perfect *$\underset{\sim}{u}e\underset{\sim}{u}ók^u$-$e$ *'has been said' > 'has said' (Ved. *vavāca*, OAv. 1 pl. *vaoxəmā*)

These distributional facts suggest that the reduplicated thematic aorist, like the ordinary unreduplicated thematic aorist, is a member of the extended stative-intransitive family. Let us suppose, therefore, that the origin of the thematic vowel was the same in both cases. We can then reason by analogy. Since the unreduplicated thematic aorist *$\underset{\sim}{u}id$-$é$/$ó$- goes back derivationally to an unreduplicated protomiddle aorist *$\underset{\sim}{u}óid$- : *$\underset{\sim}{u}(é)id$- (3 sg. *$\underset{\sim}{u}óid$-e):

3 sg. *$\underset{\sim}{u}id$-$é$-t	←	3 sg. *$\underset{\sim}{u}id$-$é$	⇐	3 sg. *$\underset{\sim}{u}óid$-e
thematic aorist		protomiddle pres.		protomiddle aorist

We should expect the reduplicated thematic aorists *$g^{uh}eg^{uh}n$-e/o-, *$\underset{\sim}{u}euk^u$-e/o-, and (generic) *$b^heb^hud^h$-e/o- to go back derivationally to a non-canonical series of *reduplicated* protomiddle aorists *$g^{uh}eg^{uh}ón$- : *$g^{uh}eg^{uh}(é)n$-, *$\underset{\sim}{u}e\underset{\sim}{u}ók^u$- : *$\underset{\sim}{u}e\underset{\sim}{u}(é)k^u$-, and *$b^heb^hóud^h$- : *$b^heb^h(é)ud^h$-:

3 sg. *$g^{uh}eg^{uh}n$-$é$-t[61]	←	3 sg. *$g^{uh}eg^{uh}n$-$é$	⇐	3 sg. *$g^{uh}eg^{uh}ón$-e
*$\underset{\sim}{u}euk^u$$é$-$t$	←	*$\underset{\sim}{u}euk^u$-$é$	⇐	*$\underset{\sim}{u}e\underset{\sim}{u}ók^u$-$e$
*$b^heb^hud^h$-$é$-t	←	*$b^heb^hud^h$-$é$	⇐	*$b^heb^hóud^h$-e
redupl. thematic aorist		redupl. protomiddle pres.		redupl. protomiddle aorist

We have seen such "non-canonical" reduplicated protomiddle aorists before. They are precisely the intensive stative-intransitive aorists ('fell gravely stricken', etc.) posited above on independent grounds as the pre-PIE source of the perfect.
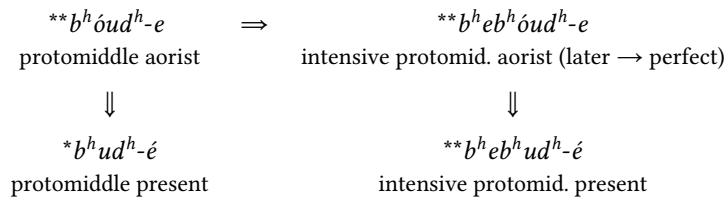
If this line of thinking is correct, the three-term stative-intransitive schema of HIEV can be revised to a four-term pre-PIE system, with separate intensive and non-intensive "tracks",

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58 I am not persuaded by the attempts, recorded in LIV² s. v. *$g^{uh}en$-, to explain this form as an imperfect.

59 Note the remarkable phonological parallel in Old Norse, where *$sweup$, the remade Northwest Germanic preterite of *$swaipan$ 'sweep', was altered to *$sweip$ (cf. OE *swāpan*, pret. *swēop*, but ON *sveipa*, pret. *sveip*; Jasanoff 2007: 277).

60 Assigned to the passive aorist *auuācī* by Kümmel (1996: 19), but just as easily interpretable as belonging to the corresponding stative-intransitive root present.

61 As this derivational history shows, the accentuation of Ved. *vócat(i)*, *vócaḥ*, etc. must be secondary vis-à-vis that of the optatives *vocéyam*, *vocéma*, *vocéyuḥ*.

$$**b^h \acute{o}ud^h\text{-}e \quad \Rightarrow \quad **b^h eb^h \acute{o}ud^h\text{-}e$$

protomiddle aorist   intensive protomid. aorist (later → perfect)

$$\Downarrow \qquad\qquad\qquad\qquad \Downarrow$$

$$*b^h ud^h\text{-}\acute{e} \qquad\qquad\qquad\qquad **b^h eb^h ud^h\text{-}\acute{e}$$

protomiddle present   intensive protomid. present

to which can be added the later active and middle treatments of the protomiddle presents:

$$\qquad\qquad \nearrow \quad [\text{act. } *\underset{}{u}id\text{-}\acute{e}\text{-}t]^{62} \qquad\qquad\qquad \nearrow \quad \text{act. } *b^h eb^h ud^h\text{-}\acute{e}\text{-}t$$
$$*b^h ud^h\text{-}\acute{e} \qquad\qquad\qquad\qquad **b^h eb^h ud^h\text{-}\acute{e}$$
$$\qquad\qquad \searrow \quad \text{mid. } *b^h ud^h\text{-}\acute{o}r \qquad\qquad\qquad \searrow \quad \text{mid. } *b^h eb^h ud^h\text{-}\acute{o}r(?)$$
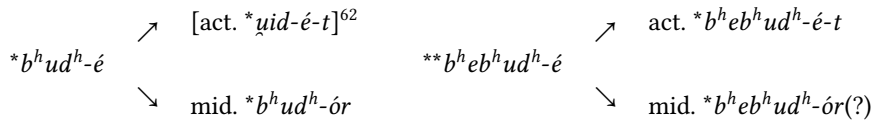
The active (upper) treatments were the thematic aorists, both simple (*$\underset{}{u}id$-é/ó-) and reduplicated (*$b^h eb^h ud^h$-é/ó-). Although some roots made *tudáti*-presents in lieu of simple thematic aorists, there are no reflexes of reduplicated *tudáti*-presents ("*tutudáti*-presents") in the daughter languages. In the middle, the unreduplicated forms surface as root stative-intransitive presents (cf. Lith. *bùdi*, OCS *bъditъ* 'is awake', ultimately < *$b^h ud^h$-ór). It is an intriguing question whether the corresponding reduplicated type *$b^h eb^h ud^h$-ór was the source, or one of the sources, of the classical perfect middle.

8 Reduplicated h_2e-conjugation aorists in Anatolian

Anatolian has no reflexes of the resultative-stative perfect as such. It does, however, have derived reduplicated ḫi-verbs in which the underlying unreduplicated form is the reflex of a change-of-state protomiddle aorist. The reduplicated forms in these reduplicated : unreduplicated pairs are perfects in morphology but not in meaning. They go back, I submit, not to the perfect proper, but to the immediate ancestor of the perfect, the intensive stative-intransitive aorist.

A likely case of this type is the hapax 3 sg. *lilakki*, a synchronic iterative that means 'fells (evil men like trees)'[63] and clearly belongs to the same root (*leg^h-) as *lāki* 'bends (tr.)'. Unreduplicated *lāki* is historically a stative-intransitive aorist *$lóg^h$- : *$lég^h$- (or *l_eg^h-´); reduplicated *lilakki* (with non-etymological -*kk*-) goes back to a stem *$lelóg^h$- : *$lelég^h$- (or *lel_eg^h-´), with generalization of the weak stem form. Pre-Anat. 3 sg. *$lelóg^h$-e could not, on semantic grounds, have been a perfect meaning 'lies' like its look-alike Greek cognate, the perfect *$lélokhe$ (cf. *lelokhuĩa* 'woman in childbed'). But it could easily have been an intensive aorist meaning 'fell/felled violently', the natural translation of which into the historical Anatolian system, where aorists in effect became presents, would have been 'felled/fells with repeated violent blows', whence (with the same generalization of transitivity as in the simplex *lāki*) 'felled/fells repeatedly'. To the same type as *lilakki* belongs Luv. 3 pl. *ḫišḫiyanti* 'bind' beside Hitt. *išḫāi-*, -*iyanzi* 'id.' Here too the unreduplicated term goes back to a stative-intransitive aorist (3 sg. *$sh_2ói$-e; cf. above), and the reduplicated form can be formally identified with the reduplicated stative-intransitive aorist implied by the Vedic perfect *siṣā́ya*.[64] Whether the hapax *ḫišḫiya-* is *synchronically* an iterative like *lilakk-* is

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62   There was no PIE thematic stem *$b^h ud^h$-é/ó-.

63   The passage reads *ḫūwappaš[ak]an* LÚ.MEŠ-*uš* [(GIŠ-*ru*)] *mān lilakki* 'who repeatedly fells evil men like trees' (CHD). Parallel clauses contain the iteratives *šarliškezzi* 'exalts (repeatedly)' and *walḫannai* 'strikes (repeatedly)'.

64   With the same substitution of *i*- for *e*-reduplication in Luvian as in Vedic and Avestan.

impossible to tell from its one occurrence. Given the frequency and apparent productivity of the reduplicated : unreduplicated pattern in other *i*-verbs, however, an original iterative function is not unlikely (cf. Hitt. *par(a)i-* : *paripar(a)i-* 'blow'; Hitt. *ḫuw(a)i-*, Luv. *ḫuiya-* : Luv. *ḫuiḫuya-* 'run'; Hitt. *p(a)i-*, Luv. *piya-* : Lyc. *pibije-* 'give').

These examples are, to be sure, more suggestive than probative. Reduplicated iteratives, or forms that once were iteratives, are so commonplace in Anatolian that it is never possible to be sure that a synchronically analyzable reduplicated verbal stem is inherited. Particular interest attaches, therefore, to a historically reduplicated stem which, unlike *lilakk-* and *ḫišḫiya-*, is no longer synchronically analyzable as reduplicated and therefore almost certainly *is* old. The verb in question, drawn to my attention in this connection by Craig Melchert, is *šipănt-* 'libate, pour', the more usual variant of the verb also spelled *išpănt-*. The *šip-* and *išp-* variants are identical in usage and distribution.[65] As argued by Forssman (1994), the spelling *šipănt-* represents the old reduplicated perfect **s(p)espond-* (cf. Lat. *spopondī*, OLat. *spepondī* 'promised')—an attractive idea formally but difficult to accept in the absence of independent Anatolian evidence for the perfect. The problem vanishes if we take **s(p)espond-* (> *šipănt-*) not, with Forssman, from the perfect, but from its predecessor, the reduplicated stative-intransitive aorist built to unreduplicated **spond-* (> *išpănt-*). The PIE root, despite its later semantics, may once have formed a stative-intransitive system, with an intransitive aorist **sp(ó)nd-* 'repose trust (in)' (transitivized in Hitt. 'entrust (sc. a liquid) to'), a root stative-intransitive present **spn̥d-ór* (cf. Toch. B *späntetär* 'trusts'?),[66] and a perfect/reduplicated stative-intransitive aorist **sesp(ó)nd-* (transitivized in Lat. *spopondī*). In Hittite the original sense of the reduplicated form was renewed by productively formed iteratives in *-ške/a-* (*šipanzake/a-*) and *-anna/i-* (*šipandanna/i-*).

The following answer can thus be offered to the question asked in the title of this paper. At the moment when Anatolian separated from the rest of the IE family, the resultative-stative perfect—as opposed to the unrelated iterative-intensive present type *mémēke* / *mimāya* / *wewakki*—did not yet exist. In its place stood the reduplicated protomiddle/h_2e-conjugation aorist type **bʰebʰóudʰ-* : **bʰebʰ(é)udʰ-*, formally identical with the perfect, but semantically still eventive and intensive ('woke up completely', etc.). Such forms are continued in Anatolian by reduplicated *ḫi*-verbs of the type *lilakk-*, (Luv.) *ḫišḫiya-*, *šipănt-*, and doubtless others. The change of the reduplicated h_2e-conjugation aorist into the familiar resultative-stative category was a development proper to "Core IE."[67]

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65   But the well-attested derived noun *išpantuzzi* 'libation vessel' is only spelled with *išp-*.

66   The standard etymology, presupposing the possible, but not independently demonstrable development of PIE **/d/* to */t/* after **/n/* in Tocharian, rather than to expected **/ts/*.

67   A position influentially argued on other grounds by Cowgill (1974). The view of the perfect put forth above forces a revision of the theory of the unreduplicated perfect **u̯óid-e* in HIEV, Appendix 2. I there tried to explain 3 sg. **u̯óid-e* as a back-formation from the corresponding 3 sg. perfect middle **u̯id-ór* 'is known (as)', which I took to be the regularly expected root stative-intransitive present of the root **u̯eid-*, reinterpreted as a perfect middle in the specific meaning 'is known'. A major problem with this account was that it assigned an overly prominent role to the perfect middles **u̯eu̯id-ór* 'is seen/found (as)', **dedr̥k-ór* 'is visible', and **ḱeḱlu̯-ór* 'is heard/famed as', whose existence at the required early date is very doubtful. Without these forms, it is unlikely that the form **u̯id-ór*, even if it already meant 'is known' in the parent language, would have been so robustly associated with the perfect system that it could have spawned a back-formed perfect active **u̯óid-e*. This whole line of explanation can now be discarded. If the source of the perfect, as maintained here, was a reduplicated, intensive version of the stative-intransitive aorist, there is no reason why an *un*reduplicated, *non*-intensive stative-intransitive aorist could not exceptionally have had the same treatment. In the specific case of **u̯eid-*, the starting point would have been the inherited stative-intransitive aorist **u̯óid-e* : **u̯éid-r̥s*, which at the protomiddle stage would have meant 'was seen, was noticed' (intransitive) and 'saw, noticed' (transitive), depending on context. Uniquely for an unreduplicated stative-intransitive aorist (but typically for the corresponding reduplicated type), this form acquired the optional resultative-stative readings '(has been noticed and) is known' (intransitive) and '(has noticed and) knows' (transitive). The lexically disassociated

Abbreviations

CHD   Hans G. Güterbock and Harry A. Hoffner (1980–). *The Hittite Dictionary of the Oriental Institute of the University of Chicago*. Chicago: Oriental Institute of the University of Chicago.
HIEV   Jay H. Jasanoff (2003). *Hittite and the Indo-European Verb*. Oxford: Oxford University Press.
LIV²   Helmut Rix (2001). *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. Unter Leitung von Helmut Rix bearbeitet von Martin J. Kümmel, Thomas Zehnder, Reiner Lipp, Brigitte Schirmer. 2nd ed. Wiesbaden: Reichert.

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stative and aoristic readings both survived, the former, with generalized transitivity, giving the perfect Ved. *véda*, Gk. *(w)oîde*, etc., and the latter, with generalized intransitivity, giving the Vedic passive aorist *avedi* 'was found'.

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