

Myc. *tu-wo*, Hom. *θύος* and the vocalism of *s*-stems in Proto-Indo-European

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Abstract. A neuter *s*-stem based on PIE **d^hueh₂-* ‘(produce) smoke’ is well-attested from the earliest Greek: Myc. *tu-wo* /t^hu(̥)os/ ‘aromatic substance’ (incense, perfume), pl. *tu-we-a* ~ *tu-we-a₂* /t^hu(̥)eha/, Hom.+ *θύος* (pl. *θύεα*) ‘burnt offering(s)’. But a “face-value” Transponat PIE nom./acc. **d^huh₂-os*, obl. **d^huh₂-es* violates the standard Erlangen model of accent-ablaut patterns in the inflection of athematic formations, where an *s*-stem with zero-grade root is anomalous (cf. [Schindler 1975]): *s*-stems belong to the “proterokinetic” inflectional type, with ideal structure nom./acc. *R(é)-os*, obl. *R(Ø)-és-*. Greek has other *s*-stems with zero-grade root; but most are transparently secondary, e.g. *βάρος* ‘weight’ (Hdt., Aesch.+) ← *βαρῶς* ‘heavy’ (Hom.+). For *θύος*, the only available secondary pattern is the deverbative one, i.e., *θύος* ← *θύω* ‘offer, sacrifice (a victim)’ (Hom.+). Nevertheless, Greek deverbative *s*-stems are otherwise mostly late. Given the early attestation of Myc. *tu-wo* and Hom. *θύος*, these forms may continue an inherited *s*-stem, for which the anomalous zero-grade root vocalism invites further comment. Such a structure is not isolated. Schindler [1975: 264–265] had already identified two probable PIE *s*-stems with pervasive zero-grade root, i.e. **sriHg-os* ‘cold, frost’ (Gk. *ῥίγος*, Lat. *frīgus*) and **púH-os* ‘pus’ (Gk. *πύος*, Lat. *pūs*). And it may be possible to add another such item, i.e. Ved. *dúvas-* ‘gift, offering’, better assigned (as **dúH-es-*) to 2. *deu-* ‘(re-)ligiös) verehren etc.’ [IEW: 218–219] than to the questionable construct **deh_{3u-}* ‘give’.

Recent scholarship has leveled significant criticism against the Erlangen model (the “paradigmatic” approach), with proterokinetic inflection itself as a major target (cf. [Kümmel 2014]), in favor of a new theory of Indo-European accent (the “compositional” approach, cf. [Kiparsky 2010]). Yet this revisionist discussion has had nothing to say about aberrant *s*-stems with zero-grade root vocalism. What, then, can be said about *s*-stems like **sriHg-es-*, **púH-es-*, and (if the analyses here are correct) **d^huh₂-es-* and **dúH-es-*?

Beside **sriHg-es-*, no full grade is attested for any of the root’s nominal or verbal forms. Despite Stüber [2002: 152], there is no reason to regard **sriHg-* as a “secondary root” with unspecified origin. Much the same picture appears for **púH-es-*; the idea [Stüber 2002: 200] that the pervasive zero grade reflects an early “generalization”

based on a primordial ablauting paradigm is merely an article of faith. For the root of **d^hu_h2-es-*: full-grade forms are virtually unattested, and the uncertainty about the root shape ([LIV¹] **d^heu_h2-* vs. [LIV²] **d^hue_h2-*) is symptomatic. All of this is strongly reminiscent of other PIE “non-apophonic zero-grade roots”, of which the best-known is **b^huH-* ‘be, become’, in the classic analysis by Jasanoff [1997]. Cf. also PIE **suH-ju-* ~ **suH-nu-* ‘son’, notorious precisely for its failure to conform to expectations about proterokinetic inflection, much as with the zero-grade *s*-stems. For the underlying verbal root ([LIV²] ?**seuH-* ‘gebären’), no verbal full grades are attested, and there are no nominal forms with arguably archaic full grades. Additional cases probably exist, e.g. **k_ueh₁-* ‘swell’ [LIV²: 339–340], with no verbal full grades, symptomatic Schwebeablaut material, and a zero-grade proterokinetic *men*-stem in Gk. κῶμα ‘wave’.

In sum, neuter *s*-stems with pervasive zero-grade root represent a hitherto neglected contributor to the reevaluation of proterokinetic inflection and, more broadly, the reappraisal of the “Erlangen” (paradigmatic) approach to the reconstruction of accent and ablaut in athematic inflectional categories.

Keywords: Μyc. *tu-wo*, Gk. θύος, *s*-stems, zero grade, Erlangen model, proterokinetic inflection, non-apophonic roots.

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Микенское *tu-wo*, гомеровское θύος и огласовка основ на -s в праиндоевропейском

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Аннотация. Слово среднего рода с основой на -s от праиндоевропейского корня **d^hue_h2-* ‘дымить’ хорошо засвидетельствовано с самых ранних греческих текстов: в микенском *tu-wo* /t^hu(ц)os/ ‘благовоние’ (фимиам, духи), pl. *tu-we-a* ~ *tu-we-a₂* /t^hu(ц)eha/, у Гомера и позже θύος (pl. θύεα) ‘жертва, воскурение’.

Но прямолинейный перенос праиндоевропейского ном./acc. **d^huh₂-os*, с **d^huh₂-es-* в косвенных падежах нарушает стандартную «эрлангенскую» модель акцентно-аблаутных типов склонения атематических образований, в рамках которой основа на *-s* с нулевой огласовкой является аномалией (ср. [Schindler 1975]): основы на *-s* относятся к «протокинетическому» типу, который в идеале имеет структуру ном./acc. *R(é)-os*, obl. *R(Ø)-és-*. В греческом представлены и другие случаи, при которых корень с основой на *-s* имеет нулевую огласовку; но в большинстве своем они, очевидно, являются вторичными образованиями, например, βάρος ‘тяжесть’ (Hdt., Aesch. и позже) ← βάρύς ‘тяжелый’ (Ном. и позже). Для θύος единственной подходящей моделью вторичного образования является отглагольная деривация типа θύος ← θύω ‘приносить жертву’ (Ном. и позже). И все же, греческие отглагольные существительные с основой на *-s* являются по большей части поздними. Учитывая, что микенское *tu-wo* и гомеровское θύος засвидетельствованы рано, есть шанс, что обе формы восходят к унаследованной *-s* основе, аномальная нулевая огласовка которой требует дополнительных пояснений. Подобная структура не является изолированной. Уже Шиндлер [Schindler 1975: 264–265] выявил два вероятных праиндоевропейских корня с преобладающей нулевой огласовкой, а именно **sriHg-es* ‘холод, мороз’ (греч. ῥίγος, лат. *frīgus*) и **púH-es* ‘гной’ (греч. πύος, лат. *pūs*). Вероятно, к этому списку можно добавить вед. *dúvas-* ‘дар, приношение’, который следует реконструировать как **dúH-es-* и возводить к 2. *deu-* ‘(religiös) verehren etc.’ [IEW: 218–219], а не к сомнительному **deh₃u-* ‘давать’.

В исследованиях последних лет эрлангенская школа («парадигматический» подход) подверглась серьезной критике, причем протерокинетический тип являлся основной ее мишенью (ср. [Kümmel 2014]); предлагалось заменить ее на новую теорию индоевропейского ударения (так называемый «композиционный» подход, ср. [Kiparsky 2010]). Но в ходе этой ревизионистской дискуссии совсем не обсуждаются аномальные основы на *-s* с нулевой огласовкой корня. Что тогда можно сказать о таких основах как **sriHg-es-*, **púH-es-* и (если предложенные интерпретации верны) **d^huh₂-es-* и **dúH-es-*?

Помимо **sriHg-es-*, для корня ни разу не засвидетельствована полная огласовка, ни для глагольных, ни для именных форм. Вопреки Штюбер [Stüber 2002: 152], нет оснований считать **sriHg-* «вторичным» корнем непонятого происхождения. Схожая картина вырисовывается для **púH-es-*; идея, что нулевая ступень была обобщена на раннем этапе, заместив исходную аблаутную парадигму [Stüber 2002: 200], ничем не подкрепляется и может быть только принята на веру. Для корня **d^huh₂-es-* полногласные формы фактически не засвидетельствованы, и неопределенность относительно формы корня ([LIV¹] **d^heu_h2-* vs. [LIV²] **d^hue_h2-*) показательна. Все это сильно напоминает другие праиндоевропейские «неапофонические корни с нулевой огласовкой», наиболее известным

из которых является **b^huH-* ‘быть, становиться’ (см. классическую интерпретацию [Jasanoff 1997]). Ср. также PIE **suH-ju-* ~ **suH-nu-* ‘сын’, примечательное именно тем, что не соответствует ожиданиям как относительно протерокинетического флексийного типа, так и относительно основ на *-s* с нулевой огласовкой. Для глагольного корня, к которому это слово, вероятно, восходит ([LIV²] ?**seuH-* ‘gebären’), не засвидетельствовано ни одного глагольного образования с полной огласовкой, равно как и именных форм с полной огласовкой, которые можно было бы считать архаичными. Примеры этим явно не ограничиваются: ср. например, **k^ueh₁-* ‘набухать’ (лемма в [LIV²]), которого отличает отсутствие глагольных образований с полной огласовкой, показательный Schwebelaute, и протерокинетическая основа на *-men* с нулевой огласовкой в греч. κῆμα ‘волна’.

Подводя итог, можно сказать, что слова среднего рода с основой на *-s* с преобладающей нулевой огласовкой представляют собой аспект, до сих пор не получивший должного внимания, но имеющий значение для переоценки протерокинетического флексийного типа и, если брать шире, для пересмотра «парадигматического» подхода (Эрлангенская модель) к реконструкции ударения и аблаута в атематических флексийных категориях.

Ключевые слова: микенское *tu-wo*, греческое θύος, основы на *-s*, нулевая огласовка, эрлангенская модель акцентно-аблаутных парадигм, протерокинетическая флексия, неапофонические корни.

1

A neuter *s*-stem based on PIE **d^hueh₂-* ‘smoke, produce smoke’¹ is well-attested from the earliest Greek, as in Myc. *tu-wo* /t^hu(ū)os/ ‘aromatic substance’ (incense, perfume) (PY Un 219.1), pl. *tu-we-a* (PY Un 267.3) and *tu-we-a₂* /t^hu(ū)eha/ (AV X 4.2).² A “face-value” reconstruction (Tran-sponat) would point to a PIE nom./acc. **d^huh₂-os*, with oblique stem **d^huh₂-es-*. The oblique stem, moreover, is attested as such in the secondary derivative in the form of an agent noun in **-teh₂(s)* appearing

¹ So [LIV²] *s. v.*, vs. [LIV¹] **d^heu_hh₂-*; more on this discrepancy below.

² The same word may also be attested in the orthographically unverbated sequence *tu-wo-te-to* /t^hu(ū)os t^heto/ ‘the sacrifice was set up’ (TH Fq 126.1), cf. [Melena 2014: 127].

in Myc. *tu-we-ta* /T^hu(ṽ)estā(s)/ (PY Un 267.2) ‘Θυέστης’, cf. θυέστης ‘pestle’ (Dionys. Trag., 4th cent. BCE).³ The same *s*-stem is continued in alphabetic Greek, in the form θύος (pl. θύεα) ‘burnt offering(s)’ (Hom.+).⁴

2

In terms of the standard “Erlangen” model of accent-ablaut patterns in the inflection of athematic formations,⁵ an *s*-stem with zero-grade root is anomalous.⁶ According to this theory, *s*-stems belong to the “proterokinetic” inflectional type, for which the ideal pattern displays nom./acc. *R(é)-os* (i.e., *e*-grade accented root followed by suffix *-*os*, with zero desinence), and oblique stem *R(Ø)-és-* (i.e., zero-grade root followed by accented suffix form *-*és-*, preceding oblique-case desinences). Moreover, there is a conventional remodeling of this pattern, generally thought to have occurred already during some stage of PIE,⁷ according to which the *e*-grade accented root was generalized throughout the paradigm,

³ Myc. *tu-we-ta* (actually dat. sg. in context) may be a man’s name; but to judge from the immediately following *a-re-pa-zo-o* /aleip^hazohōi/ ‘unguent-boiler’, it could be a “significant name”, such as the designation of an office-holder or an occupational term, something of this kind perhaps also suggested by the *figura etymologica* consisting of *tu-we-ta* together with the immediately following *tu-we-a*, *a-re-pa-te* /t^hu(ṽ)eha aleip^hatei/ ‘aromatic substances for unguent’ (PY Un 267.3–4); discussion and references at [DMic., 2: 381] s. v. *tu-we-ta*.

⁴ This etymological interpretation of the Mycenaean and post-Mycenaean material is the *communis opinio*, cf. [GEW; DELG; EDG] s. vv. θύος and 2. θύω.

⁵ For a concise summary of the traditional “Erlangen” model generally (for all athematic stem-classes), see [Fortson 2010: 119–122]. For some variants of the original model, see [Lundquist, Yates 2018: 2134] (with references).

⁶ The classic analysis and presentation of the “Erlangen” model of PIE *s*-stems is that of Schindler [1975].

⁷ See the discussion of this point in [Hale 2010], with important methodological remarks on [Schindler 1975] and the entire “Erlangen” analysis of PIE *s*-stems.

as in the widespread *s*-stem type exemplified by forms like Ved. nom./acc. *jánaḥ*, gen. *jánasaḥ* ~ Hom. γένος, gen. γένεος ~ Lat. *genus*, gen. *generis* ‘birth, lineage, etc.’, pointing to PIE nom./acc. **ǵénh₁-os*, obl. **ǵénh₁-es*.

The *s*-stem that appears in Myc. *tu-wo*, Hom. θύος is not entirely isolated. According to the most widely accepted etymology of Hitt. nom. *antuwahhaš*, obl. *antuhš-* ‘man’, the word reflects an “ἐνθρεος compound” **en-d^hueh₂-ōs* (obl. **en-d^huh₂-s-*) ‘having breath inside’ (see [EDHIL: 227] s. v., with references). The second member of such a form has the structure of an amphikinetic (animate) *s*-stem (to use the familiar Erlangen terminology); and since, in the standard theory, amphikinetic animate *s*-stems arose as internal derivatives of proterokinetic neuter *s*-stems,⁸ this would seem to imply the former existence of a neuter *s*-stem (nom./acc.) **d^hueh₂-os*. Nevertheless, Stüber [2002: 61–62],⁹ in part following Rieken [1999: 191], has raised important caveats about the Hittite word, with the necessary conclusion that the form is a “Neubildung”, even if a relatively old one. Therefore, and in view of the descriptive alternation between full grades **d^hueh₂-* and **d^heu_h2-* (one of the factors Stüber treats, cf. §1. above with n. 1), the Hittite form does not strongly support the existence of a neuter *s*-stem **d^hueh₂-os* with full-grade root.¹⁰

3

To be sure, Greek has other *s*-stems with zero-grade root; but for the most part these are transparently secondary, as with the well-known type βάρος ‘weight’ (Hdt., Aesch.+), based on the *u*-stem adjective βαρύς ‘heavy’ (Hom.+), with zero-grade root. Even if, as argued recently by Blanc [2018: 155–159], a noun βάρος must have existed early enough to serve as a basis for Homeric *s*-stem compounds with second member

⁸ See, e.g., [Weiss 2020a: 281] on Gk. κρέας ‘flesh’ vs. Lat. *cruur* ‘gore’.

⁹ An important discussion of the word not cited by Kloekhorst ([EDHIL] loc. cit.).

¹⁰ For these reasons, Kloekhorst’s assertion ([EDHIL] loc. cit.) that on the basis of the Hittite word and its conventional analysis “we can establish that the full-grade form in fact is **d^hueh₂-*” is not justified.

οβαρής, the *u*-stem source of the zero-grade root in βάρος remains assured, and the pattern is supported by many other examples.¹¹ This, moreover, is only one among a host of subtypes of secondarily-derived *s*-stems with zero-grade root: see, e.g., [Stüber 2002: 50; Meissner 2006: 42 and *passim*; Lundquist 2017: 80–94; 2021 (on αἰνοπαθής in *Od.* 18, 201); Blanc 2018: 239–243 (on πάθος [Aesch.+] beside πένθος [Hom.+])].

For θύος, however, the only secondary (i.e., inner-Greek) pattern available is the deverbative one, i.e., θύος ← θύω ‘offer, sacrifice (a victim)’ (Hom.+).¹² Nevertheless, Greek deverbative *s*-stems are otherwise mostly late: thus, e.g., σκύλος ‘hide’ (Callim.) ← σκύλλω ‘flay’ (Aesch.+), τρέφος ‘nursling’ (Soph.) ← τρέφω ‘nourish’ (Hom.+), and many more. Given the early attestation of Myc. *tu-wo*, Hom. θύος, it is at least equally possible that these forms continue an inherited *s*-stem nom./acc. **d^húh₂-os*, obl. **d^huh₂-es-*, discounting the questionable value of Hitt. *antuwahhaš* (§2.) and even in the apparent absence of a *secundum comparationis* with the same zero-grade structure.¹³ If that is so, the anomalous zero-grade root vocalism of such a form invites further comment.

4

There are in principle two main perspectives one could interrogate on zero-grade root vocalism in neuter *s*-stems, namely the original “Erlangen” model itself and more recent “anti-Erlangen” approaches.

¹¹ So also, e.g., πλάτος ‘breadth’ (Hdt.+)
← πλατύς ‘broad’ (Hom.+), βάθος ‘depth’ (Hdt.+)
← βαθύς ‘deep’ (Hom.+), beside cases already attested by the time of Homer (κράτος ‘power’ ← κρατύς ‘powerful’, τάχος ‘speed’ ← ταχύς ‘swift’).

¹² On the deverbative pattern, see Stüber [2002: 48–49], and more recently Lundquist [2017: 82–85]; explicitly on θύος ← θύω see Stüber [2002: 54], so also GEW and EDG s. v. θύος.

¹³ I expect to discuss elsewhere the possibility of an inherited Italic cognate, visible in a secondary formation **d^huh₂-es-ro-* continued in Lat. *februm* ‘purgamentum’ (Varro, *L.* 6.13), *februus* ‘purifying’ (Festus 75.23ff. L) and related forms.

4.1

In his original treatment, Schindler already identified two probable PIE *s*-stems with zero-grade root throughout the paradigm [Schindler 1975: 264–265], namely (in his notations, and with the forms he cited) **sr̥ígos* ‘cold, frost’ (Gk. ῥίγος, Lat. *frīgus*) and **p̥úyos* ‘pus’ (Gk. πύος, Lat. *pūs*). Some relatively trivial updates to this material can be provided. The first form is nowadays reconstructed with a PIE root **sriHg-* or **sriHǵ-* ([NIL: 634], s. v.; cf. the [LIV²] lemma **sreiHg-*, although no full grade is actually attested). And for the second, additional cognates have been seen in Ved. (abl. sg.) *puvasaḥ* (AVP 4.14.3, Lubotsky apud [de Vaan 2005:62]) and in Latv. (m. pl.) *puveši*,¹⁴ with a reconstructed form PIE **p̥úH-os* for the *s*-stem (cf. [Stüber 2002: 200]). Arm. *hu* (*o*-stem) ‘festering blood’ may also belong here, although this could be a loan from Iranian (cf. [EDAIL] s. v.).

Schindler’s commentary on these forms was limited to the following two observations: first, in both cases no full grade is attested anywhere; and second, more isolated material (i.e., where a zero-grade *s*-stem is attested in a single language) has little value, since such forms could have arisen secondarily, as with Greek forms based on *u*-stem adjectives of the type βῦρος (already seen above, §3.).

4.2

More recent scholarship has witnessed a significant amount of criticism of the Erlangen model of accent/ablaut patterning (the so-called “paradigmatic” approach), and the development of a new theory of Indo-European accent that has come to be known as the “compositional” approach, following [Kiparsky 2010].¹⁵ More specifically, a major target

¹⁴ I am informed, however, by Aurelijus Vijiūnas (p.c.) that the Latv. form need not be old.

¹⁵ Cf. also [Kiparsky forthcoming], as well as [Yates 2017].

of the post-Erlangen revisionism has been the accent/ablaut category of proterokinetic inflection;¹⁶ and a central role in this discussion has been played by Kümmel [2014], which sought to demonstrate that proterokinetic suffix ablaut is fundamentally a matter of phonotactics. Yet in all of this discussion, there has been no attention at all, as far as I can see, to aberrant *s*-stems with zero-grade root vocalism — this despite the iron-clad status of neuter *s*-stems as forms belonging to the category of proterokinetic inflection.

5

To move the discussion forward, at least in the limited scope available here, it is necessary to consider ways of expanding the number of data points beyond those already treated.

Certain types of forms, despite superficial appearances, are best excluded. It is not difficult, for example, to find archaic-looking neuter *s*-stems with zero-grade root that surface as first compound members,¹⁷ of the type **ḥ*₃*d-s-* (→ ὀσφραίνομαι ‘smell’), assuming first member **h*₃*d-s-* (vs. full-grade versions of the *s*-stem seen in Gk. -ώδης, Lat. *odor*).¹⁸ But here, the reduction is likely conditioned by the compounding. Or again: Schindler identifies isolated simplex forms as “kaum beweiskräftig” if possibilities exist for explaining the zero-grade root secondarily, as with two such items he mentions [Schindler 1975: 265]: Ved. *úras-* ‘breast’ (for the zero grade, perhaps cf. Ved. adj. *urú-* ‘broad’; see [EWAia, I: 226] s. v. *úras-*), and Lat. (neut.) *corpus* ‘body’, if indeed the ambiguous *o*-vocalism reflects a historical zero grade (cf., for the zero grade, forms of the corresponding root noun, as in RV [instr.] *kṛpā́*, GAv.

¹⁶ See, for example, [Vine 2004; Sandell 2013; Keydana 2013; Kim 2013: 83–87; Lundquist 2015; Lundquist, Yates 2018: 2134–2137].

¹⁷ For this type, see [Meier-Brügger 1989; Blanc 2018: 237–238].

¹⁸ On the technical possibility of **ḥ*₃*d-s-* < full-grade **h*₃*éd-s* in an original univerbation, see [Meier-Brügger 1989: 59].

[acc.] *kəhrpām* ‘appearance’). Or, finally for this point: extra-paradigmatic thematizations, of the type Ved. *útsa-* ‘well, spring’ (a standard example of a thematized neuter *s*-stem, vis-à-vis Gk. n. ὕδωρ ‘water’, cf. [Blanc 2018: 237]) tell us nothing about the original form of the nominal basis.¹⁹

I suggest, however, that there is an isolated form that could reasonably be judged “beweiskräftig”, namely Ved. *dúvas-* ‘gift, offering’ (RV+). This is traditionally taken to derive from a *u*-extended version of **deh₃₋* ‘give’,²⁰ comparing OLat. *duim*, OFal. **doiud** ‘give, grant’, U. **purtuvitu/purdouitu** ‘offer’ and similar forms. But there are a number of problems with this approach. To begin with, [LIV²] properly identifies **deh_{3u}* ‘geben’ as a questionable root, postulating a nominal *u*-stem basis; yet no actual evidence is available in support of such a construct. Likewise unconvincing is the account (as in [NIL: 65, n. 21]) that operates with a secondary pseudo-root **deh_{3u}* ‘geben’ (with zero grade **duh₃₋*) that is extracted from a misanalyzed **deh_{3-ue}n-* (cf. Ved. *dāván-* adj. ‘giving’, infinitival dat. *dāváne* ‘for giving’), whence secondarily **deh_{3u-en-}*. As for the Italic forms just cited (OLat. *duim* etc.): as shown by Jasanoff [1991: 108, n. 15], these can in fact be explained via plain **deh₃₋* without recourse to a root **deh_{3u-}*. Nor, as is now clear,²¹ does the Baltic material often placed here (such as the suppletive preterite Lith. *dāvė* to *dúodu* ‘give’) require such an entity.

Rather, Ved. *dúvas-* and the other zero-grade forms that may belong with it (not all of which, significantly, mean simply ‘give’) can be accommodated, as traditionally, by a different root altogether, namely 2. *deu-* (i.e., **d(e)uH-*) ‘(religiös) verehren etc.’ [IEW: 218–219]). In addition to Ved. *dúvas-* (< *s*-stem nom./acc. **dúH-os*, obl. **duH-es-*), note further the Umbrian participle **-títu/-ditom** (< **-dító-* < **-dūto-*, suppletive to **-tuvitu/-douitu**, cf. above on OLat. *duim* etc.) and (impersonal) 3 sg. prs. subj. *dia* (< **dūjāt*) ‘it is appropriate’ vel sim. (Tab. Ig. VIa 20).

¹⁹ Nor does ὕδωρ itself point definitively to a primary *s*-stem, in which case *útsa-* could have an entirely different sort of background; for references and discussion, see [Vine 2009: 220].

²⁰ So, e.g., [EWAia, 1: 734] s. v., following Meiser [1986: 186–191].

²¹ See in detail [Villanueva Svensson 2013] and [Yamazaki 2019].

Here also may belong OLat. DVENO-, Class. Lat. *bonus* ‘good’ (**du_xeno-* < **du_xeno-* < **duH-eno-*) and *beātus* ‘richly endowed, favored, blessed’ (Pl.+) (**du_xeīā-*, denom. to **duH-ejo-*).²²

If this analysis is correct, then PIE **duH-es-* can be placed beside **sriHg-es-*, **puH-es-*, and (according to the above analysis of Myc. *tu-wo*, Hom. θύος) **d^huh₂-es-*.

6

It is instructive, next, to consider **sriHg-es-* in somewhat more detail. In one respect this is a special case, insofar as it belongs to the Caland system: cf., as diagnostic forms (besides the neuter *s*-stem itself), the primary comparative and superlative in Hom. ῥίγιον/ῥίγιστα and the stative present in Lat. *frigēre* (Ter.+) and Gk. ῥιγέω ‘shudder’ (Hom.+).²³ Yet the salient point, for our purposes, is that no full grade is attested for this root, despite not only traditional assumptions about proterokinetic inflection for neuter *s*-stems (with *e*-grade root in strong forms, generalized throughout the paradigm at an early period, cf. §2. above), but also the amphikinetic inflection (again with *e*-grade root in strong forms) generally reconstructed for comparatives [Rau 2014].

This picture of a root that has no full grade (in morphological contexts where full grade is expected) is strongly reminiscent of other PIE “zero-grade roots” or “non-apophonetic roots”, of which the best-known is **b^huH-* ‘be, become’, according to the classic analysis by Jasanoff [1997]. Thus, despite Stüber [2002: 152], there is no reason to regard **sriHg-* as a “secondary root”, with an unspecified origin. Essentially the same picture emerges for **puH-* (cf. **puH-es-*, §4.1. above): [LIV²]

²² I have discussed elsewhere [Vine 2008, 2016, 2021] the resyllabification process in sequences like **du_xeno-* < **du_xeno-*. The etymology of Lat. *bonus*, of course, is much discussed; for a recent (and entirely different) account, see [Weiss 2020b: §20], with references (comparing Mlr. *den* ‘good, great’ vel sim.).

²³ On **sriHg-es-* as a Caland form, see [Nussbaum 1999: 378; Stüber 2002: 152].

(s.v. 2. **peuH-*) posits a PIE iterative-causative **pouH-éje/o-*, but only on the strength of ON *feýja* ‘verfaulen lassen’, which can easily be a secondary formation (note the absence of gemination that would be expected for a *set-*root); and no other full grades are attested (verbal or nominal), apart from one or two probable secondary ones (on which see [IEW: 848–849]). According to Stüber [2002: 200], the pervasive zero grade in the *s-*stem reflects an early “generalization” (based on a primordial ablauting paradigm), related to the paucity of verbal full grades; but this is merely an article of faith (and one which, in somewhat circular fashion, begs its own question: why are there so few verbal full grades?): there is no actual evidence for a primordial ablauting paradigm, and thus no evidence that a “generalization” is involved.

Only slightly different is **d^heuh₂-* ~ **d^hueh₂-* (§1. with n. 1, §2.): the uncertainty about the root shape is symptomatic, since full-grade forms are virtually unattested. Thus [LIV²] sets up a root present **d^hueh₂-*/**d^huh₂-*, but no full-grade verbal forms are found for this root, apart from secondary full grades (e.g. CS **dujo*, *duti*, cf. [LIV²] s. v. **d^hueh₂-*, n. 5). Among nominal forms: apart from the full grade in Hitt. *antuwahhaš* ‘man’, of questionable interpretation (§2.), one finds only a few forms that are interpretable as secondary full grades (e.g. Lat. *favilla* ‘ash’, cf. [Vine 2006: 241]).

Note, in connection with the non-Caland material, the morphological parallelism of the *CuH-* roots in question, all of which make *je/o-*presents: PIE **b^huH-je/o-* ([LIV²] s. v. **b^hueh₂-*), **d^huh₂-je/o-* (Gk. θύω [§3. above], Lat. (*suf*)*fire* ‘fumigate’),²⁴ **puH-je/o-* ([LIV²] s. v. 2. **peuH-*), **duH-je/o-* (U. *dia*, §5. above).

7

Nor are “zero-grade roots” restricted to those which may correlate with inherited *s-*stems. A well-known item appears in PIE **suH-iu-* ~ **suH-nu-* ‘son’, notorious precisely for its failure to conform to expectations about

²⁴ On the inherited character of PIE **d^huh₂-je/o-*, see [Hackstein 1995: 352].

proterokinetic inflection, much as with the zero-grade *s*-stems under discussion. This is a derivative of the verbal root set up by [LIV²] as **seuH-* ‘gebären’ (with verbal material in Indo-Iranian only); but in fact no verbal full grades are attested, neither for allegedly ablauting root present **séuH-/suH-* (cf. Ved. *súte*) in [LIV²] nor its allegedly ablauting perfect **se-sóuH-/suH-* (cf. Ved. *sasúva*). The latter is unsatisfactorily “explained” ([LIV²] s. v., n. 3) by the claim of a “generalized” zero grade (cf. above, §6., on such claims about “generalizations”), or else by the assertion (following Kümmel [2000: 566]) that the form is a Neubildung based on *abhúva*. But such an analogical basis lacks real support, beyond (as Kümmel points out) the late Vedic (MS) root aorist *asūt* (cf. Ved. *ábhūt*), a parallel that is of little consequence for the well-established Vedic perfect *sasúva* (RV, AV). Nor, for that matter, does this root provide nominal forms (see the survey at [NIL: 617]) with arguably archaic full grades: Skt. *savīman-* ‘birth’ has no existence beyond lexicographical sources, and YAv. *haota-* ‘family, brood’ probably involves a secondary full grade attendant on this type of substantivization ([NIL: 618, n. 13], citing [Vine 2004: 360–361] on similar forms like Av. *sraota-* ‘sound’).

8

It cannot have escaped notice that all of the forms discussed so far are remarkably similar in root shape, displaying a core sequence *CiH(C)* (as in **sriHg-*) or *CuH-* (as in **b^huH-*, **d^huh₂-*, **puH-*, **duH-*, **suH-*). Although a full investigation of the matter cannot be undertaken here, it is not difficult to find additional cases that deserve to be considered in this light, such as the following two:

- [LIV²] **k₁ueh₁-* ‘swell’, but there are no verbal full grades. Note further the symptomatic Schwebeablaut material (cf. §6. above on **d^heu₂-* vs. **d^hue₂-*), with both **k₁ueh₁-* and **ke₁uh₁-* nominal forms attested in Indo-Iranian (see [LIV²] s. v., n. 1). Particularly suggestive is Gk. *κῦμα* ‘wave’: neuter *men*-stems, yet again, belong to the core proterokinetic material, for which the zero grade here is entirely unexpected.

• [LIV²] **pne̥H-* ‘become conscious’, but Gk. *πέπνῶμαι* ‘be conscious, wise’, aor. ἄμπνῶτο, pf. πέπνῶσαι, Hitt. *punušzi* ‘ask’, with no full grades attested. A connection with *πνέ(ρ)ω* ‘breathe’ is rejected by [LIV²] and others; but even if it is valid, enlarged **pnu-H-* could have behaved differently from *ani̥* **pne̥H-*.²⁵

The factors that govern the relatively robust appearance of zero-grade (non-ablauting) *CiH-* and *CuH-* forms in full-grade morphological contexts likewise cannot be explored in detail here, and would in any event call for a good deal of speculation. These factors could in principle involve both phonological (or phonotactic) and morphological considerations. For example, in athematic categories (whether verbal or nominal) in which *CeiH-* or *CeuH-* roots were followed by consonantal suffixes or desinences, /*CeiH-C/* or /*CeuH-C/* sequences (with /*i̥HC/* and /*u̥HC/* clusters) might have been disfavored, perhaps related to constraints on syllabification (cf. [Byrd 2015, Ch. 3]), whence repairs via zero-grade forms in *CiH-* and *CuH-*. *CiH-* and *CuH-* could also have been favored as convenient “common” zero grades for no fewer than three different types of full-grade root shapes, i.e. (using *CuH-* as an example) *CeuH-*, *CueH-*, and “long-diphthong” *CeH-u-* (for which *CuH-* would be the standard metathesized zero grade version of preconsonantal *CHu-*). None of this need have involved “generalizations” of zero grade alternants in earlier ablauting paradigms (in the cases under discussion never actually attested, and therefore not reconstructible for the stage of Proto-Indo-European we can reach), though this could have been behind some such instances.

What is emphatically *not* being claimed — a point that seems to have been misunderstood by Kashima [2019: 137, n. 27], defending **b^hueh₂-* (vs. **b^huH-*, cf. §6. above) and reacting to an earlier and much-simplified version of the material presented here — is that **CeuH-* or **CueH-* roots (or formations with these structures) did not exist: surely they did exist;²⁶

²⁵ The relationship of *πέπνῶμαι* etc. with *πινυτός* ‘wise’ and similar Greek material is uncertain; “[e]nsemble sémantiquement cohérent, ... mais morphologiquement obscure” ([DELG] s. v. *πέπνῶμαι*).

²⁶ See Kashima (loc. cit.) for examples, e.g. **teuh₂-* ‘swell, be strong’ (cf. Ved. *távīti* etc.); and many more could of course be cited.

yet this fact *in and of itself* does not invalidate the patterns described above. I cannot, therefore, agree with Kashima that the *mere existence* of **CeuH-* and **CueH-* roots makes it “probable that apparently non-apophonic roots like **suH* once had a full-grade form”, and that the zero-grade form “may have been generalized in analogy with **b^huh₂* (< **b^hueh₂*); cf. §7. above on the inadequacy of this kind of analogical account for Ved. *sasúva*.

9

In brief summary:

- Myc. *tu-wo*, Hom.+ θύος may continue an inherited neuter *s*-stem (nom./acc. **d^húh₂-os*, obl. **d^huh₂-es-*), and Ved. *dúvas-* may continue a form of the same type (nom./acc. **dúH-os*, obl. **duH-es-*), to be placed alongside comparable zero-grade *s*-stems already recognized by Schindler (**sriHg-es-*, **púH-es-*).
- Such forms cannot be reflexively accounted for as weak-stem “generalizations” of earlier ablauting paradigms. Therefore, the category of neuter *s*-stems with pervasive zero-grade root represents a hitherto neglected contributor to the ongoing reevaluation of proterokinetic inflection and, more broadly, the reappraisal of the “Erlangen” (paradigmatic) approach to the reconstruction of accent and ablaut in athematic inflectional categories.
- Non-apophonic “zero-grade roots” (cf. [Jasanoff 1997]) on **b^huH-*, as well as other material discussed above, such as **suH-* in the word for ‘son’) deserve further investigation, and should be integrated into the descriptive framework not only of *s*-stems, but in principle also other athematic (including proterokinetic) formations: in addition to **suH-ju-* ~ **suH-nu-* ‘son’, also e.g. the apparent **kúh₁-mḡ* of Gk. κῦμα.

Abbreviations

1, 2, 3 — 1st, 2nd, 3rd person; acc. — accusative; adj. — adjective; aor. — aorist; dat. — dative; gen. — genitive; instr. — instrumental; m. — masculine; n — neuter; nom. — nominative; obl. — oblique; pf. — perfect; pl. — plural; prs. — present; sg. — singular; subj. — subjunctive.

AVP — Atharvaveda, the Paippalāda recension; MS — Maitrāyaṇī Saṃhitā.

Arm. — Armenian; Av. — Avestan; CS — Common Slavic; Gk. — Greek; Hitt. — Hittite; Lat. — Latin; Latv. — Latvian; Lith. — Lithuanian; Mir. — Middle Irish; Myc. — Mycenaean; OFal. — Old Faliscan; OLat. — Old Latin; ON — Old Norse; PIE — Proto-Indo-European; Skt. — Sanskrit; U. — Umbrian; Ved. — Vedic; YAv. — Younger Avestan.

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