How (exactly) to slay a dragon in Indo-European?
PIE **bheid- {h₃ég^whim, k^wr̥mi-}*[*]

Abstract: In this paper I present evidence for a formula associated with the Indo-European dragon-slaying myth, Proto-Indo-European [PIE] **bheid- {h₃ég^whim, k^wr̥mi-}* 'split serpent/worm'.

This formula is derived via an examination of the verbal collocations which frequently occur in the context of the Vedic dragon-combat; these involve not only √*han-* 'slay', but also the semantically more specific verbs √*bhid-* 'split', √*vraśc-* 'tear, cut, split', and √*ruj-* 'break'. Not only are these latter three verbs employed in describing the dragon-slaying itself, but they also often appear describing actions linked to the dragon-combat (e.g. the releasing of the waters/cows), and in both cases co-occur with forms of √*han-*. Vedic is found to provide robust evidence for the reconstruction of PIE **bheid- {h₃ég^whim, k^wr̥mi-}*, which is supported by data from Iranian and Germanic.

Though not as widely distributed as PIE **g^when- h₃ég^whim* 'slay serpent' (attested for instance in Vedic *áhann áhim* '(he) slew the serpent') – a formula discussed in great detail by Watkins (1987, 1995) – **bheid- {h₃ég^whim, k^wr̥mi-}* 'split serpent/worm' is semantically more specific, and therefore more distinctive, than **g^when- h₃ég^whim*, thus lending additional support for Watkins' thesis that there exists a distinctively Indo-European dragon-slaying myth, and serving to further characterise the nature of that myth.

1. Introduction: the reconstruction of Indo-European formulae and myths

Calvert Watkins (1987, 1995), in a sensitive close study of Indo-European texts drawn from Ireland to India, recovers a Proto-Indo-European [PIE] formula associated with the Indo-European dragon-slaying myth, **g^when- h₃ég^whim*. Watkins' thesis is this: while the general theme of slaying a serpent or dragon is attested in many cultures, particular formulaic collocations (or rather the etymological equatability, in the daughter languages, of partially-fixed phrases derived from the PIE form) can single out a specifically Indo-European version of this theme.

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Evidence suggesting an inherited PIE formula *$g^{w}hen$- $h_{3}ég^{w}him$ is abundant in both Indo-Aryan and Iranian, and Watkins (1995: 357-369) makes a plausible case that Greek also displays reflexes of *$g^{w}hen$-$h_{3}ég^{w}him$. However, moving beyond these three language families, the evidence for PIE *$g^{w}hen$- $h_{3}ég^{w}him$ becomes more problematic. Hittite, Old Norse and Old Irish present somewhat less convincing reflexes of *$g^{w}hen$- $h_{3}ég^{w}him$, as all of the potential reflexes in these three languages employ a root other than *$h_{3}ég^{w}him$ for the second term of the formula – and only in Old Norse and Hittite are there examples found in the context of dragon-slaying.

This is not to say that I dispute Watkins' claim that all of these examples reflect an inherited formula PIE *$g^{w}hen$- $h_{3}ég^{w}him$. On the contrary, the goal of this paper is to present further supporting evidence for Watkins' thesis that there existed a particularly Indo-European dragon-slaying myth. The difficulties one faces in positing that, for instance, ON *orms einbana* 'the serpent's single slayer' reflects and thus provides evidence for an inherited PIE formula *$g^{w}hen$- $h_{3}ég^{w}him$ are largely the same difficulties faced in all work in comparative linguistics. Matasović (1996: §308) provides a succinct synopsis of the situation:

> Comparative linguistics is neither mathematics nor natural science, and although the same criteria of rigor should apply to all of them, their results cannot be equally certain. As is the case with other historical sciences, the object of textual reconstruction is not directly observable. However, textual reconstruction is nevertheless an EMPIRICAL SCIENCE, and all of its hypotheses must be based on facts. The hypotheses of our science will be the more probable, the more they are confirmed by the facts.

Since the reconstruction of PIE formulae (or 'textual reconstruction' as Matasović puts it) necessarily involves the use of reasoning on the basis of indirect evidence, it is impossible to 'prove' that *$g^{w}hen$-$h_{3}ég^{w}him$ was a formulaic sequence in PIE or that the was a dragon-slaying myth that was part of the culture of PIE speakers. However, the more evidence can be amassed, the more probable these theses become.

In this paper I offer additional evidence for a PIE dragon-slaying myth through the consideration of other formulaic collocations which are associated with dragon-slaying. Specifically, I consider Vedic collocations which occur in the context of the Indra-Vritra combat involving the roots √*bhid*- 'split', √*vraśc*- 'split, rend' and √*ruj*- 'break', and compare these with formulations in Iranian and Germanic which appear to be cognate. These roots, when used to describe the action of dragon-slaying, have the advantage over √*han*- 'slay' (< PIE *$g^{w}hen$-) that they

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are semantically more informative since they describe a particular means of slaying.[1]

In addition, I investigate cases in which we find co-occurrence of formulae. Watkins 1995 suggests that a formula may express a theme which is socio-culturally significant – and thus events which we find to be repeatedly associated with formulaic sequences are likely to be those with some sort of cultural significance. An event is frequently associated with MULTIPLE formulaic sequences is thus even more likely to be one with a central place in the cultural ideology.

Matasović (1996: §114) points out that in both Old Irish and Vedic not only do we find a formula reflecting PIE *$g^{w}ōus$ h_2eg- 'to drive cattle', but that this formula frequently occurs alongside forms of PIE *$g^{w}hen$- 'to slay'. In Old Irish *$g^{w}ōus$ h_2eg- occurs as part of larger formulaic expressions with the meaning 'men are killed, women are taken, cattle are driven off', as in example (1).[2]

(1) fir gontair, mná brattair, **baí agthar**

(TBC, 3425)

'Men are killed, women are taken, **cattle are driven off**'

In the following example, (2), the same basic formula occurs, though here *bó* (< PIE *$g^{w}ōus$) has been replaced by *éit*.

(2) mná brataitir, ol Cú Chulaind, eti **agatair**, fir gonaitir

(TBC, 2124)

'Women are taken, said Cú Chulainn, cattle are **driven off**, men are killed.'

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[1] Cf. Matasović (1996: §103-4) on Schmitt's (1967: §493, 495-6, 501) reconstruction of PIE *h_1ekwos heh_3ku- 'swift horse', on the basis of the correspondence of Gr *ὠκύες ἵπποι* (in nom. pl. eleven times in Homer, e.g. *Il.* 5.257, 8.88 etc) and Vedic *áśvāso ...āśávo* (RV 10.78,5, in other cases as well, see Schmitt 1967: §493), along with the Avestan *āsu.aspa-* (which never occurs in the nominative plural). The metaphorical nature of PIE *$klewos$ $ndhg^{w}hitom$ 'imperishable fame', discussed below in Section 1.1.1, is absent in *h_1ekwos heh_3ku-. In other words, while 'imperishable' is highly informative with respect to 'fame', the epithet 'swift' is uninformative with respect to 'horse' since swiftness is an easily observable trait of horses, there is nothing remarkable, or peculiarly Indo-European, about the latter collocation.

[2] Translations from Matasović (1996: §114)

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In the RV twice we find a reflex of *$g^{w}ōus$ h_2eg- co-occuring with a form of √*han*-, once in the context of the dragon-fight (3a), the other in the context of the slaying of a demon named Dribhika (3b).[3]

(3) a. yó hatvā́him áriṇāt saptá síndhūn yó **gā́ udā́jad** apadhā́ valásya
yó áśmanor antár agníṁ jajā́na saṁvŕ̥k samátsu sá janāsa índraḥ
(RV 2.12,3)
'He who, having slain the serpent, let the seven rivers flow; who **drove out the cows**, after the removing of Vala; who gave birth to the fire between two stones, who gets loot in combats – he, o men, is Indra'

b. ádhvaryavo yó dŕ̥bhīkaṁ jaghā́na yó gā́ udā́jad...
(RV 2.14,3ab)
'O Adhvaryus, he (=Indra) who slew Dribhika, he who **drove out the cows**...'

Once it co-occurs with √*bhid*- (4), one of the verbs investigated later in this paper.

(4) **úd gā́ ājad** ábhinad bráhmaṇā valám...
(RV 2.24,3c)
'(Indra) **drove out the cows**; he **split Vala** with an incantation.'

The general co-occurrence of *$g^{w}ōus$ h_2eg- and *$g^{w}hen$- points to cattle-raids as an important event in PIE culture (cf. Lincoln 1976). The occurrence of *$g^{w}ōus$ h_2eg- in the context of dragon-slaying possibly indicates that cattle-raids and the dragon-slaying myth were connected in PIE (cf. Ivanov and Toporov 1974).

The remainder of Section 1 discusses how formulaicity is evaluated, from psycholinguistic, statistical, and philological perspectives, and establishes a classification of formulae based on the level of correspondence of their putative tokens. Section 2 reviews Watkins' (1987, 1995) evidence for the reconstruction of PIE *$g^{w}hen$- $h_3ég^{w}him$, and suggests that the formula would be better represented as *$g^{w}hen$- {$h_3ég^{w}hi$-, $k^{w}r̥mi$-}. In Section 3, I discuss the formulaic use of √*bhid*-, √*vraśc*-, and √*ruj*- in the context of the Vedic dragon-combat, amassing evidence for a Vedic inheritance of the PIE formula *$bheid$- {$h_3ég^{w}him$, $k^{w}r̥mi$-}. In Section 4, an Iranian reflex is suggested; and Section 5 examines the

[3] All translations herein are mine, unless otherwise noted.

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Germanic evidence for **bheid-* {*h₃ég^{w}him*, *k^{w}ĝ́mi-*}. Section 6, the concluding section, provides an overall evaluation of the validity of the reconstruction **bheid-* {*h₃ég^{w}him*, *k^{w}ĝ́mi-*} and suggests the thematic reason behind the splitting of the dragon in Indo-European – a topic to be further investigated in a future study.

1.1 *Formulaic language and PIE formulae*

In considering reconstructed formulae, it is perhaps useful to begin by distinguishing between the different types of reconstructions which can be established on the basis of correspondence between Indo-European texts.[4] It is also useful to consider the reconstruction of PIE formulae from the perspective of general linguistic studies of formulaic language (e.g. Firth 1957; Pawley and Syder 1983; Wray and Perkins 2000; Wray 2002; Garley et al. 2010 forthcoming). I begin with a tripartite classification of three types of correspondence upon which the existence of PIE formulae may be inferred (with varying degrees of confidence), illustrated with examples connected with the well-known 'imperishable fame' formula (Kuhn 1853).

1.1.1 *Classification of formulaic reconstructions*

A formula may be reconstructed on the basis of complete correspondence between texts, as in the case of Skt. *śrávo...ákṣitam* (RV 1.40,4b; 8.103,5b; 9.66,7c) and Gr. *κλέος ἄφθιτον* (*Il*. 9.413) 'imperishable fame', where not only the roots but the other morphological elements correspond genetically, thus allowing us to reconstruct a complete PIE formula **klewos ndhg^{w}hitom* (Schmitt 1967). Such a reconstruction can be referred to as a COMPLETE FORMULA.

Other correspondences involve etymologically cognate roots, but one or more of the words involves a different formation, as in Kuhn's (1853) original comparison of Gr. *κλέος ἄφθιτον* with Skt. *ákṣiti śrávas* (RV 1.9,7bc), where *ákṣiti* is built with a suffix **-tey-/-ti-*. The formulaic reconstruction made on the basis of this comparison would be PIE **klewos ndhg^{w}hi-*. This kind of reconstruction can be called an INCOMPLETE FORMULA.

Finally, some formulae are reconstructed on the basis of partial etymological correspondence of roots. This is the case of the RENEWED FORMULA, the name given on the basis of the idea that one or more of the languages in which the formula is supposed to be attested has 'renewed' the formula by replacing one or more of the roots with

[4] I use 'text' here simply to refer to one or more words.

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another which is (nearly) identical in its semantics. For obvious reasons, this is the most difficult case of reconstruction to establish with any degree of certainty. A somewhat doubtful example (Watkins 1995: 415-6, Matasović 1996: §102) would be the connection of OE. *dōm unlȳtel* 'un-little fame' (*Bwf.* 885b) with the 'imperishable fame' formulae discussed above, or more closely with the apparently related formula (attested only in Greek and Sanskrit) PIE **klewos megh₂* 'great fame' > Skt. *máhi śrávas*, Gr. *κλέος μέγα* (Schmitt 1967: §128ff.).

1.1.2 *Psycholinguistic and computational/statistical approaches to formulaic language*

From a psycholinguistic perspective, a formulaic sequence can be characterised as

> a sequence, continuous or discontinuous, of words or other meaning elements, which is, or appears to be, prefabricated: that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar. (Wray and Perkins 2000: 1)

In other words formulaic sequences are treated in some respects as individual items, 'stored and retrieved whole from memory' like single lexical items. As such, some formulaic sequences (often referred to as 'idioms') exhibit deviant syntactic behaviour, e.g. *by and large*; and/or semantic non-compositionality, e.g. *kick the bucket*; or compositionality with shifted (metaphorical) reference (Nunberg et al. 1994), e.g. *spill the beans*. But many (perhaps most) formulaic sequences are perfectly regular both syntactically and semantically, which is unsurprising if, as Wray and Perkins (2000) suggest, formulaic sequences primarily serve two functions: as a crutch for language-production, where 'prefabrication' acts as a countermeasure against the limits of memory and (neurolinguistic) linguistic processing capacity, aiding in the real-time production of fluent speech; and as a means of indexing socio-cultural identity.[5]

[5] From a less explicitly psycholinguistically-oriented perspective, the tradition of 'oral-formulaic' analysis originating in Milman Parry's (1928, 1930, 1971) comparisons of the Homeric epics with traditional Yugoslavian oral verse, arrives at similar conclusions about the functional properties of formulaic language. For Parry (1930) the fact that both the Homeric epics and the traditional oral verse of the former Yugoslavia (the latter composed largely by unlettered poets) are characterised by the repeated use of 'frozen' traditional formulae suggested that the Homeric epics were composed in a manner similar to what he observed to be the case for the traditional Yugoslavian verse, i.e. that the frequent appearance of 'ready-made' formulae is due to the fact that this use

Unfortunately, such psycholinguistic and functional characterisations of formulaic language do not usually provide a ready means of actual identification of particular linguistic sequences as being formulaic or not. Some formulaic sequences can be readily identified as such by native speakers of a language, i.e. English speakers have an intuition that *friend or foe* is formulaic whereas *friend or enemy* is not – this is of course of little help for the purposes of *detecting* formulae in texts composed a millennium or more before the present day.

Computationally-implemented statistical approaches to collocations are potentially useful as a method of evaluating formulaicity.[6] A simple count of the number of times a collocation appears in a text is not very telling in terms of whether or not the collocation is formulaic. For examples, in the consideration of a newspaper corpus, the collocation *of the* would be extremely frequent, but one would not want to count *of the* as formulaic. The computational-statistical algorithms provide a more reliable metric of formulaicity by comparing the frequency of the occurrence of XY against: the frequency of the occurrence of X¬Y,[7] the frequency of the occurrence of ¬XY, and the frequency of occurrence of ¬X¬Y. These algorithms thus would not evaluate *of the* as being very formulaic since both *of* and *the* frequently occur outside of the string *of the*.

The potential usefulness of such approaches can be illustrated by considering the ranking in terms of collocational strength of all of the bigram sequences from the RV.[8] The prototypical Vedic dragon-slaying

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of prefabricated linguistic sequences allowed for the fluent production of verse in real-time.

Later 'oral-formulaic' practitioners (Foley 1991; Nagy 1996, 2004a,b) have emphasised the importance of the socio-cultural aspect of formulaic language; Foley (1991: 5-6) refers to this feature of formulaic language as 'traditional referentiality', which he suggests is some ways similar to literary allusion, except that, rather than making reference to a particular scene or image in a particular text, traditional referential elements 'reach out of the immediate instance in which they appear to the fecund totality of the entire tradition...bear[ing] meanings as wide and deep as the tradition they encode' (Foley 1991: 7).

[6] For sake of exposition, I restrict the discussion to the evaluation of bigram collocations, i.e. collocations with only two elements, though the method discussed is applicable also in the case of collocations with more than two elements. For a general introduction to computational methods for the extraction of n-grams from a text, see Roark and Sproat (2007).

[7] I.e. the occurrence of X followed by an element which is something other than Y.

[8] This was done by first extracting all of the bigram sequences from the RV, using the *pada pātha* text available in electronic form from the Thesaurus Indogermanischer Text- und Sprachmaterialien [http://titus.uni-frankfurt.de]. The resulting bigrams were then

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formulae *áhann áhim* ranks extremely highly in terms of the strength of association between *áhann* and *áhim*, out of the 165004 bigrams in the RV, *áhann áhim* is in the top 0.1%.[9] Here the computational-statistical approach thus provides strong support for the idea that *áhann áhim* is formulaic in the RV.

In other cases, such statistical methods yield less helpful results. For example, *κλέος ἄφθιτον* occurs only once in Homer (*Il.* 9.413), and so is not statistically a very strong collocation in Homer. However, as Matasović (1996: §97) points out, it occurs in a passage which is crucial for both the storyline and artistic impression of the epic: Achilles wonders whether he should return alive to Phthia; or fight and perish at Troy, thereby obtaining *κλέος ἄφθιτον* 'imperishable fame' (*Il.* 9.412-413) – a decisive point in the epic which encapsulates the basic theme of entire Iliad. Likewise, additional computational complexity would have to be introduced into the algorithms calculating the association strength of elements in order to detect formulaic instances like Skt. *śrávo...ákṣitam* (RV 1.40,4b; 8.103,5b; 9.66,7c) where the formula is discontinuous.

In summary: the psycholinguistic characteristic of formulaic language – while useful in thinking about what it means for something to be formulaic – does not offer a ready means for the identification of formulaic language in old texts; the computation-statistical approach is potentially useful, but is of limited use in the identification of discontinuous formulae or formulae which are infrequent but identifiable by philological means by their context.

However, the results of research on formulaic sequences in (modern) spoken languages is helpful in evaluating whether or not two pieces of text constitute tokens of the same formula, as discussed in the following section.

1.1.3 *Complete and incomplete formulae: formulaic flexibility*

Schmitt 1967 largely accepts only complete formulae, and those based upon the correspondence between Indo-Iranian and Greek texts (see Matasović 1996: §10-12, §56ff. for some discussion of the reactions of

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evaluated by using the log-likelihood test of association (Dunning 1993, Moore 2004), as implemented in the Ngram Statistics Package (Banerjee and Pedersen 2003).

[9] *áhan(n) X* appears 40 times in the RV. In 11 instances X=*áhim*, in 5 instances X=*vr̥trám* (putting *áhan vr̥trám* in the top 0.7%), with no other value of X occurring more than twice, and the majority only once.

other researchers to Schmitt 1967), two branches in which we have extant texts from a very early period. In the case of branches which are only attested from a much later date (e.g. Germanic) we are of course more likely to encounter cases of incomplete correspondence.

Campanile (1993) presents an example which he construes as presenting difficulties for the Schmitt-style 'formalist' reconstruction which requires correspondence in form as well as meaning. Campanile suggests that the following set of correspondences illustrate the difficulties in accepting only complete formulae as reconstructable for PIE (cf. Matasović 1996: §59). Comparison of the following collocations would seem suggest an inherited PIE formula: Skt. *vā́cam ...bharāmahe* (RV 1.53,1a) 'we bear the word', *vā́cam...bibharti* (RV 10.177,2a) 'he bears the word', Av. *vācəm baraitī* (Y. 31.12) 'he bears the word (=he speaks)', Gr. *ἔπος φέρειν* (in Euripides), L. *vocem (ad-) fert* (in Virgil). From these examples we cannot construct a complete formula as the examples vary in which person the verb occurs,[10] and whether the noun 'word' is a root-noun (Ved. *vāk-* < PIE *wōk^{w}-*), or an s-stem (Gr. *ἔπος* < PIE **wek^{w}os*).

Consideration of modern English formulaic phrases also points to the fact that the grammatical/functional elements (such as tense, person/number agreement etc.) of a formula can often be varied without altering the formulaic nature of the collocation itself. For example, consider the variant realisations of the idiom *let the cat out of the bag*: *Don't let the cat out of the bag; He always lets the cat out of the bag; You will let the cat out of the bag* etc.

However, there are some difficulties with Campanile's equating of the Sanskrit, Avestan, Greek and Latin texts. Perhaps the more serious issue is that Campanile's examples do not seem to be equatable in terms of their semantics. The Vedic formulations appear to carry a sense of 'bringing forth of sacred speech', whereas the apparent equivalents in Greek and Latin bear a more prosaic sense of 'to speak'.

Further, it is not entirely clear that different stem-forms of the same root, e.g. PIE **wōk^{w}-* and **wek^{w}os*, are instances of the same 'word', or if the Greek form would have to be considered an instance of renewal on a par with formulae in which one root has been replaced by another. As discussed in the following section, though renewal of terms of a formula would seem to be an expected phenomenon, such renewal makes it more difficult to confidently identify the true correspondences between texts upon which formulaic reconstruction depends.

[10] To connect RV 10.177,2a we also have to allow for a reduplicated present.

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1.1.4 *Formulaic renewal*

Replacement/renewal is common in the case of single lexical items, e.g. OE *hund* and Skt. *śvan* were the unmarked terms for 'dog', both deriving via mechanical sound change from PIE **ḱwon-*. However, in the modern descendants of these languages, we find lexical replacement on both sides: the unmarked words for 'dog' are English *dog* (< OE *docga*, of unknown origin) and Nepali *kukur* (< Skt. *kurkuráḥ*).[11] It is to be expected that formulaic sequences are susceptible to the same forces which lead to the replacement of individual lexical items.

However, instances of formulaic sequences in modern English often exhibit resistance to such renewal/replacement of lexical items under (near) semantic identity, e.g. if one of the elements of the idioms *friend or foe* or *kick the bucket* is replaced under semantic identity – for instance *friend or enemy* or *kick the pail* – the result is not formulaic, and in the case of *by and large*, the 'renewed' form **by and big* is simply ungrammatical. Additionally, though it is sometimes suggested that replacement is to be expected when one of the old terms of the formula becomes obsolete (e.g. Matasović 1996: §102) on possible reflexes of PIE **klewos megh₂* 'great fame' in Slavic and Celtic with lexical replacement of **megh₂* on the basis that in both Old Irish and Slavic no adjectival form of **megh₂* survives), obsolete words often survive just in the case that they are part of a formulaic expression (sometimes with reinterpretation or folk-etymologising). For instance, in English *with kith and kin* 'with friends and family; with the whole family' (OED), *kin* is rather archaic and *kith* (< OE *cȳþ* 'knowledge; known, familiar country; acquaintances, friends') is found only in this context.[12] In the German formulaic expression *mit Kind und Kegel* 'with the whole family', *Kegel*, like *kith*, is similarly opaque; Lambrecht (1984: 782) comments that '[o]nly etymologically sophisticated speakers know that *Kegel* once meant "illegitimate child" (and that it

[11] In some cases, lexical replacement is incomplete in the sense that the old unmarked form remains in the language with a specialisation of meaning, e.g. PIE **ḱwon-* survives, with specialisation of meaning, in Hindi *sonhā* 'a kind of wild dog' (Turner 1962-1966: #12750, #12651). English *hound* of course survives with the specialised meaning of 'hunting dog', while *Hund* remains the unmarked word for 'dog' in German. The Hindi form *kuttā* 'dog' is not directly related to Skt. *kurkuráḥ*; while Hindi *kūkar* is cognate with Nepali *kukur*, but shows a specialised meaning of 'puppy' (Hock and Joseph 1996: 234-5).

[12] The first instance of this idiom occurs in 1377 in *Piers Plowman* where it means 'native land and people' (OED); the phrase later develops semantically to mean 'with family and acquaintances' or 'with the whole family'.

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has nothing to do with the homophonous *Kegel* "cone"), so that *mit Kind und Kegel* literally meant "with child and bastard"'. Further the phrase *to have and to hold* (as in the English wedding vows) is a formula where the *signifiants* have survived intact (cp. *hēold mec ond hæfde* (*Bwf.* 2430a) 'protected and looked after me') with a shift in the interpretation to 'keep and embrace' mirroring the changes in the *signifiés* of 'have' and 'hold'.

On the other hand, there are modern English formulae which do allow for variation of the terms, e.g. *between the Devil and the deep blue sea* and *between a rock and a hard place*, both variations on older *between Scylla and Charybdis*; *to blow one's top* and *to blow one's stack*. Moreover, other formulaic sequences are extremely mutable, such as *If* X *is good enough for* Y*, then* X *is good enough for me* (cf. Pawley and Syder 1983: 212).[13] So formulae do appear in principle to be mutable, but mutability varies widely from one formula to another.

Furthermore, even formulaic expressions which are normally very restricted in terms of variation can, in the right context, be creatively distorted. For instance, though none of the lexical elements of the English idiom *to kick the bucket* can usually be varied (i.e. *to kick the pail* doesn't have the idiomatic meaning), the following example, (5), is perfectly acceptable to native English speakers.

(5) Nah, he didn't kick the bucket – he barely nudged it
(said of someone who had a what perhaps seemed like a near-fatal experience, but wasn't)

For further discussion, see Carter 2004, who gives other examples of creative reforming of idioms like *I guess you are now over the moon, Mars, Jupiter and the whole galaxy* (based on the fixed idiom *to be over the moon*).[14]

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[13] In fact, a special term has been coined for this kind of formulaic sequence which originate as variants of some well-known phrase: 'snowclone' (see Pullum 2003, 2004); the name given with reference to the formulaic phrase *If Eskimos have* N *words for snow, then....* A more typical example is X *is the new* Y (originally X *is the new black*, earlier X *is the new neutral* – itself apparently ultimately stemming from a catch-phrase of fashion editor Diana Vreeland, cf. 'And, though it's so *vieux jeu* I can hardly bear to repeat it, pink *is* the navy blue of India' (Vreeland 1984, cp. Zimmer 2006). An online database of such 'snowclones' is available at http://snowclones.org/.

[14] Examples of this sort can be easily multiplied, e.g. *she let all of the cats out of the bag* 'she revealed all of the secrets' etc.

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Since there is no reason to believe that the poets of the RV, the Avestas, *Beowulf*, the Eddas etc. were any less creative in their use of language (including formulaic expressions) than modern day speakers (quite the contrary, in fact), we must allow for the fact that some instances of what appear to be formulaic renewal may simply reflect the creative artistic reforming of an inherited formula.

2. Watkins' **g^{w}hen- h$_3$ég^{w}him*

In this section I briefly review Watkins' (1995) primary examples for the reconstruction of PIE **g^{w}hen- h$_3$ég^{w}him*. I show that, based on the arguments laid out above in section 1.1, **g^{w}hen- h$_3$ég^{w}him* can be reconstructed for PIE with a high degree of probability. However, while some of the examples Watkins cites as instances of variants of this formula are reasonable, in other cases Watkins casts his nets too wide, his notion of 'themes'[15] leading him to posit **g^{w}hen- h$_3$ég^{w}him* as existing at such a level of abstraction as to potentially allow an enormous range of expressions to count as reflexes.

Not only does Watkins (1995: 302) suggest that the **g^{w}hen- h$_3$ég^{w}him* formula is represented abstractly ('thematically') as HERO SLAY (**g^{w}hen-*) SERPENT (with WEAPON/COMPANION), but he allows for great variation even at this level of abstraction:

> The semantic constituents of the basic theme may undergo paradigmatic (commutational) variants: for the HERO's name there may appear an epithet (e.g., slayer); for SLAY we may find KILL, SMITE, OVERCOME, BEAT, etc.; for SERPENT (ADVERSARY) we may find MONSTER, BEAST, but also HERO$_2$ or ANTI-HERO.

As Justus (1997: 640) points out, 'how is SLAY ADVERSARY ([with] WEAPON) of peculiarly IE inheritance and not the epitome of a

[15] Watkins (1987: 270-1) says of formulae and themes:
Formulas are the vehicles, the carriers of *themes*; *theme* is the deep structure of *formula*. These formulas are collectively the verbal expressions of the traditional culture of the Indo-European, which is the totality of themes. They are not remembered and repeated merely because they delight the ear; rather they are *signals*, in poetic elaboration and as verbal art, of the relations of things: of the traditional conceptualizations, the perception of man and the universe, the values and expectations of the society. The function of the Indo-European poet was to be the custodian and transmitter of this tradition. The totality of themes as expressed in formulas was in a preliterate society entrusted precisely to the professionals of the word, the poets.

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western culture that started over five thousand years ago when Sumerian Gilgamesh slew his Ancient Near Eastern monster, Humbaba?'

Verbal expressions, whether morphemes or multi-word texts, can be (probabilistically) reconstructed via the application of the comparative method. Cultural facts or patterns ('themes') cannot be directly compared in this way, and, further, cultural patterns and conceptions may easily be innovated or borrowed or simply represent more universally human ideas. In dealing with the reconstruction of texts, it is preferable to adopt a more conservative position, such as that expressed by Matasović (1996: §72):

> The genetic correspondence of themes [in Watkins' sense--BMS] can be proved only by etymological correspondence of the formulas by which these themes are expressed in the genetically related languages; we must try to avoid at any cost the circular reasoning by which some cultural contents are attributed to the Proto-Indo-Europeans, because they are expressed by formulas in various IE languages, while, on the other hand, we define formulas as those syntagms or phrases that express the contents attested in other IE linguistic communities.

In reconstructing PIE formulae, one must allow for some amount of variation, for reasons discussed previously, but etymological correspondence must remain the core component.[16]

2.1 *Indo-Iranian: an almost complete formula*

In the RV, one of the primary functions of Indra, the storm-god, is the slaying of the demon serpent Vritra, who hoards waters and/or cows (on the hoarding of cows as belonging to the Vritra myth see Venkatasubbiah 1965). A well-known instance of this event is narrated in RV 1.32, see example (6) below.

(6) índrasya nú vīryā̀ṇi prá vocaṁ
yā́ni cakā́ra prathamā́ni vajrī́
áhann áhim ánv apás tatarda
prá vakṣáṇā abhinat párvatānām

áhann áhim párvate śiśriyāṇám

(RV 1.32,1,2a)

[16] On constraining formulaic reconstruction, see also the '3 2 1 rule' of Fisher (2007): A traditional sequence of Proto-Indo-European date is likely when a collocation of two or more words consisting of established reflexes of IE roots, expressing the same semantic message, and retaining at least one reflex of the reconstructed roots exists in three separate branches and that one of these phrases occurs at least three times in at least one branch. In addition at least one branch should consistently deploy both roots.

‘I tell now of the heroism of Indra,
the first which he did armed with a *vajra*[17].
He **slew the serpent**, afterwards drilled through to the waters,
he split through the bellies of the mountains.

He **slew the serpent** who lay on the mountain...’

Indra’s serpentine opponent is sometimes referred to as an *áhi-* ‘serpent’ (< PIE **h₃ég^{w}hi-*), but more frequently by its ‘name’: *vṛtrá-* ‘the encloser’ (< IIr. **wṛtrám* ‘obstruction, obstacle, resistance’, cf. Benveniste and Renou 1934). The waters enclosed by Vritra appear, at least originally, to be conceived of as being headwaters originating in the mountains (cf. Oldenberg 1923/1988), though later on these seem to be reconceptualised as rain as the Nighaṇṭu (I.10) considers both *vṛtrá-* and *áhi-* as synonyms for ‘cloud’ (and Sāyaṇa too interprets Vritra as a cloud, and Indra’s slaying of him as the release of rain from the cloud). Further discussion of the Indra-Vritra combat can be found in Oldenberg (1923/1988); Benveniste and Renou (1934); Venkatasubbiah (1965); Schmidt (1968); Dandekar (1979); Lahiri (1984); Gonda (1989); Falk (1997); Söhnen (1997); Söhnen-Thieme (2001); Witzel (2004), and in Section 3.

The prototypical Vedic dragon-slaying formula is *áhann áhim*, found in this form eleven times in the RV,[18] which Watkins (1995) suggests reflects an inherited formula PIE **(é)g^{w}hent h₃ég^{w}him*.

In Iranian, we find a collocation which stands in almost perfect correspondence to Vedic *áhann áhim*: Avestan *(yō) janaṯ ažīm*, associated with the slaying of a dragon by the (human) hero Thraetaona, as in example (7) below.[19]

(7) ...ϑraētaonō...
yō **janaṯ ažīm** dahākəm
ϑrizafanəm ϑrikamərəδəm
xšuuaš.ašīm hazaŋrā.yaoxštīm...

(Yt. 14.38,40)

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[17] ‘Thunderbolt’ or perhaps ‘cudgel’.

[18] 3sg.: 1.32,1,2; 1.103,2; 4.28,1; 5.29,3; 10.67,12. 2sg.: 2.11,5; 3.32,11; 4.19,2; 6.30,4; 10.133,2.

[19] On the Avestan dragon-slaying story, see Benveniste and Renou 1934.

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'...Thraetaona...
who **slew (the dragon) Azi** Dahaka,
the three-jawed, three-headed,
six-eyed one of a thousand skills...'

The sequence *(yō) janaṯ ažīm* occurs also in Y. 9.8. The etymological correspondence between the Vedic and Avestan formulae is not quite perfect since the Avestan imperfect *janaṯ* has been thematised[20] (and the Avestan expression occurs as a relative clause),[21] but on the whole Watkins' evidence for an Indo-Iranian formula reflecting PIE **(é)g^{w}hent h$_3$ég^{w}him* is fairly sound (cf. Benveniste and Renou 1934).

2.2 *Greek: a virtual correspondence*

The Greek data are somewhat more difficult, as we here we find no direct reflexes of PIE **g^{w}hen- h$_3$ég^{w}him*. However, Watkins (1995: 364) derives a 'virtual' reflex by comparing two passages from Pindaric odes, *Ol*. 13.63-4, (8), mentioning the Pegasus as the child of the serpentine Gorgon, and *Pyth*. 10.46-8, (9), which narrates Perseus's slaying of the Gorgon.[22]

(8) ὅς τᾶς **ὀφι**ήδεος υἱόν ποτε **Γοργόνος** ἦ πόλλ' ἀμφὶ κρουνοῖς
Πάγασον ζεῦξαι ποθέων ἔπαθεν
(*Ol*. 13.63-4)
'who beside the Springs, striving to break the **serpent Gorgon's** child, Pegasos, endured much hardship.'

(9) ἐς ἀνδρῶν μακάρων ὅμιλον· **ἔπεθνέν** τε **Γοργόνα** καὶ ποικίλον κάρα
δρακόντων φόβαισιν ἤλυθε νασιώταις
λίθινον θάνατον φέρων
(*Pyth*. 10.46-8)
'...to that throng of blessed men. He **slew** the **Gorgon**,
came bearing the head, intricate with snake hair,
the stony death to the islanders.'

As Watkins (1995: 364) puts it, '[by] [c]ombining the syntagms *ὀφιήδεος...Γοργόνος* and *ἔπεθνέν Γοργόνα* we can restore the real

[20] Cp. Old Persian *aja*.
[21] The lack of an augment in Avestan is not as problematic since the Vedic imperfect occurs also in an augmentless form as *hán*.
[22] Translations from Lattimore 1960.

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mythographic formula, just below the surface.' Watkins' virtual formula is given in (10).

(10) *ἔπεθνεν ὀφιν

Comparison of the Indo-Iranian and Greek evidence thus can only result in the reconstruction of an incomplete formula, PIE *$g^{w}hen$- $h_{3}ég^{w}him$. As discussed above in Section 1.1.3, incomplete formulae still provide good evidence for the existence of a formula in the proto-language, since even contemporary English formulaic expression often allow for variation of tense, number etc. Thus Watkins' virtual *$ἔπεθνεν$ $ὀφιν$ does seem to support a reconstruction of *$g^{w}hen$- $h_{3}ég^{w}him$, surviving at least in Indo-Iranian and Greek.

2.3 *Hittite and Old Irish: formulaic renewal*

In Hittite we do find the verb *kuenta* 'slew' – which corresponds exactly to the Vedic imperfect *(á)han* – employed in a dragon-slaying context. However, we do not find any reflex of PIE *$h_{3}ég^{w}hi$-, but instead Hittite *illuyanka*- (apparently the unmarked Hittite term for 'serpent', cf. Beckman 1982) as shown in example (11).

(11) ^{D}IM-aš uit nu=kan ^{MUŠ}**illuy**[**ankan**]
kuenta DINGIR^{MEŠ}-š=a katti=šši ešer
(CTH §12, KBo. 17.5 i 17)
'(Tarḫunnas) came and he **killed the serpent**;
and the gods were with him.'

We may only assume that Hittite *illuyankan kuenta* reflects an inherited PIE *$g^{w}hen$- $h_{3}ég^{w}him$ if we suppose that the Hittite formula has been 'renewed', replacing *$h_{3}ég^{w}hi$- with *illuyanka*-. Of course, as discussed above in Section 1.1.4, in principle formulae, like lexical items, may undergo renewal; however, the comparison of a potentially refashioned formula like *illuyankan kuenta* with, for instance, Vedic *áhann áhim*, does not constitute robust evidence for the reconstruction of PIE *$g^{w}hen$- $h_{3}ég^{w}him$ as does the correspondence of the Vedic formula with the Avestan or Greek examples discussed above. The fact that a reflex of *$h_{3}ég^{w}hi$- does not occur elsewhere in Hittite, where *illuyanka*- has become the unmarked term for 'serpent', does little to strengthen the correspondence, since often otherwise obsolete words survive just in the context of the formula (cp. English *kith* in *kith and kin*, as discussed above in Section 1.1.4).

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The possible Celtic reflex of PIE *$g^{w}hen$- $h_{3}ég^{w}him$ proposed by Watkins is a bit of (somewhat garbled) Old Irish found in an Old English medico-magical treatise (*Lacunga*, Harl. 585), in the context of a *wyrm gealdor* (charm against body-internal worms), to be sung into the ear of a person or animal who has swallowed a worm. The relevant portion is given in example (12).[23]

(12) **Gonomil** orgomil marbumil

(Pollington 2000)

'I **slay the beast**, I slaughter the beast, I kill the beast.'

Here again no reflex of *$h_{3}ég^{w}hi$- is found, and *gono* is a 1sg. present absolute form (not an imperfect as in the Indo-Aryan, Iranian, and Hittite examples), and *mīl* means 'beast' and not 'serpent' or 'dragon'. The possible connection of *gonomil...* with *$g^{w}hen$- $h_{3}ég^{w}him$ derives from the fact that OE *wyrm* is used to refer not only to worms, but also to snakes and dragons. And, in fact, as discussed below in Sections 4 and 5, there is evidence that PIE *$k^{w}ɼmi$- (of which OE *wyrm* appears to be a reflex, with deformation of the initial consonant) may also have referred not only to 'worms' but also to 'serpents'. However, be that as it may, this is to a certain extent irrelevant for the Old Irish example in (12), which does not itself contain a reflex of *$k^{w}ɼmi$-, and which thus constitutes rather weak evidence for the reconstruction of PIE *$g^{w}hen$-$h_{3}ég^{w}him$.

2.4 *Germanic *wurmi-banōn and Indo-Iranian *$k^{w}ɼmi$-: variation in PIE*

Germanic also possesses no reflex of PIE *$h_{3}ég^{w}hi$-, for 'serpent' we instead find Gmc. **wurmiz* < PIE *$wɼmis$, a rhyme formation (possibly a tabu-deformation) in Indo-European of *$k^{w}ɼmis$ (cp. Latin *uermis*). For 'slay', Gmc. displays no non-derived verbal reflex of PIE *$g^{w}hen$-, but instead employs **ban-ōn*, which appears to derive from an *o*-grade form *$g^{w}hon$-, though the phonological developments involved are not completely clear.[24]

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[23] See Thurneyson 1919 on the translation of *gonomil orgomil marbumil* 'I slay etc.', and Meroney 1945 for further discussion of the remainder of the Irish words of this charm.

[24] Watkins (1995: 423), following Seebold (1967) (cf. Ringe 2006: 105-112), takes **b* to be the normal reflex in Gmc. of PIE *$g^{w}h$, in word-initial position not followed by a reflex of a PIE sonorant. Before **u* (and thus before the sonorants PIE *$ɼ$, *$ɲ$, *$ɬ$ > Gmc. **ur*, *un*, *ul*), *g^{w} appears to have been delabialised, bleeding the change *$g^{w}(h)$- > **b*

Key examples of Gmc. **wurmi-banōn* are found in Old Norse, as in (13) and (14) below, with reference to the slaying of the Midgard-serpent by Thor, the Germanic storm god.

(13) **orms** ein**bani**

(Edda(El), *Hymiskviða* 22)

'the **serpent's** single **bane**' (=Thor)

(14) Þórr berr **bana**orð af Miðgarðs**ormi**

(Edda(Sn), p.72)

'Thor bears the **killer's** word to the Midgard-**serpent**' (= Thor will slay the Midgard serpent)

Such Germanic examples, with renewal of the second term of **g^{w}hen-h$_3$ég^{w}him* would constitute no better evidence than the Hittite examples but for the fact that **g^{w}h(e/o)n- k^{w}ŗmi-* appears to be a synchronic variant in PIE of **g^{w}hen- h$_3$ég^{w}him*, on the basis of evidence from Indo-Iranian, as discussed below.

(Seebold 1967; Ringe 2006: 92, 106-122): thus ON *gunnr*, OE *gūþ* 'battle, war' < a zero-grade form **g^{w}hn-* (> Pre-Gmc. **g^{w}(h)un-* > Gmc. **gun-*). Following a homorganic nasal, **g^{w}(h)* > Gmc. **gw*, e.g. from PIE **seng^{w}h-* 'chant' > Gmc. **singwanǫ* 'sing' (cf. Goth. *siggwan*, ON *syngva*, but with loss of labialisation in OE, OS, OHG *singan*). Intervocalically apparently **g^{w}(h)* > Gmc. **w*, as in PIE **snóiǵ^{w}h-os*, *o*-grade derivative of **sneiǵ^{w}h-* 'snow', > Gmc. **snaiwaz* (cf. Goth. *snaiws*, ON *snjór*, OE *snāw*, OHG *snēo*). On the one hand, Gmc. **warmo-* (cf. ON *varmr*, OE *wearm* etc.) appears to be straight-forwardly derivable from PIE **g^{w}horm-o* 'warm', *o*-grade derivative of **g^{w}herm-* (cp. the reflexes of the *e*- and *o*-grade forms of this root in Skt. *gharmá* 'heat', Av. *garəma-* 'hot', Gk. *θερμός* 'hot', Lat *formus* 'warm', OPruss. *gorme* 'heat', Alb. *zjarm* 'heat', Arm. *yerm* 'warm'), if it is assumed that PIE **g^{w}(h)* > Gmc. **w*. On the other hand, in addition to PIE **g^{w}hen-*, Seebold 1967 gives two other examples which support the idea of **b* as a Gmc. reflex of **g^{w}h*: Gmc. **bidjan* 'pray, entreat' (cf. Goth. *bidjan*, OE *biddan*) < PIE **g^{w}hedh-yo-* 'ask, pray' (Pokorny's (1958: 2.114) derivation **bidjan* < PIE **bhedh-yo-* 'bend' involves a less straightforward semantic development) and Gmc. **brē-* (cf. OE *brāþ* 'smell, vapour') < PIE **g^{w}hreh$_1$-* 'smell'. Seebold 1967 also considers, but ultimately rejects, Gmc. **berŭ* 'bear' (cf. OHG *bero*, OE *bera*) as another example of Gmc. **b* < PIE **g^{w}h*. The potential source of *berŭ* would be PIE **ǵ^{w}hér- ~ *ǵ^{w}hér-* 'wild animal' (cf. Gr. *θήρ,* Lat. *ferus* 'wild'), but here it would seem that the traditional derivation from PIE **bher-* 'brown' is likely correct. Another possible example of Gmc. **b* < PIE **g^{w}h* suggested by Watkins 2000 is Gmc. **birnan* 'burn (intr.)' (cf. Goth. *brinnan*, OE *beornan*, *byrnan*) < PIE **g^{w}her-n-* (Pokorny's (1958:143) derivation from PIE **bh(e)reu-* 'boil' is again more difficult semantically). Since we have somewhere between three to six examples of Gmc. **b* < PIE **g^{w}h* in initial positions not preceding Gmc. *u*, and only one apparent counterexample to this change, i.e. **warmo-*, it is plausible if not entirely certain that Gmc. **ban-ōn* derives from an *o*-grade form **g^{w}hon-*.

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In Vedic, reflexes of *k^{w}ŗmi- and *g^{w}hen- collocate, though Skt. *kṛ́mi-*[25] is used with the sense of 'body-internal worm' rather than 'dragon', as in example (15).

(15) udyánn ādityáḥ krímīn **hantu** nimrócan **hantu** raśmíbhiḥ yé antáḥ krímayo gávi [1]
...
atrivád vaḥ krimayo **hanmi** kaṇvaváj jamadagnivát agástyasya bráhmaṇā sáṁ pinaṣmy aháṁ krímīn [3]
ható rā́jā krímīṇām utaíṣāṁ sthapátir **hatáḥ ható hatá**mātā krímir **hatá**bhrātā **hatá**svasā [4]
hatā́so asya veśáso **hatā́saḥ** páriveśasaḥ átho yé kṣullakā́ iva sárve té krímayo **hatā́ḥ** [5]
... (AV 2.32,1,3-5)

'May the rising sun **slay** the worms; may the setting (sun) with his rays **slay** the worms which are inside the cattle. [1]
...
Like Atri, like Kanva, like Jamadagni, I **slay** you, o worms, with the incantation of Agastya, I crush up the worms. [3]
Slain is the king of the worms, and **slain** is their governor. The worm is **slain**, having a **slain** mother, having a **slain** brother, having a **slain** sister. [4]
Slain are his vassals, **slain** are his neighbours; moreover, those who are as vile little ones, all of those worms are **slain**. [5]
...'

Like the slaying of dragons, in the Atharvaveda the slaying of *kṛ́mi-* is frequently associated with Indra, as in examples (16), (20), and (17) below.

(16) asyéndra kumārásya krímīn dhanapate jahi [ab] (AV(Ś) 5.23,2)
'O Indra, lord of treasure, slay the worms in this boy!'

(17) índrasya yā́ mahī́ dṛṣát krímer víśvasya tárhaṇī [ab]
táyā pinaṣmi sáṁ krímīn dṛṣádā khálvāṁiva [cd] (AV(Ś) 2.31,1)

[25] As Watkins (1995: 521n2) comments, the manuscripts vary between *krími-* and *kṛ́mi-*, and though Roth and Whitney (1856) adopt the former, the latter seems to be the original.

‘With the great mill-stone of Indra which overcomes all worms
I do grind to pieces the worms, as lentils with a mill-stone.’

The *dṛṣát* mentioned here may be compared with Indra’s use of an *áśmāna-* in RV 4.22, as shown in example (18)below.

(18) yó áśmānaṁ śávasā bíbhrad éti
(RV 4.22,1d)
‘Which stone (Indra) comes wielding with strength’

Further, the use of *sáṁ pinaṣmi* in (15) and (17) may be compared with the use of *sám-√piṣ-* with reference to Indra’s slaying of Vritra three times in the RV, once with the object *áhim*, RV 6.17 (=example (19)), and twice with the object *vṛtrám*, RV 3.30,8 and 4.18,9 cf. Benveniste and Renou (1934: 120).

(19) ...vájraṁ sahásrabhṛṣṭiṁ ... chatā́śrim
... yéna návantam **áhiṁ sám piṇag** ṛjīṣin
(RV 6.17,10)
‘...the *vajra* with a thousand points and a hundred edges ... with which you **ground up** the roaring **serpent**, O Drinker of the Third Pressing (of Soma).’

Similarly, AV(Ś) 5.23 invokes Indra (alongside Sarasvati and Agni) to assist in the destruction of worms:

(20) sárveṣāṁ ca krímīṇāṁ sárvāsāṁ ca krimī́nām [ab]
bhinádmy áśmanā śíra dáhāmy agnínā múkham [cd]
(AV(Ś) 5.23,13)
‘Of all the male worms and all the female worms,
I **split** the head with a stone; I burn their face with fire.’

Again, this is a root which also appears in the context of the RV dragon-combat, where √*bhid-* is used with to describe Indra’s splitting of the head of Vritra (cf. RV 8.6,6; 1.52,10 etc. discussed below in Section 3.1.1).

Thus, though the AV verses use *kṛ́mi-* in the sense of body-internal worms, the slaying of such worms is often associated with Indra and employs the same verbs and imagery used to describe Indra’s slaying of the dragon Vritra.

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Iranian provides even better evidence for *$g^{w}h(e/o)n$- $k^{w}ṛmi$- as a synchronic variant of *$g^{w}hen$- $h_{3}ég^{w}him$ in PIE, as Pahlavi *kirm* in used to refer to a draconian creature in the *Kārnāmag*, where it occurs with a reflex of PIE *$g^{w}hen$- (cf. Watkins 1995: 302), as shown in example (21).

(21) ān kirm ō**zad** būd

(*Kārnāmag ī Ardaxšīr ī Pābagān* 9.1)

'(Ardashir) had **slain** that dragon'

The comparison of the Indo-Iranian examples involving *$k^{w}ṛmi$- with Gmc. **wurmi-banōn* suggests that even in during PIE there was variation between *$k^{w}ṛmi$- and *$h_{3}ég^{w}hi$- as the second term of the basic dragon-slaying formula. This PIE dragon-slaying formula would thus be better represented as *$g^{w}hen$- {$h_{3}ég^{w}hi$-, $k^{w}ṛmi$-}.[26, 27]

2.5 *Conclusions*

Thus the basic Indo-European dragon-slaying formula may be reconstructed at four different levels. For Indo-Iranian, we may reconstruct the complete formula *$(é)g^{w}hent$ $h_{3}ég^{w}him$. On the basis of Indo-Iranian and Greek, we may reconstruct the incomplete formula *$g^{w}hen$- $h_{3}ég^{w}him$. For 'core PIE' (PIE after the Anatolian and Tocharian branches have split off), we can reconstruct an incomplete formula with variation of the second term: *$g^{w}hen$- {$h_{3}ég^{w}hi$-, $k^{w}ṛmi$-}. These three reconstructions are highly probable, due to the etymological correspondence of both terms. Lastly, we have evidence for the formula *$g^{w}hen$- {$h_{3}ég^{w}hi$-, $k^{w}ṛmi$-} occurring with lexical renewal/replacement (of the second term), if the Hittite evidence is admitted.

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[26] Thanks to Jay Fisher (p.c.) for helpful discussion on this point.

[27] Watkins 1995 discusses other examples which one might taken as representing formulaic variants of *$g^{w}hen$- $h_{3}ég^{w}him$ at the stage of PIE, such as use of the PIE root *$terh_{2}$- 'cross over, overcome' (Watkins 1995: 343-346), which appears in a dragon-slaying context in Hittite, Indo-Aryan, and Iranian, see (i), (ii), (iii) below.

(i) n=an=za namma ^{MUŠ}**illuyanka**[**n**] **taraḫḫūwan dāiš** (CTH 321 §25, KBo. 3.7 iii 24-5)
'(Tarḫunnas) began **to overcome the serpent**'

(ii) índreṇa yujá **taruṣema vṛtrám** (RV 7.48,2)
'yoked with Indra **may we overcome Vritra**'

(iii) **tauruuaiiata vərəθrəm dānunąm tūranąm** (Yt. 13.38)
'you **overcame the resistance** of the Turanian Danu'

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3. Splitting Dragons, Mountains, and Forts in the Rigveda

The name of Indra's serpentine adversary, *vr̥trá*, derives from √*vr̥*- 'to enclose, cover, obstruct' with the instrumental suffix -*tra*, and, indeed, the obstruction of the flowing of the waters is the primary action of Vritra. These 'waters' most likely, at least originally, refer to rivers which are released from the mountains during the late spring/early summer snow-melt (Schmidt 1968, Falk 1997, Witzel 2004). The personified obstructions are likely to be dams which could form in the river courses, preventing the vital waters from flowing along their normal paths, cp. the river name *sárasvatī* 'the one with many ponds'.[28]

Sometimes the waters are metaphorically compared to cows (e.g. RV 1.32), and sometimes it is in fact literally cows which are rescued from the serpent (e.g. RV 2.19,3; 6.17,1; 10.48,2; cf. Venkatasubbiah 1965).[29] Therefore, I examine not only the formulaic use of √*bhid*-, √*vraśc*-, and √*ruj*- where *áhim* or *vr̥trám* is the patient of one of these roots, but cases where the patient is not the dragon but something associated with the dragon-fight, such as the mountain in which the waters are trapped. I also consider instances of these roots used with Indra as agent and *púras* 'forts' or *gotrás* 'cattle-stalls' as patient, which function as enclosures for cattle. For the latter instances I limit the consideration to those cases where Indra's dragon-combat is also mentioned in the same hymn.

Just as Vritra's basic function is enclosing (√*vr̥*-) precious elements (waters, cattle etc.), Indra's basic function is that of (violently) opening up enclosures containing precious elements, whether these be obstructing serpents (e.g. *vr̥trá*), mountains in which waters are trapped, or cattle-enclosures (*gotrás*, *púras*). Thus, though the number of times Indra's slaying of the dragon is described using √*bhid*-, √*vraśc*-, or √*ruj*- is comparatively small, the number of instances in which they occur in descriptions of other aspects of the dragon-fight is not inconsiderable (see Table 1). As will be shown, these roots are intimately connected with Indra's basic function as a (violent) discloser of precious commodities in general, and more specifically with Indra's actions in the

[28] Also see Falk 1997, who suggests that the Vritra-myths are more likely to have originated when the Indo-Aryans inhabited Greater Iran, as the rivers coming down from the mountains of Afghanistan are much more uncertain in their courses than those of the Punjab, i.e. more subject to obstructions which could dam or divert the waters from their normal courses.

[29] Herein I examine all *áhi*-combats, regardless of whether they have been associated with the 'Vritra-myth' or the 'Vala-myth', cp. fn.32 below.

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dragon-fight – which include not only the slaying of the serpent, but also, for instance, the freeing of waters from the mountains.

3.1 √*bhid*-

3.1.1 *áhi*-/*vr̥trá*-

Indra's slaying of the dragon is described six times using forms of √*bhid*- 'split, cleave, cut' (cf. Benveniste and Renou 1934: 119).[30] Though √*bhid*- itself apparently never occurs with the overt direct object *áhim*, collocations with √*bhid*- are not infrequently to be found in association with the prototypical form of the Vedic dragon-slaying formula, *áhann áhim* or variants thereof involving the root √*han*-. For instance, in RV 2.11 – in which the formula *áhann áhim* occurs at 5d, (22) – in reference to slaying the serpent *abhinat* twice appears with the verbal particle *áva* 'down', (23), (24).

(22) áhann áhim śūra vīryéṇa
(RV 2.11,5d)
'O Hero (=Indra), with valour, you slew the dragon.'

(23) sr̥jó mahī́r indra yā́ ápinvaḥ páriṣṭhitā **áhinā** śūra pūrvī́ḥ
ámartyaṁ cid **dāsám** mányamānam **ávābhinad** ukthaír vāvr̥dhānáḥ
(RV 2.11,2)
'You make flow the great ones, O Indra, which you made swell, of which many are surrounded by the **dragon**, O Hero. Strengthened by songs of praise, you **chopped up the Dasa**[31] **(Vritra)**, who thought himself immortal.'

(24) dhiṣvā́ śávaḥ śūra yéna **vr̥trám avā́bhinad** dā́num aurṇavābhám
(RV 2.11,18ab)
'O Hero [Indra], put on the strength with which you **chopped up Vritra**, the Danava Aurnavabha.'

√*bhid*- therefore appears to be a legitimate formulaic variant of √*han*- in the dragon-slaying formula, as is borne out by the co-occurrence in

[30] Based on an examination of the relevant entries in Graßmann (1873), √*bhid*- occurs in various forms a total of 88 times in the Rigveda.

[31] The use of *dāsá* to refer to Vritra recalls the Iranian name of the serpent, *ažī **dahākə***, suggesting that this is another element common between the Indo-Aryan and Iranian myths. Falk (1997: 79) notes that '[Indo-Aryan] [n]ames like *dāsa* (*dahī*) or *paṇi* (*parnoi*) bear witness to an at least historical contact with peoples we know from Greek sources to have lived in Greater Iran'.

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single hymns of dragon-slaying formulae involving both roots. However, to say that these collocations with √*bhid*- are formulaic variants of the √*han*-+*áhim*/*vr̥trám* formula is not to say that they are entirely equivalent. Perhaps it would be better to say that *bhid vr̥trám* is a FORMULAIC ASSOCIATE of *áhann áhim*, that is, they are formulae which co-occur in the context of the dragon-combat (similar to the observation of Matasović 1996: §114 that in both Old Irish and Vedic texts, reflexes of PIE **g*^{w}*ōus h*$_2$*eg*- 'to drive cattle' occur alongside reflexes of PIE **g*^{w}*hen*- 'to slay', see Section 1 above).

The 'splitting' of the dragon is a rather more specific event than the 'slaying' of the dragon. Forms of √*bhid*- in the dragon-slaying context specifically denote an opening-up of the dragon. This is obvious, for instance, in RV 1.52,5d, given below in (25), where Indra's 'splitting'(='slaying') of Vritra is likened to Trita's 'splitting'(='opening up of') the enclosures of Vala.[32]

(25) tám̐ vr̥trahátye ánu tasthuḥ ūtáyaḥ ... índram
índraḥ yát ... **bhinád** valásya paridhī́m̐r iva tritáḥ
(RV 1.52,4cd,5cd)
'Beside that Indra in the Vritra-slaying stood (his) helpers ...
When Indra ... **split** (Vritra) as Trita the enclosures of Vala.'

Perhaps the fact that √*bhid*- occurs usually with *vr̥trám* as its object, rather than *áhim*, is because *vr̥trá*- 'the encloser' forms such an excellent counterpoint to the sense of 'splitting open'.

In RV 1.52, we also find √*bhid*- twice in the context of dragon-slaying, see example (25), above, and (26), below.

[32] Schmidt (1968) concludes that the Vritra and Vala myths are not identical, the basic differences being that the former is associated with the release of the waters and the latter with the release of light from darkness. Even if one decides that synchronically these myths are distinct, this certainly does not rule out their having developed from a common source. Stanley Insler (p.c.) suggests that *vala* may an *l*-variant from √*vr̥*-, the source of *vr̥trá*- (though he maintains that the myths are different enough to rule out derivation from a single original myth), reflecting the fact that both Vritra and Vala enclose elements necessary for life (water and cattle, respectively). In any event, at some level the Vritra and Vala myths, whatever the exact details of their Indo-Aryan origins, both appear to reflect a more basic PIE idea of slaying of a serpent who encloses some vital element.

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(26) máde sutásya śávas**ābhinac chíraḥ**

(RV 1.52,10d)

'In the intoxication of Soma, (Indra) with strength, **split** the **head** (of Vritra).'

The collocation √*bhid*-+*vr̥trásya śíras* 'the head of Vritra', found in RV 1.52,10d, (26) above, is found twice more in the Rigveda, at RV 8.6,6 (27) and RV 8.76,2 (28).

Forms of √*bhid*- in dragon-slaying contexts also occur with the verbal particle *ví*- 'apart', (27), (28), (29).

(27) **ví** cid **vr̥trásya** ...
vájreṇa śatáparvaṇā
śíro bibheda vr̥ṣṇínā

(RV 8.6,6)

'(Indra) **split apart Vritra's** ... **head** with his bullish hundred-jointed *vajra*.'

(28) ayám índro marútsakhā **ví vr̥trásyābhinac chíraḥ**

(RV 8.76,2)

'This Indra, with Marut companions, **split apart Vritra's head**.'

(29) áyuddhaseno vibhvā̀ **vibhindatá** ... vr̥trahā́ túјyāni tejate

(RV 10.138,5ab)

'With an unconquerable host, with great power to **cleave**, ... the Vritra-slayer sharpens his bolts.'

In the hymns in which (25)-(29) occur, we do not find the formula *áhann áhim*, however, we do find formulaic variants of the type *vr̥tra*-+√*han*-.[33] In RV 10.138, *ví*+√*bhid*- occurs in the same line as *vr̥trahán* 'slayer of Vritra', see (29) above. In RV 8.6, we find *vr̥trahantama* 'best of Vritra-slayers' at 37a; and in RV 1.52, both *vr̥trahátye* 'in the slaying Vritra' (4c) and *jaghanvā́m̐...vr̥trám* 'having slain Vritra' (8ab) appear.

√*bhid*- also occurs in a dragon-slaying context in RV 1.32, where it is used to describe the slain *áhi* Vritra, in example (30), as

[33] Except for hymn 8.76.

(30) nadám ná **bhinnám** amuyā́ śáyānam

(RV 1.32,8a)

'lying yonder like a **split** reed'

RV 1.32 is also rife with occurences of √*han-*+*áhim*/*vr̥trám*. The most prototypical form of the dragon-slaying formula, *áhann áhim* 'slew the dragon', occurs twice, at 1c and 2a; 1.32 also contains numerous variants of this formula: *áhan...prathamajā́m áhīnām* 'slew the first-born of dragons' (3d, 4a), *áhan vr̥trám* 'slew Vritra' (5a), *vr̥trám jaghanvā́ṁ̃* 'had slain Vritra' (11d).

3.1.2 *Mountains*

In addition to describing Indra's slaying of Vritra, forms of √*bhid-* frequently occur in the context of another event closely linked with the Vedic slaying of the dragon, namely the freeing of the waters and/or cows from the mountain. Often the waters/cows are freed by Indra 'splitting the mountain'; representative examples are shown in (31), (32), (33).

(31) **bhinád girím̐** śávasā vájram iṣṇánn āviṣkr̥ṇvānáḥ sahasāná ójaḥ
vádhīd vr̥trám̐ vájreṇa mandasānáḥ sárann ā́po jávasā hatávr̥ṣṇīḥ

(4.17,3)

'He (=Indra) **split the mountain**, sending his *vajra* with strength, violent, revealed his power. Intoxicated, he slaughtered Vritram with his *vajra*; the waters, (now) with their bull slain, flowed swiftly.'

(32) jaghā́na vr̥trám̐ svádhitir váneva rurója púro áradan ná síndhūn
bibhéda girím̐ návam ín ná kumbhám ā́ gā́ índro akr̥ṇuta svayúgbhiḥ

(RV 10.89,7)

'He (=Indra) slew Vritra as an axe the tree, broke the forts, cleared a path as it were for the rivers. He **split the mountain** like a new water-jug, Indra brought forth the cows with his allies.'

(33) índrasya nú vīryā̀ṇi prá vocam̐
yā́ni cakā́ra prathamā́ni vajrī́
áhann áhim ánv apás tatarda
prá vakṣáṇā abhinat párvatānām

(RV 1.32,1)

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'I tell now of the heroism of Indra,
the first which he did armed with a *vajra*.
He slew the serpent, afterwards drilled through to the waters,
he split through the bellies of the mountains.'

Here the sense of 'splitting apart' as 'opening up' is obvious. Note here again the linkage between dragon-slaying (*áhann áhim* in RV 1.32,1 = (6); *jaghā́na vr̥trám* in RV 10.89,7 = (32); for RV 4.17, √*han*- is found thrice, at 1c *vr̥trám̐...jaghanvā́n* and 19b *vr̥trā́...hanti*, and the suppletive *vadh*-, 3c *vádhīd vr̥trám̐* 'killed Vritra') and the splitting open of mountains.[34]

3.1.3 *Forts*

√*bhid*- is a root frequently used with Indra in general. √*bhid*-+*púras* 'forts' is a collocation occurring numerous times with 'Indra' as its subject, as in the examples in (35).[35] Here too √*bhid*-+*púras* often co-occurs with the prototypical Vedic dragon-slaying formula in √*han*-, as in RV 8.93 where *vr̥trahā́* occurs in the same verse as *púro bibhéda*, see example (34) below. In fact *vr̥trahán*- occurs seven other times in 8.93, at 4a, 15b, 16a (as *vr̥trahántama*- 'best of Vritra-slayers'), 18b, 20c, 32a (as *vr̥trahántama*-), and 33a; as well, note 7b, *vr̥trā́ya hántave* 'to slay Vritra'.

(34) náva yó navatím **púro bibhéda** bāhvójasā
áhiṁ ca vr̥trahā́vadhīt
(RV 8.93,2)
'Who with the power of his two arms **split** nine-and-ninety **forts**, and the Vritra-slayer killed the serpent.'

This pattern of co-occurrence of √*bhid*-+*púras* in the same hymn as one or more instances of the dragon-slaying formula in √*han*- is found elsewhere as well, as shown by the examples below in (35). The (i)-examples are instances of √*bhid*-+*púras*; the (ii)-examples are instances, co-occurring in the same hymn as the (i)-examples, of the dragon-slaying formula in √*han*-.

(35) a. (i) tvám̐ śatā́ váṅgr̥dasy**ābhinat púro**
(RV 1.53,8c)
'You **split** the hundred **forts** of Vangrida.'

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[34] Also in 4.17,7d we find *áhiṁ...ví vr̥ścaḥ*, on which see section 3.2.1 below.
[35] See also RV 1.11,4; 1.33,13; 1.174,8; 8.1,8; etc.

(ii) tvā...amadan...té sómāsaḥ vr̥trahátyeṣu satpate
(RV 1.53,6ab)
'These soma-drops gladdened you in the Vritra-slayings, O Lord of the Good (= Indra).'

(35) b. (i) ...yáḥ śatáṁ śámbarasya **púro bibhédā́**śmaneva pūrvī́ḥ
(RV 2.14,6ab)
'...he who **split** a hundred ancient **forts** of Shambara as with a rock.'

(ii) vr̥tráṁ jaghā́nā́śányeva vr̥kṣám
(RV 2.14,2b)
'(Indra) struck/slew Vritra as a lightning-bolt a tree.'

(35) c. (i) **púro vibhindánn** acarad **ví** dā́sīḥ
(RV 1.103,3b)
'(Indra) kept **splitting apart the forts** of the Dasas.'

(ii) áhann áhim **ábhinad** rauhiṇáṁ ví
(RV 1.103,2c)
'(Indra) slew the serpent, **split apart** Rauhina...'

(35) d. (i) ...vajrī́**bhinát púraḥ**
(RV 8.1,8d)
'...the *vajra*-wielder (=Indra) who **splits forts**.'

(ii) ...vr̥trahan...
(RV 8.1,14b)
'...O slayer of Vritra...'

(35) e. (i) ayáṁ yáḥ **púro vibhinátty** ójasā
(RV 8.33,7c)
'He (Indra) is the one who **splits apart forts** with his power.'

(ii) ...vr̥trahan(n)...
(RV 8.33,1c,14c)
'...O slayer of Vritra...'

In the RV 1.33, we find an instance of Indra splitting forts (36a), but no occurrence of √*han*-; however, an apparent variation of *áhann áhim* occurs in *pāda* 13c (36b).

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(36) a. **ví**...púro **'bhet**

(RV 1.33,13b)

'....(Indra) **split apart** (their) forts.'

(36) b. sáṁ vájreṇa asr̥jat vr̥trám índraḥ

(RV 1.33,13c)

'Indra struck Vritra with his *vajra*.'

In fact, the epithet *pūrbhíd* 'fort-splitter' is almost exclusively Indra's, applied to him seven times in the Rigveda.[36] Representative examples of its use are given in (37), where (i) contains *pūrbhíd*, and (ii) the prototypical Vedic dragon-slaying formula with √*han*-.

(37) a. (i) índro yáḥ **pūrbhíd** āritáḥ

(RV 8.33,5d)

Indra who is honoured as **fort-splitter**.'

(ii) ...vr̥trahann...

(RV 8.33,1c,14c)

'...O slayer of Vritra...'

(37) b. (i) índraḥ **pūrbhíd**...

(RV 3.34,1a)

'Indra, **the splitter of forts**...'

(ii) ghnántaṁ vr̥trā́ṇi...

(RV 3.34,11d)

'...who slays the Vritras...' (cp. 3.34,3)

The single time it appears not applied to Indra is not truly an exception, as it is used of Soma who is compared to Indra: RV 9.88,4, given below in (38).

(38) índro ná yó mahā́ kármāṇi cákrir hantā́ vr̥trā́ṇām asi soma **pūrbhít**

(RV 9.88,4ab)

'Like Indra who has done great deeds, you, O Soma, are a slayer of Vritras, a **fort-splitter**.'

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[36] RV 3.34,1a; 3.51,2c; 8.33,5d; 8.53,1c; 10.47,4c; 10.104,8b; 10.111,10b; cp. 1.11,4a *purám bhindúr*.

The splitting of forts also associates with dragon-slaying, e.g. *púro bibhéda* with *áhiṁ ... vr̥trahā́* in RV 8.93,2 =(34), and with *vr̥trahā́* in RV 9.88,4 =(38).

As well as *pūrbhíd*, Indra is twice given the epithet *gotrabhíd* 'splitter of cattle-stalls', RV 6.17,2c, 10.103,6a (shown below in (39)), consistent with his role as a discloser of precious commodities.[37]

(39) **gotrabhídaṁ** govídaṁ vájrabāhuṁ

(RV 10.103,6a)

'**Splitter of cattle-stalls**, kine-winner, *vajra*-armed'

3.2 √*vraśc*-

3.2.1 *áhi-/vr̥trá-*

A semantically related root √*vraśc*- 'split, hew, cut, rip', usually with the verbal particle *ví* 'apart', also appears several times in the dragon-slaying context (cf. Benveniste and Renou 1934: 119; Watkins 1995: 309). Here again, forms of this root also often co-occur with the prototypical Vedic dragon-slaying formula √*han*-+*áhi-/vr̥trá*-. Forms of √*vraśc*- appear three times with *áhim* as the overt object, RV 2.19,2b; 3.33,7b; 4.17,7d – given in (40)-(42) below, where (a) contains the dragon-slaying formula with √*vraśc*-, (b) the prototypical dragon-slaying formula with √*han*-.

(40) a. _**áhim** índro arṇovŕ̥taṁ **ví vr̥ścat**

(RV 2.19,2b)

'Indra **split apart** the flood-enclosing **serpent**.'

(40) b. ...ahihā́...

(RV 2.19,3b)

'...dragon-slayer (=Indra)...'

(41) a. índrasya kárma yád **áhiṁ vivr̥ścát**

(RV 3.33,7b)

'Indra's deed, that he **split apart** the **serpent**.'

(41) b. ápāhan vr̥trám paridhíṁ nadī́nām

(RV 3.33,6b)

'(Indra) struck down Vritra, the enclosure of currents.'

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[37] The epithet *govída*- 'kine-winner' co-occurs with both *pūrbhíd* (RV 8.53,1c = (37a-i) and *gotrabhíd* (RV 10.103,6a = (39)).

(42) a. **áhiṁ** vájreṇa maghavan **ví vŕ̥scaḥ**
(RV 4.17,7d)
'O Maghavan (=Indra), **split apart** with your *vajra* the **serpent**.'

(42) b. hántā yó vr̥trám̐...
(RV 4.17,8c)
'(Indra) who is the slayer of Vritra.'
(as well as 1c: *vr̥trám̐...jaghanvā́n* and 19b: *vr̥trā́...hanti*)

We find *ví (a)vr̥ścad* occuring twice with Vritra as its object, RV 1.61,10 and 10.113,6 (examples (43a) and (44a) below). Both hymns also contain an instance of the prototypical Vedic dragon-slaying formula; again, in (a) is shown the formula with √*vraśc*-, in (b) the co-occuring formula with √*han*-.

(43) a. asyéd evá śávasā śuṣántaṁ **ví vŕ̥scad** vájreṇa **vr̥trám** índraḥ
gā́ ná vrāṇā́ avánīr amuñcad abhí śrávo dāváne sácetāḥ
(RV 1.61,10)
'Through his strength, Indra with his *vajra* **split apart** the hissing **Vritra**. The rivers, which were like penned-in cattle, he freed, with the idea to give them away for the sake of fame.'

(43) b. asmā́ íd u gnā́ś cid devápatnīr índrāyārkám ahihátya ūvuḥ
(RV1.61,8ab)
'To him, to Indra, even the wives of the gods, the divine consorts, during the dragon-slaying wove songs of praise.'

(44) a. **vr̥trám̐** yád ugró **vy ávr̥scad** ójasāpó bíbhrataṁ támasā párīvr̥tam
(RV 10.113,6cd)
'...as the powerful one (=Indra) with strength **split open** the darkness-enclosed **Vritra**, who abducted the waters.'

(44) b. devébhir índro maghávā sayā́vabhir vr̥trám̐ jaghanvā́m̐̃...
(RV 10.113,2cd)
'Indra Maghavan, with his followers, the gods, having slain Vritra...'

In example (45), Indra splits apart *náva...navatíṁ ca bhogā́n*.

(45) náva yád asya navatíṁ ca **bhogā́n** sākáṁ vájreṇa maghávā **vivŕ̥scát**
(RV 5.29,6ab)
'When Maghavan (=Indra) with his *vajra* simultaneously **split apart** nine-and-ninety **coils (of the serpent)**.'

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Sāyaṇa takes *bhogā́n* to mean 'forts', presumably on the basis of the parallelism with RV 8.93,2 (given as example (34) above). However, *bhogā́n* derives from the root √*bhuj*- 'to bend', and appears as the possessive complement of *áhi*- in RV 6.75,14, example (46) below, where it occurs as a metaphorical description of an archer's brace.

(46) áhir iva bhogaíḥ páry eti bāhúṁ...
(RV 6.75,14a)
'As a serpent winds its coils around the arm...'

Again, *vivr̥ścát* co-occurs in the hymn with the prototypical Vedic dragon-slaying formula; in fact two of the instances of *áhann áhim* occur in this hymn, at 2c, 3d, given below in (47).

(47) a. ā́datta vájram abhí yád áhiṁ hánn apó yahvī́r asr̥jat sártavā́ u
(RV 5.29,2cd)
'...then (Indra) grasped his *vajra* when he slew the serpent. He released the swift-streaming[38] waters to flow free.'

(47) b. tád dhí havyám mánuṣe gā́ ávindad áhann áhim papivā́ṁíndro asya
(RV 5.29,3cd)
'...then this oblation (Soma) found cattle for man; having drunk of it, Indra slew the serpent.'

In addition to the above cases where *áhi-/vr̥trá*- is the literal object of √*vraśc*-, there are two instances where the slain serpent or the slaying of the serpent is compared to the hewing (√*vraśc*-) of a tree, namely RV 1.32,5 and 1.130,4, given below in examples (48), (49).

(48) áhan vr̥trám̐ vr̥tratáraṁ vyáṁsam índro vájreṇa mahatā́ vadhéna
skándhāṁsīva kúliśenā **vívr̥kṇāhiḥ** śayata upapŕ̥k pr̥thivyā́ḥ
(RV 1.32,5)
'Indra, with his powerful slaying *vajra* slew the wide-shouldered Vritra, worst of Vritras/obstructers.
As tree-trunks **split apart** by an axe, the **serpent** lies flat on the earth.'

[38] Geldner (1951-1957) renders as *jüngstgeborenen* (*Gewässer*).

(49) dādṛhāṇó vájram índro gábhastyoḥ kṣádmeva tigmám ásanāya sáṁ śyad ahihátyāya
sáṁ śyat
...
táṣṭeva vṛkṣáṁ vaníno **ní vṛścasi** paraśvéva **ní vṛścasi**
(RV 1.130,4abc,4fg)
'Grasping his *vajra* with two hands, made it sharp like a carving-knife for hurling, made it sharp for slaying the serpent...you **cut down** the trees, as a craftsman the tree, **cut** them **down** as with an axe.'

These hymns too contain instances of the prototypical Vedic dragon-slaying formula, co-occurring with √*vraśc*-. On the occurrences of this formula in RV 1.32, see section 3.1 above, following example (30); in RV 1.130, the *áhann áhim* formula, in the form *ahihátyāye*, occurs in the same line as √*vraśc*-, see (49) above.

3.2.2 *Trees*

In fact, √*vraśc*- is often used to describe the (literal or metaphorical) hewing of trees, wood or other vegetation; aside from (48) and (49), √*vraśc*- occurs in this context five other times: in the nominal form *vraskā́* in RV 1.162,6a (*yūpavraskā́ḥ* 'hewers of the sacrificial post'); in a verbal form with 'tree' or 'plant' as its object in RV 6,2,9d (*vánā* 'tree'), 6.8,5d (*vanínam* 'tree'), 8.40,6a (*vratáter guṣpitám* 'tangle of a creeping plant'), 10.28,8b (*vánā* 'wood'). As a representative example, RV 8.40,6a, from a hymn addressed to Agni and Indra, is given below in (50).

(50) **ápi vṛśca** purāṇavád vratáter iva guṣpitám ójo dāsásya dambhaya
(RV 8.40,6abc)
'**Split up**, as in former times, like the tangle of a creeping plant, confuse the power of the Dasa.'

Here √*vraśc*- and √*bhid*- differ in their distribution. As above, √*vraśc*- is used to describe the hewing of trees, whereas √*bhid*- is never used in this way. On the other hand, √*bhid*- is also used to describe the splitting of rocks (*ádrim*) and mountains (*girí-, párvata*-) and forts (*púra*-), while √*vraśc*- is not. Thus, there is not complete semantic overlap of these two forms.

3.3 √*ruj*-
3.3.1 *áhi-/vr̥trá-*

Forms of √*ruj*- occur twice in the RV with *vr̥trám* as its object, as shown in examples (51) and (52a). In RV 8.6, we find the co-occurrence of a variant of the dragon-slaying formula in √*han*- (52b).

(51) **sáṁ** vr̥tréva dā́saṁ vr̥trah**árujam**

(RV 10.49,6b)

'I **broke up/crushed** the Dasa, like the Vritra-slayer the Vritras.'

(52) a. **ví vr̥trám** parvaśó **ruján**

(RV 8.6,13b)

'...when (Indra) **broke Vritra apart** joint by joint'

(52) b. ...vr̥trahantama...

(RV 8.6,37a)

'...O best slayer of Vritras...' (nb. 8.6,6 with √*vraśc*-, given above in example (27))

The same verbal root is used to describe Indra's 'breaking apart' of Vritra's jaw in RV 10.52 (53a-i), which co-occurs in the same verse with a variant of the dragon-slaying formula in √*han*- (53a-ii). Similarly, see (53b), with the same basic pattern of co-occurrence of forms √*ruj*- and √*han*-.

(53) a. (i) **ví vr̥trásya hánū ruja**

(RV 10.52,3b)

'(Indra), **break apart Vritra's jaws**'

(ii) ...vr̥trahann...

(RV 10.52,3c)

'...O slayer of Vritra...' (cp. 10.52,2b)

(53) b. (i) **ví vr̥trásya** samáyā pāṣy**à̀rujaḥ**

(RV 1.56,6d)

'You **broke apart Vritra's** jaw(?)'

(ii) áhan vr̥tráṁ...

(RV 1.56,5d)

'You slew Vritra...'

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3.3.2 *Forts*

Like √*bhid*-, √*ruj*- is also used to describe Indra's destruction of forts: (54a), (54b), (55a); and cattle-stalls: (54c). Here we find the co-occurrence in the same hymn of variants of the dragon-slaying formula in √*han*- (the (i)-examples contain instances of √*ruj*-+*puras*, the (ii)-examples (variants of) the dragon-slaying formula in √*han*-).

(54) a. (i) ...yā́...**árujaḥ púro dā́sīr**...
(RV 4.32,10bc)
'...which Dasas' **forts you broke**...'

(ii) ...vr̥trahan...
(RV 4.32,19c,21b)
'...O slayer of Vritra...'

(54) b. (i) **rurója púro**...
(RV 10.89,7b)
'...he **broke the forts**...' (see (32) above)

(ii) ...jaghā́na vr̥trā́m̐...
(RV 10.89,7a)
'...he slew Vritra...'

(54) c. (i) **gotrā́ rujánn**...
(RV 4.6,8d)
'...(Indra) **breaking the cattle-stalls**...'

(ii) apó vr̥trā́m̐ vavrivā́m̐sam párāhan
(RV 4.6,7a)
'He (=Indra) slew the flood-obstructing Vritra.'

In RV 6.32 (55) – a rather etymological verse – √*ruj*-+*puras* appears without a co-occurring form of the dragon-slaying formula in √*han*-.

(55) a. **púraḥ purohā́**...dr̥ḷhā́ **ruroja**...
(RV 6.32,3cd)
'...**The Fort-breaker** (=Indra) **broke** the strong **forts**'

(55) b. ...**rujád ádrim̐**...
(RV 6.32,2c)
'...he (=Indra) **broke the mountain**...'

3.3.3 *Mountains and Trees*

Forms of √*ruj*- are also used to describe Indra's breaking apart of the mountain containing the waters – see (55b) above, as well as RV 6.30 (56) below; in the latter case the same hymn also contains a form of the dragon-slaying formula in √*han*- (56b).

(56) a. tvám apó ví dúro víṣūcīr índra **dṛḷhám arujaḥ párvatasya**
(RV 6.30,5ab)
'You, Indra, (let) the waters (run) through the doors on all sides,
broke the firmness of the mountain.'

(56) b. áhan áhim pariśáyānam árṇó
(RV 6.30,4c)
'You slew the serpent who made the floods lie down.'

Only once does √*ruj*- occur referring to the breaking of trees, at RV 6.6,3d.

3.4 √*bhid-kr̥mi-*

As discussed above in Section 2.4, √*bhid*- also occurs in the Atharvaveda with *kr̥mi*-, as in example (20), repeated below as (57).

(57) sárveṣāṁ ca krímīṇāṁ sárvāsāṁ ca krimī́nām [ab]
bhinádmy áśmanā śíra dáhāmy agnínā múkham [cd]
(AV(Ś) 5.23,13)
'Of all the male worms and all the female worms,
I **split** the head with a stone; I burn their face with fire.'

It would seem that like the basic dragon-slaying formula, *$g^{w}hen$- {$h_3ég^{w}hi$-, $k^{w}r̥mi$-}, the 'dragon-splitting' formula involves variation of the second term between *$g^{w}hen$- *$h_3ég^{w}hi$- and *$k^{w}r̥mi$-. Thus: *bheid- {$h_3ég^{w}hi$-, $k^{w}r̥mi$-} – which is also supported by Iranian, as shown below in Section 4.

3.5 *Conclusions*

Forms of √*bhid*-, √*vraśc*-, and √*ruj*- are all used to describe Indra's slaying of Vritra (in addition to the slaying of other adversaries of Indra and other deities/heroes), as well as other deeds of Indra during or associated with the dragon-fight. However, the distributions of these three roots are not identical. Forms of √*bhid*- and √*ruj*- are also employed to describe the splitting/breaking of mountains (*párvata*-,

girí-) and forts (*púras*), while √*vraśc-* never takes either of these as object. On the other hand, √*vraśc-* is frequently used to describe the splitting of trees (*vánā-* etc.) or other vegetation, while √*bhid-* is never used in this way and √*ruj-* only once (RV 6.6,3d).

RV 10.89 (example (32), repeated below as (58)) is a particularly revealing verse, for here we find a variant of the Vedic dragon-slaying formula in √*han-* co-occurring not only in the same hymn but in fact in the same verse with both a form of √*bhid-* (applied to *girím*) and √*ruj-* (applied to *púras*).

(58) jaghā́na vr̥trám̐ svádhitir váneva **rurója púro** áradan ná síndhūn
bibhéda girím̐ návam ín ná kumbhám ā́ gā́ índro akr̥ṇuta svayúgbhiḥ
(RV 10.89,7)
'He (=Indra) slew Vritra as an axe the tree, **broke the forts**, cleared a path as it were for the rivers. He **split the mountain** like a new water-jug, Indra brought forth the cows with his allies.'

This verse exemplifies the interconnectedness of the Vedic dragon-slaying formula in √*han-* with collocations built around forms of √*bhid-*, √*vraśc-*, or √*ruj-* referring to Indra's splitting or breaking open of mountains or forts which contain waters or cattle – events closely linked to Indra's slaying of the dragon Vritra. This co-occurrence of formulaic associates (see above, Sections 1 and 3.1.1) has been shown throughout this section, emphasised by the pairing of examples from the same hymn containing an instance of Vedic dragon-slaying formula in √*han-* and a form of √*bhid-*, √*vraśc-*, or √*ruj-* whose patient is the mountain containing the trapped waters, a fort or cattle-pen or the serpent Vritra itself. Table 1 summarises this network of co-occurrences of collocations containing these four roots in the context of the Indra-Vritra combat:

	√*han-*	√*bhid-*	√*vraśc*	√*ruj-*
1.32	**áhann áhim** (x2) [1c,2a], **áhan...pratha-majā́m áhīnām** (x2) [3d, 4a], **áhan vr̥trám** [5a], **vr̥trám jaghanvā́m̐** [11d]	(vr̥trám) nadám ná bhinnám [8a], prá vakṣáṇā abhinat párvatānām [1d]	**skándhām̐sīva ...vívr̥kṇā́hiḥ** [5cd]	

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	√*han-*	√*bhid-*	√*vraśc*	√*ruj-*
1.53	**vṛtrahátyeṣu** [6b]	*abhinat púro* [8c]		
1.56	**áhan vṛtráṁ** [5d]			**ví vṛtrásya... arujaḥ** [6d]
1.61	**ahihátya** [8b]		**ví vṛścad... vṛtrám** [10b]	
1.101	**áhann áhim** [2c]	*púro vibhindánn* [3b]		
1.130	**ahihátyāya** [4c]		*vaníno ní vṛścasi* [4fg]	
2.11	**áhann áhim** [5d]	**dāsám...ávābhi nad** [2cd], **vṛtrám avā́bhi-nad** [18ab]		
2.14	**vṛtráṁ jaghā́na** [2b]	*púro bibhéda* [6ab]		
2.19	**ahihā́** [3b]		**áhim...ví vṛścat** [2b]	
3.33	**ápāhan vṛtrám** [6b]		**áhiṁ vivṛścát** [7b]	
3.34	**ghnántaṁ vṛtrā́ni** [11d]	*índraḥ pūrbhíd* [1a]		
4.6	**vṛtráṁ... párāhan** [7a]			*gotrā́ rujánn* [8d]
4.17	**vṛtráṁ... jaghanvā́n** [1c], **hántā yó vṛtráṁ** [8c], **vṛtrā́...hanti** [19b], **vádhīd vṛtráṁ** [3c]	bhinád giríṁ [3a]	**áhiṁ...ví vṛścaḥ** [7d]	
5.29	**áhiṁ hánn** [2cd], **áhann áhim** [3d]		**(áher) bhogā́n... vivṛścát** [6ab]	
6.30	**áhann áhim** [4c]			dṛḷhám arujaḥ párvatasya [5b]
8.1	**vṛtrahan** [14b]	*bhinát púraḥ* [8d]		
8.6	**vṛtrahantama** [37a]	**ví...vṛtrásya... śíro bibheda** [6]		**ví vṛtrám...ruján** [13b]
8.33	**vṛtrahan(n)** (x2) [1c,14c]	*púro vibhinátty* [7c], *pūrbhíd* [5d]		

	√*han-*	√*bhid-*	√*vraśc*	√*ruj-*
8.93	**áhiṁ ca vṛtrahā́vadhīt** [2c], **vṛtrahán-** (x5) [4a,15b,18b, 20c,33a], **vṛtrahántama-** (x2) [16a,32a]	*púro bibhéda* [2ab]		
9.88	**hantā́ vṛtrā́ṇām** [4b]	*pūrbhít* [4b]		
10.49	**vṛtrahā́** [6b]			**sáṁ vṛtréva dā́saṁ... arujam** [6b]
10.52	**vṛtrahann** [3c]			**ví vṛtrásya hánū ruja** [3b]
10.89	**jaghā́na vṛtráṁ** [7a]	bibhéda giríṁ [7c]		*rurója púro* [7b]
10. 113	**vṛtráṁ jaghanvā́ṁ** [2d]		**vṛtráṁ...vy ávṛścad** [6c]	
10.138	**vṛtrahā́** [5b]	*vibhindatā́* [5a]		
AV(Ś) 5.23		**krímīṇāṁ... bhinádmi... śíraḥ** [13]		

Table 1: Forms of √*bhid-*, √*vraśc-*, or √*ruj-* and their co-occurrence with *áhann áhim* and its variants (RV unless otherwise noted)[39]

I argue that these data provide evidence for a PIE formula **bheid-* {*h₃ég*^{w}*hi-*, *k*^{w}*ĺ́mi-*} 'split serpent/worm', and that the instances with √*vraśc-/vṛśc-* and √*ruj-* represent 'renewed' formulae, varying √*bhid-*.

√*bhid-* is the form with the soundest IE etymology, which is straightforward; it derives from PIE **√bheid-*, with cognates in Italic (Latin *findere* 'to split', *fissurā̆* 'cleft, fissure') and Germanic (Goth. *beitan* 'to bite', OE *bītan* 'to bite, to cut (with a sword)').

The root √*vraśc-/vṛśc-* has no obvious IE cognates and is in fact not particularly well-behaved even in Sanskrit: (1) the future *vrakṣyáti*, as well as the Atharvaveda gerund *vṛṣṭvā́*, are formed as if derived from a base **vr(a)ś-* (cf. Whitney 1891: §221b);[40] (2) the derivative *vraska-* 'spliting, hewing' (in RV 1.162,6a *yūpavraskā́s* 'hewers of the

[39] **Bolding** indicates that patient of the verb is *áhim* or *vṛtrám* (or *kĺ́mim*, or a body-part of *vṛtrám* or *kĺ́mim*); plain roman indicates that the object is 'mountain' or 'rock'; and *italics* indicates that the object is 'fort/cowpen' or 'tree'.

[40] Skt. *-ś* becomes *-k* before *s*, and *-ṣ* before *t, th* in internal sandhi, cf. Whitney (1891: §218).

sacrificial post') shows no palatalisation of the *sk*-cluster, a process which presumably occurred in pre-Vedic; (3) the *ta*-participle *vr̥kṇá* and the RV gerund *vr̥ktvī́* appear to reflect a base **vr(a)k*-. On etymological grounds alone we can thus rule out √*vraśc-/vr̥śc*- as reflecting the form of an earlier PIE formula.

√*ruj*- has been related to Grk. *λυγρός* 'mournful, sad', Latin *lugere* 'to mourn', Lettish *lauzit* 'to break the heart', and thus could be derived from PIE form **leuǵ*- 'to break', if we accept that Sanskrit has preserved the original meaning and that Latin, Greek and Lettish forms reflect a later semantic development – much less straightforward than the etymology of √*bhid*-.

Moreover, √*bhid*- is the form which most frequently occurs in the dragon-slaying context and has the advantage of having a more specified semantics than √*ruj*-.

4. Dragons and worms: Splitting dragons in Iranian

Iranian also offers evidence for the reconstruction of **bheid-* {*h₃ég*^{w}*hi-*, *k*^{w}*ŕmi-*}.

In the Pahlavi *Kārnāmag*, the hero, Ardashir, kills a *kirm*, who lives in some sort of mountain fortress, worshipped by a group of people who feed it on the blood of cattle (see Section 2.4 above). Ardashir, on the pretence of feeding the worm cow's blood, instead pours molten brass into its mouth, and then,

(59) **kirm** čiyōn rōy ō tan mad pad 2 **škāft**
(*Kārnāmag ī Ardaxšīr ī Pābagān* 8.11)
'As the brass permeated through the whole body, the **Worm** burst [=*škāft* '**split**' - BMS] asunder into two pieces.'[41]

Here the second term has undergone renewal and appears as *škāft*. Obviously this is not a perfect correspondent for the Vedic formula(e) in terms of etymology – due to the lexical renewal – but the semantics are preserved.

As in the RV, the Pahlavi instance of 'splitting the dragon' co-occurs with a reflex of PIE **g*^{w}*hen-* {*h₃ég*^{w}*hi-*, *k*^{w}*ŕmi-*}, cited earlier as (21), repeated below as (60).

[41] Translation from Sanjana (1896).

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(60) ān kirm ō**zad** būd

(*Kārnāmag ī Ardaxšīr ī Pābagān* 9.1)

'(Ardashir) had **slain** that dragon'

5. Writing and cutting: splitting dragons in Germanic

There is evidence for the dragon-splitting formula in Gmc. as well, though it is less straightforward than in Indo-Aryan. In *Beowulf*,[42] the eponymous hero slays a dragon; the relevant lines are given in example (61).[43]

(61) Þā gēn sylf cyning
gewēold his gewitte wællseaxe gebrǣd
biter ond beaduscearp þæt hē on byrnan wæg
forwrāt Wedra helm **wyrm on middan**.

(Bwf. 2702a-2705)

Then again the king himself (=Beowulf)
gathered his wits, drew a slaughter-seax
biting and battle-sharp that he wore on his byrnie
The Helm of the Wederas (=Beowulf) **cut asunder**
the dragon in the middle

The verb used here to describe the slaying of the dragon is *for-wrāt*, a past tense form (with verbal particle *for*) of OE *writan* < Gmc. **wreitan* 'scratch, tear, cut'. If *Bwf.* 2705 is, as I suggest, a reflex of PIE **bheid-* {*h₃ég*^{w}*hi-*, *k*^{w}*ǵmi-*}, the first term of the formula has here too, as in Pahlavi, undergone lexical renewal.

However, it is intriguing that this passage does in fact contain a reflex of PIE **bheid-*: OE. *biter* 'sharp, biting, bitter' (2704a), which describes the weapon with which Beowulf ultimately slays the dragon. Note that in Vedic dragon-slaying contexts as well, references to the hero's weapon can be involved in the formula, as in example (62), where

[42] *Beowulf* appears to be one of the earliest OE texts, though in the last few decades this has been the subject of much debate. On the controversy surrounding the date of composition of *Beowulf*, see the collection of papers in Chase (1997). For persuasive linguistic arguments for maintaining a traditional early dating of *Beowulf*, which place the date of composition between 685 - 825 C.E., see Fulk (1992); this early dating would also be supported by the conclusions of Hock (1991, 2000) on the development of relative clause structures in Old English.

[43] Beowulf has numerous similarities to the Germanic thunder-god who appears in Old Norse as Thor; cf. Müllenhoff (1849), Olrik (1903-10), Panzer (1910), Dronke (1968), Clark (1990: 29), Slade (2007).

Indra's *vajra* is described as *vádha*, from *vadh-*, the suppletive aorist to *han-*, which appears as the verb of this clause in the formulaic phrase *áhan vr̥trám*.[44]

(62) **áhan** vr̥tráṁ vr̥tratáraṁ vyáṁsam índro vájreṇa mahatā́ **vadhéna**
(RV 1.32,5ab)
'Indra, with his powerful **slaying** *vajra* **slew** the wide-shouldered Vritra, worst of Vritras/obstructers.'

Yet, despite the apparent lack of cognates of OE. *writan* outside of Germanic and the singularity of the occurrence of a reflex of PGmc. **wreit-* in Gmc. in the context of the dragon-fight,[45] there are reasons to believe that the formulation *forwritan wyrm* represents an archaism in the poem, and in fact a (partially) frozen formula.

Firstly, *forwritan* itself is a hapax legomenon in OE. *Writan* in OE primarily means 'to write, to form letters',[46] though it can also mean 'to draw' (cf. Bosworth and Toller 1921). The earlier meaning of 'to

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[44] On Skt. *vadh-* (< PIE **wedh-*), see Watkins (1995: 330-334); on the collocational nature of terms for weapons in IE dragon-slaying formulae, see Watkins (1995: 429-438).

[45] Though note the thematic simularity of the dragon-slaying scene from the Old Norse version of *Tristram and Isolde* in (i) below.
(i) hjó hann í sundr í miðju. (ON *Tristrams saga ok Ísöndar*, Jorgensen 1999:97-98)
'(he) cut it (=the dragon) asunder in the middle'.

[46] *Writen* occurs only once elsewhere in *Beowulf* at l.1688, where it refers, somewhat unclearly, either to a runic inscription or an image engraved on a sword-hilt:
(i) on ðǣ wæs ōr writen
fyrngewinnes syðþan flōd ofslōh
gifen gēotende giganta cyn (*Bwf.* 1688b-90b)
'on which [hilt] was written(?)/engraved(?) the origin
of ancient strife, when the flood slew –
the pouring ocean – the race of giants.'
The ambiguity arises in part from the fact that several lines later the poem refers to runes on the sword, though it is unclear if these runes are meant to include what was *writen* on the sword. Most likely the runes are a separate inscription:
(ii) swā wæs on ðǣm scennum scīran goldes
þurh rūnstafas rihte gemearcod
geseted ond gesǣd hwām þæt sweord geworht (*Bwf.* 1694-6)
'So/Also on the sword-hilt of shining gold
it was in rune-staves rightly marked –
it was set down and said – for whom the sword was wrought.'
As noted by Klaeber (1950: 189), it has been suggested that the earlier mentioned *writen* inscription was a graphic illustration. On this sword-hilt, see further Osborn (1978: 977-978) and Viswanathan (1979).

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scratch, cut' is also found, in the sense of inscribing an image[47] or letters[48] into wood, stone etc.[49]

Secondly, outside of *Bwf.* 2705, OE. *writan* means 'to cut' only in the sense of 'cutting into, incising', never 'cutting' in the sense of 'chopping' or 'hewing'.[50] In Old Saxon, on the other hand, *uurītan* denotes not only 'to write', but also 'to cut, to wound';[51] in Old Icelandic *rīta* 'to scratch, to write'; cf. modern Dutch *rijten*, German *reißen* 'to tear, to rip'. These cognates suggest that Gmc. **wreitan* had a sense like 'to scratch, to tear, (to cut?)'. The sense 'cut asunder' ('tore asunder'?) of *Bwf.* 2705 *forwrāt* clearly preserves an earlier sense of the verb, otherwise unattested in Old English. The fact that only here does OE. *writan* have this sense strongly suggests the possibility that this archaic sense is preserved due to *Bwf.* 2705 being in some sense formulaic, since formulae can serve to preserve senses lost elsewhere (see above, Section 1.1.4, as well as the English legalese *without let or hindrance*, which preserves a sense of *let* otherwise lost in English).

Like the Pahlavi case discussed above in section 4 here too the second term of the formula has undergone lexical renewal. Since PIE **bheid-* developed the sense of 'bite' in Germanic (PGmc. **beitan*), losing the earlier meaning 'split', it could no longer be felicitously employed in the Germanic formula, and was replaced in this case by *(for)writan* – its

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[47] Cp. *wrīt ðysne circul mid ðīnes cnīfes orde on ānum stāne* (Lchdm. i. 395,3) 'inscribe this circle with the point of your knife on a stone'.

[48] Cp. *genim hæslenne sticcan, wrīt ðīnne naman,...gefylle mid ðȳ blōde ðone naman* (Lchdm. ii. 104,7) 'take a hazel stick, write/carve your name on it,...fill the name with the blood'.

[49] The development of 'scratch' to 'write' appears to derive from the fact that Germanic speakers first wrote on wood, evidenced by the fact that Germanic runic letters (as developed from Greek letters) avoid curved or horizontal lines, which would be difficult to cut into wood (e.g. Antonsen 2002).

[50] Frantzen (1991: 343-344) compares *forwrāt* to the *writen* of l. 1688 (referring to the inscription on the sword-hilt), noting that both share a meaning of 'to cut, to carve', suggesting that *forwritan* however means 'to cut through' perhaps in the sense of 'intepret', to 'make meaning present'. Frantzen suggests that both acts of 'engraving' refer to origins (as the writing on the sword-hilt tells for whom it was first made) and ends (the slaying of the dragon). He further compares *forwritan* to *forscrifen* 'proscribed, condemned' of *Bwf.* 106, an obvious loan-calqueing from Latin *pro-scribere*, suggesting that *forwritan* might bear some of the connotation of *forscrifen*. Sharma (2005: 272ff.) pursues this latter suggestion. However, whatever other resonances/connotations *forwrāt* might have had for the audience of the poem, it still must have had a literal meaning along the lines of 'cut asunder', otherwise the passage would be uninterpretable.

[51] *Hêliand* 5787-9: *...thena lîchamon lioƀes hêrren...uuundun uuritanan* '...the body of the dear Lord...torn(/cut/wounded) with wounds' (cited from Cathey 2002).

formulaicity suggested by the archaic nature of the meaning of *forwritan* itself.[52]

Here too, as in Indo-Aryan and Iranian, the Beowulfian example of 'splitting the dragon' occurs in close proximity with an apparent variant of *$*g^{w}hen$- {$h_3ég^{w}hi$-, $k^{w}ǵmi$-}, see example (63).

(63) bona swylce læg
egeslic eorðdraca ealdre berēafod
...
wyrm wōhbogen...
(Bwf. 2824a-2825,2827a)
'The slayer (of Beowulf) also lay (next to the slain Beowulf) –
the terrible earth-dragon, bereft of life
...
the coiled serpent...'

6. Conclusions: the validity of *$bheid$- {$h_3ég^{w}hi$-, $k^{w}ǵmi$-} and some notes on treasure-swallowing serpents

There is robust evidence for a Vedic formula meaning 'split serpent': {√*bhid*-, √*vraśc*-, √*ruj*-} {*áhim*, *vṛtrám*}, as discussed in Section 3. This formula co-occurs with forms of *áhann áhim*, the latter identified by Watkins (1995) as a reflex of PIE *$g^{w}hen$- $h_3ég^{w}him$, a formula widely attested in IE. In addition, forms of √*bhid*-, √*vraśc*-, and √*ruj*- also appear – again, usually co-occuring with forms of the Vedic dragon-slaying formula in √*han*- – describing other actions of Indra occurring during or associated with the dragon-fight (e.g. splitting the mountains in which the waters are trapped). Based on etymological and distributional considerations, √*bhid*- appears to be the original verb of the formula, with instances containing √*vraśc*- or √*ruj*- being innovative variants.

In addition, √*bhid*- also occurs with *kṛ́mi*- 'worm' in the Atharvaveda (AV(Ś) 5.23,13) using imagery similar that employed in descriptions of Indra's slaying of Vritra in the RV (cp. RV 8.6,6; 1.52,10; also compare AV(Ś) 2.31,1 with RV 4.22,1d and 6.17,10 – as discussed in section 2.4). This combined with the appearance in the Iranian and Germanic data of reflexes of *$k^{w}ǵmi$- rather than *$h_3ég^{w}hi$- suggests that, just as we found

[52] Though *bītan* can be used in OE. where the agent is 'sword', as in *Bwf.* 1454b, 1523b, 2578a, this is simply a metaphorical extension of the sense 'bite'.

that Watkins' PIE dragon-slaying formula is better represented as *$g^{w}hen$- {$h_3ég^{w}hi$-, $k^{w}\acute{r}mi$-}, so too the PIE dragon-splitting formula is best captured as **bheid*- {$h_3ég^{w}hi$-, $k^{w}\acute{r}mi$-} – in both cases indicating the existence of variation of the second term in PIE itself.

In Iranian (Pahlavi *kirm...škāft*) and Germanic (Old English *forwrāt...wyrm*) there is no direct evidence of the proposed PIE dragon-splitting formula which contains a reflex of PIE **bheid*-; in both instances we find what appear to be lexically-renewed variants of the formula, where an alternative verb (Pahlavi *škāft* 'split', OE. *forwrāt* 'cut/split asunder') appears in place of a reflex of PIE **bheid*-. However, the context of the appearance of the Pahlavi and Old English examples is the same as the Vedic, which strongly suggests that these lone examples are cognate with the robustly attested Vedic formula √*bhid*- {*áhi*-, *vṛtrá*-, *kṛ́mi*-}.

Textual reconstructions of this sort are difficult to 'prove'. However, we can test the plausibility of reconstructing PIE **bheid*- {$h_3ég^{w}hi$-, $k^{w}\acute{r}mi$-}against Fisher's '3-2-1 rule' (cited above in fn.16):

> A traditional sequence of Proto-Indo-European date is likely when a collocation of two or more words consisting of established reflexes of IE roots, expressing the same semantic message, and retaining at least one reflex of the reconstructed roots exists in three separate branches and that one of these phrases occurs at least three times in at least one branch. In addition at least one branch should consistently deploy both roots. (Fisher 2007)

Again, this is only an evaluation metric which serves to constrain possible textual reconstructions by establishing a minimum evidence requirement; it is not a litmus test. However the reconstruction of PIE **bheid*- {$h_3ég^{w}hi$-, $k^{w}\acute{r}mi$-} conforms to Fisher's 3-2-1 rule.

1. It consists of two words, and occurs in three branches of Indo-European: Indo-Aryan (Vedic), Iranian (Pahlavi), and Germanic (Old English).
2. It expresses the same semantic message (i.e. 'splitting the dragon/serpent' in the context of a god or hero slaying a dragon) in all three languages.
3. A reflex of PIE * $k^{w}\acute{r}mi$- appears in the formula in all three languages.
4. The phrase occurs more than three times in Vedic.

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5. Vedic consistently deploys both roots, i.e. reflexes of both **bheid-* and **h₃ég^{w}hi* (or **k^{w}ĺ̥mi-*) individually, although it is the variant *vr̥trá-* rather than *áhi-* (< PIE **h₃ég^{w}hi*) which consistently occurs with *bhid-*.[53]

Thus, on the basis of the evidence presented herein, **bheid-* {*h₃ég^{w}hi-*, *k^{w}ĺ̥mi-*} is a plausible PIE formula, which is the formulaic associate of PIE **g^{w}hen- h₃ég^{w}him*, a formula established to be of PIE vintage by Watkins (1987, 1995). Since killing of a dragon by 'splitting' is semantically more specific than simply 'slaying a dragon', the reconstruction of **bheid-* {*h₃ég^{w}hi-*, *k^{w}ĺ̥mi-*} serves not only to strengthen Watkins' claim that there was a specifically Indo-European dragon-slaying myth, but also helps to flesh out the details of that myth.

The 'splitting of the dragon' is an intriguing aspect of the PIE myth. In a future study, I shall examine in more detail the reason behind the god's/hero's splitting of the dragon and explore the association of other formulae (which can be reconstructed for PIE) with the PIE dragon-slaying myth. The purpose of splitting the dragon was hinted at earlier in the discussion in section 3. In the RV, Indra not only splits the dragon, but also splits the mountain guarded by the dragon in order to free the trapped waters, or splits enclosures in which cows are held. The purpose of the PIE dragon was to hoard some commodity vital to the wellbeing of PIE speakers: WATER, CATTLE (and later on the ritual substance SOMA) in Vedic; GOLD in the gift-exchange culture which supported early Germanic lord-retainer society.[54]

There are data suggesting that – at least in some versions of the myth – that the PIE dragon actually hoarded these precious commodities by swallowing them,[55] thus necessitating the splitting of the dragon by the hero in order to recover the elements vital to his society.

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[53] *Áhi-* does occur consistently with the variant of *bhid-*, i.e. *vraśc-*.

[54] On the importance of the giving/exchange of gifts, especially gold, in Anglo-Saxon and Germanic society, see e.g. Leise (1953), Irving (1968), Hill (2000).

[55] For the moment I will point to only a few pieces of Vedic data:

(i) tváṁ vr̥tráṁ śávasā jaghanván
sr̥jáḥ síndhūṁr áhinā jagrasānán (RV 4.17,1cd)
'You [=Indra], having slain Vritra with might, released the rivers swallowed by the serpent.'

(ii) tritáya gá ajanayam áher ádhi (RV 10.48,2b)
'For Trita, I[=Indra] produced the cows from the serpent.'

And from Vedic prose:

(iii) índro vr̥trám ahan...
tásya vr̥trásya śīrṣató gáva úd āyan (TS 2.1.4.5,4,6)
'Indra slew Vritra...From the head of Vritra cows came out.'

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Abbreviations

AV(Ś) = Atharvaveda Saṁhitā (Śaunakīya), Roth and Whitney 1856
Bwf. = Beowulf, Klaeber 1950
CTH 321 = Illuyanka (entry 321 of *Catalogue des textes hittites*, Laroche 1971), Beckman 1982
Edda(El) = Elder/Poetic Edda, Jónsson 1949
Edda(Sn) = Snorri Sturluson's Edda (Younger/Prose Edda), Jónsson 1959
Il. = Iliad, Monro and Allen 1982
OED = The Oxford English Dictionary, 2nd. ed., 1989
Ol. = Pindar, Olympian odes, Snell and Maehler 1989
Pyth. = Pindar, Pythian odes, Snell and Maehler 1989
RV = Ṛgveda Saṁhitā, Bandhu 1963-6
TBC = Táin Bó Cúailnge, O'Rahilly 1976
TS = Taittirīya Saṁhitā, Weber 1871-1872
Y. = *yasna* of the Avesta, Geldner 1886-1895
Yt. = *yasht* of the Avesta, Geldner 1886-1895

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Mit dem aktuellen Band ergeben sich einige Neuerungen in der Zeitschrift *Historische Sprachforschung*:

Das bisherige Herausgeberteam wird durch Olav Hackstein (Historische und Allgemeine Sprachwissenschaft der Ludwig-Maximilians-Universität München) erweitert.

Des Weiteren wird ein neuer wissenschaftlicher Beirat die Herausgeber bei ihrer Arbeit unterstützen. Wir freuen uns darüber, dass folgende Wissenschaftlerinnen und Wissenschaftler aus verschiedenen Ländern zugesagt haben, an HS mitzuwirken:

Joseph Eska, Univ. Virginia, USA
José Luis García Ramón, Univ. Köln, Deutschland
Toshifumi Gotō, Tohoku-Univ. Sendai, Japan
Wolfgang Hock, Humboldt-Univ. Berlin, Deutschland
Charles de Lamberterie, Univ. Paris (Sorbonne), Frankreich
Alexander Lubotsky, Univ. Leiden, Niederlande
Rosemarie Lühr, Univ. Jena, Deutschland
Daniel Petit, Univ. Paris (ENS), Frankreich
Georges-Jean Pinault, Univ. Paris (Sorbonne), Frankreich
Johannes Reinhart, Univ. Wien, Österreich
Elisabeth Rieken, Univ. Marburg, Deutschland
Brent Vine, UCLA, USA
Michael Weiss, Cornell-Univ., USA

Die Zeitschrift „Historische Sprachforschung" deckt die ganze Breite der historisch-vergleichenden Sprachwissenschaft ab. Sie bietet Wissenschaftlerinnen und Wissenschaftlern die Möglichkeit, ihre Fortschritte im Bereich der indogermanischen Sprachforschung sowie in den angrenzenden Gebieten der allgemeinen und einzelphilologischen Sprachwissenschaften einem breiten Publikum vorzustellen. Die Auswahl der in HS veröffentlichten Beiträge obliegt den Herausgebern, die in Zweifelsfällen die fachliche Meinung der Mitglieder des neuen wissenschaftlichen Beirats einholen. Die Herausgeber behalten sich darüber hinaus

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vor, von den Autoren inhaltliche Änderungen zu verlangen, wenn Teile von Beiträgen oder darin enthaltene Aussagen dem üblichen wissenschaftlichen Wohlverhalten oder den international anerkannten Geboten der Höflichkeit widersprechen.

Ferner wird von den Herausgebern regelmäßig eine Auswahl der wichtigsten Neuerscheinungen im Bereich der historisch-vergleichenden Sprachwissenschaft zur Rezension vergeben.

Bei einer Zeitschrift aus dem Bereich der Sprachwissenschaft halten wir es für selbstverständlich, dass Beiträge auch in einer anderen als der englischen Sprache verfasst werden können. Wir akzeptieren daher Artikel in deutscher, englischer, französischer, italienischer und spanischer Sprache. Für die bessere internationale Verständlichkeit ist aber bei nicht-englischen Publikationen eine englische Zusammenfassung (abstract) am Anfang des Beitrages erwünscht.

Schließlich werden ab sofort alle neu eingesandten Beiträge nur noch unter Einhaltung bestimmter Richtlinien akzeptiert:

Einsendung elektronischer Manuskripte in Microsoft-kompatiblen Programmen (d.h. Manuskripte mit dem Kürzel .doc, .docx oder .rtf) sowie zusätzlich eine PDF-Version, damit fremde Schriftzeichen eindeutig zu identifizieren sind. Des weiteren ist eine Abfassung in einem Unicode-basierten Zeichensatz sehr erwünscht (z.B. Times New Unicode, Arial Unicode u.ä.). Beiträge, die diesen Richtlinien nicht entsprechen, können gegebenenfalls zurückgestellt werden; dies entscheiden die Herausgeber je nach Sachlage. Jegliche Layout-Änderungen gegenüber der eingesandten Version von Beiträgen werden gemäß der Verlagsrichtlinien und der äußeren Form der HS durchgeführt. Sie müssen von den Beitragenden akzeptiert werden.

Alfred Bammesberger Olav Hackstein Sabine Ziegler

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