The Indo-European Verb

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When Words Coalesce:
Chunking and Morphophonemic Extension[1]

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"Idioms are where reductionist theories of
language break down." (Bolinger 1976: 3)

1. Chunking in Indo-European and the gradual incorporation of nominal arguments in verbs

Recent research has made significant progress in exploring the effects of "chunking", the syntagmatic routinization of collocations. While these effects have mostly been investigated in living languages, less effort has been spent on systematically exploring the effects of chunking in diachronic corpora. It emerges that many chunking effects provide diagnostic tools in analyzing data from dead languages. They permit a glimpse into the continuum from incipient to completed argument incorporation, and, ultimately, to the coalescence of morphemes and the formation of new morphemes. In what follows, I will first sketch the most important results of previous research on the implementation of chunking as a network phenomenon involving the interaction of different areas of grammar (§2). I will then apply the resulting scheme of successive argument incorporation to four cases of long-term linguistic development (§3): PIE *$\hat{k}red(-s)$ d^heh_1- 'attach one's heart, (en)trust' → Vedic Sanskrit *śrád dhā-*, Latin *crēdere* '(en)trust, believe' (§3.1); Old Latin *animum advortere* → *animadvertere* 'pay attention to' (§3.2); Early Modern German *die Gewähr leisten* → *gewährleisten* 'offer guarantee'(§3.3); Old High German *wara tuon/neman* → German *wahrnehmen* 'pay heed to, perceive' (§3.4). In each case, the developmental scheme of argument incorporation (as laid out in §2) helps to diagnose the increasing degrees of incorporation.

2. Scheme of successive argument incorporation

A. In the beginning we find a **casual collocation** of constituents, none of which requires the presence of the other by semantically and lexically encoded collocational preference rules.

B. Network effects of the routinization of lexical cooccurrence. If a multiword structure conveys a semantic concept whose sphere of usage is broad by nature or by mere convention, then the routinization of this structure may be economical and facilitate the acquisition, perception and production of linguistic structures (Hackstein 2001: 15, Bybee 2006: 715, 2010: 33-56). Routinization and increase in frequency cause the casual collocation to turn into a habitual one (**frequency, habitualization, chunking**). Both the acquisition of language and its production are facilitated by such organization into chunks. Chunking is all-pervasive and made manifest by multiple side-effects, which are likewise all-pervasive. Especially noteworthy is the conserving effect of chunking, which shapes synchronic language in many ways. Chunks have the potential to inhibit change affecting lexemes, which by contrast are more accessible to language change when occurring outside chunks. As recently demonstrated in exemplary fashion by Arnon and Clark (2011: 109ff.) for the acquisition of irregular plurals in child

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language, such conserved lexemes are typically learned in chunks, and protected by chunks and their formulaic context (cf. on the conserving effect Bybee 2006: 715). As a result, obsolete linguistic forms that are preserved in chunks appear as context-restricted to a greater or lesser degree. The all-pervasiveness of this phenomenon was most eloquently demonstrated by Bolinger 1976. Semantically, the obsolescence of individual constituents of a chunk interacts with (and is compensated by) a shift from compositional meaning to the meaning of the chunk as a whole.

Obsolescence frequently tends not to affect all grammatical features of a particular constituent equally; on the contrary, it is not uncommon for some features to persist. Such features survive into synchronic grammar as anomalies and constraints (Hackstein 2011, in press), cf. for example *will* in *if you will*, preserving the original meaning of *will* as 'want'; or *else* (going back to the genitive singular of *all*, OE *ealles, elles* 'of all (other)') in *anything else, little else*, preserving the partitive genitive of *all* and its syntactic frequency as an amplifying clitic after pronouns and pronominal quantifiers and in certain substantive idioms, e.g., *if all else fails*:

$$
\left\{
\begin{array}{l}
\left\{\begin{array}{l}\text{QUANTIFIER} \\ \text{INDEF PRONOUN}\end{array}\right\} \quad \left\{else\right\} \\
\left\{if\ all\ else\ fails\right\}
\end{array}
\right\}
$$

Figure. *Else* construction

(Cf. Bolinger [1976: 4], who drew attention to the context-restricted use of *else*: "we can say *somebody else* but not *some person else*.")

B.1 Diachronic inheritance may lead to the crosslinguistic attestation of such collocations (**crosslinguistic attestation by inheritance**).

B.2 Apart from frequency, the **phraseological status** of a collocation may be hinted at by **constraints on its inflectional and lexical variability** and by its **morphological versatility** (e.g. cooccurrence of a particular collocation both as a free syntagm and in its nominalized compound form). It is important to note that the constraints on the variability of a chunk are situated on a sliding scale from less constrained to absolutely fixed and invariable. Particularly interesting are prefabricated phrases (i.e., chunks) with invariable kernels and variable slots, termed "lexically filled idioms" by Fillmore et al. (1980), since these provide the source for minor and peripheral constructions of a language. Further research on constructions of this kind in Modern English led to the insight that lexically filled idioms or open-slot constructions surface synchronically as a pool of synonymous phrases with a lexical kernel whose resistance to variation or lexical renewal is relatively stronger than that found with the other constituents of the construction (Bybee 2010: 726). The present paper adduces data from Indo-European to illustrate the durability of open-slot constructions: cf. especially §3.1 and 3.4 below.

B.3 The habitualization process in turn furthers the transformation of a collocation into a **complex sign (chunking** à la Bybee 2006, 2007). A shift occurs from the individual meanings of the collocational constituents to an overall meaning of the entire collocation. Indications of the semiotic fusing of several constituents into a complex linguistic sign may be observed on several grammatical levels:

B.3a: on the semantic level by **idiomatization** of a collocation, by which the semantics of some or all constituents of the collocation become noncompositional (**idiomatization and noncompositional semantics**). The **loss of referentiality** of collocational constituents may be evidenced by a number of possible indications, including a constraint against syntactic branching of collocational constituents (e.g. failure to host nominal or sentential attributes, or loss of an otherwise obligatory article).

B.3b: on the phonetic level by **univerbation** and **condensation** (deletion of otherwise obligatory constituents, e.g. the article). Irregular phonemic reduction may reflect the loss of morpheme status (demorphemization) in morphemes as they develop in the direction of complex signs. The relation between desemantization, loss of morpheme status and tendency to phonetic erosion recurs with allegro

phenomena: "[s]yntactic condensation and allegro phenomena are phenomena of the same kind" (Hackstein 2010: 60).
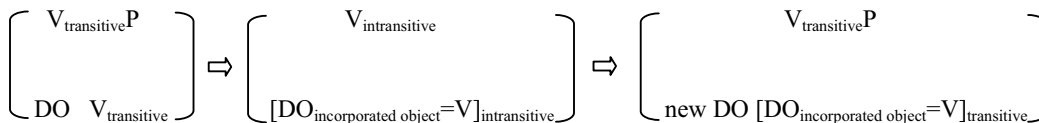
B.3c: on the morphological level by the freezing of constituents (**morphological freezing/fixation**): the desemantization of collocational constituents resulting from the formation of a complex sign contributes to deparadigmatization and the failure of single constituents to adjust to language change.

B3d: on the syntactic level, the semantic (and morphological) fusing as described in B3a-c (desemantization, loss of referentiality, deparadigmatization) contributes to the incorporation of constituents and the **loss of syntactic constituency** (i.e., an erstwhile object is incorporated into the verb and deleted from the earlier argument structure; **syntactic freezing, change of argument structure**). Eventually, the incorporation of an object in the governing verb leads to the fixing of the verb's argument structure. An erstwhile transitive verb is prohibited from taking new objects (**valency reduction**).

B.4 The semantic, morphological, and syntactic effects described in B3a-d may have repercussions on the morphosyntactic level in that fused units are prone to **morphological and/or syntactic reanalysis**. For instance, if by the formation of a complex sign new complex nouns or verbs emerge, those complex nouns or verbs typically show morphological or syntactic constraints. In the course of time, those constraints can be relaxed. To take an example, Latin *merīdiē* 'at noon, noon' is in origin a complex noun, which arose by univerbation of a noun phrase in the ablative-locative. At first the inflection of the resulting complex noun was defective, with Latin *merīdiē* as a frozen form being employed syntactically also as nominative (subject) or accusative (object). Then Latin *merīdiē* began to be reanalyzed as a simple noun and resuscitate its inflection (e.g., nom. *merīdiēs*, acc. *merīdiem;* **reanalysis as a simple noun and inflectional reintegration**).

A parallel process can be observed for complex verbs. At first, the formation of a complex verb may result in the fixing of the verb's argument structure. Then the routinization of the complex verb contributes to its reanalysis as a simple verb. The frozen and incorporated object is deleted from the complex verb's argument structure so as as to license the verb to take new objects (**reanalysis as a simple verb [prefix verb in German] and valency extension**: cf. Wurzel 1983: 113). Instructive examples are easily found in Modern German, given its predilection for object incorporation. For instance, German *Staub saugen* 'to vacuum dust' occurs either as a verb phrase, in which case it is incapable of taking additional direct objects, or as a complex verb 'to vacuum' whose meaning is no longer compositional and whose object is incorporated, in which case *staubsaugen* 'to vacuum' is allowed to take new direct objects, e.g., colloquial Modern German *das Zimmer staubsaugen* 'to vacuum the room'. Schematically:

a) object incorporation in progress: persistence of argument structure with frozen object, lexical constraints in object position, lexical blocking and failure to take "new objects" makes the VP look like a complex intransitive verb

⇨ b) deletion of former object from argument structure

⇨ c) object incorporation completed

⇨ d) valency extension

$$\begin{bmatrix} V_{transitive}P \\ \\ DO \quad V_{transitive} \end{bmatrix} \Rightarrow \begin{bmatrix} V_{intransitive} \\ \\ [DO_{incorporated\ object}=V]_{intransitive} \end{bmatrix} \Rightarrow \begin{bmatrix} V_{transitive}P \\ \\ new\ DO\ [DO_{incorporated\ object}=V]_{transitive} \end{bmatrix}$$

C. Chunking leads to the coalescence and extension of morphemes. The existence of such collocational structures has repercussions not only for the syntactic but also for the morphological representation of language. Beyond structuring the selection and cooccurrence of words on a clausal level, collocational preferences leave a fingerprint on the selection and combination of lexemes within words on a word-formational level. Thus, it has long been observed that the cooccurrence of words in a syntagm may further the formation of compounds. The impact of collocational preferences on word formation can be demonstrated systematically for certain phrase types, such as phrases composed of numerals plus

nouns. In Indo-European languages, for example, collocations consisting of numeral plus the term for 'yoke' or the term for 'man' can be shown to systematically cooccur as noun phrases and as compounds (Hackstein 2010: 51f., 53-7).[2]

The continuity which holds between set phrases (habitual collocations functioning as free syntagms) on the one hand and complex stems with morphemic resegmentation on the other can be documented systematically (Hackstein 2002: 15-9, 2010: 48-59). This continuity may comprise a three-stage derivational process, involving successively the same collocation as a free syntagm, a compound, and a secondary root. An example of Indo-European date is the PIE collocation *men[o]s dʰeh₁- 'to give/implement thinking' (Schindler 1975: 266, *NIL* 493-6), whence univerbated *mens=dʰeh₁- (secondary root Gk. μενθ- with zero grade μαθ-). In the individual IE languages, such secondary roots could be nativized to the extent of being integrated into productive morphophonemic systems, e.g. vocalic (ablaut) alternations. Thus alongside Greek μαθ-, a secondary lengthened grade μηθ- arose, and furthermore by renasalization μανθ- (Hackstein 2002a: 15-9).

Since the above tripartite scheme can be shown to have been productive in ancient Indo-European, it was possible for other collocational verb phrases to form secondary roots by analogy with these word-formational chains, skipping the intermediate stage with the nominalized version of the collocation. Consider for instance a tripartite derivational chain like *nāvem, -ēs agere* 'to drive a ship/ships', compound **nāvex, *nāvigus* 'ship-driver' (as inferable from *nāvigium*), and compound-derived *nāvigāre* 'to sail' (Dunkel 2000: 88f.). By analogy to this chain, another collocation such as *iūre agere* 'to have a legal dispute' was able to give rise to *iūrigāre* and *iūrgāre* despite the absence of an intermediate compound.

A *nāvem, -ēs agere*	**B** **nāvex, *nāvigus, nāvigium*	**C** *nāvigāre*
A *iūre agere*	unattested **iūrex, *iūrigus*	**C** *iūrigāre, iūrgāre*

Latin *iūr-g-āre* shows the accretion of a velar segment in the coda of the complex root *iūrg-*, which can be traced back to the onset of the verbal root in the underlying verb phrase.

Besides the reanalysis of compound nouns and verbs, another mechanism that leads to the formation of new morphemes is the irregular deletion of segments or syllables (allegro reduction due to the loss of morphemic status: see above B.3b). An example from German is the adverb *heute* from the OHG noun phrase *hiu t[ag]u*, which has attained the status of an independent morpheme and derivational basis (*heute* → adjective *heut-ig*). Given the strong association of two lexemes on a syntactic and morphological level, the loss of semantic compositionality may ultimately lead to the blurring and loss of morpheme boundaries in compounds and univerbated syntagms. The resegmentation of such secondary nominal or verbal bases may in turn result in the accretion of additional morphophonemic material and the genesis of new morphemes, e.g. Latin *crēdere* → adjective *crēd-ulus*.

3.1 'Attach one's heart': Lat. *crēdere*

A-B.1 Habitualization of a casual collocation; crosslinguistic attestation by inheritance.

For instance, a PIE collocation **ḱréd(s) dʰeh₁-*[3] meaning 'to attach one's heart to something' met the requirements for conventionalization early enough in Indo-European to be inherited by Celtic, Italic, and Indo-Iranian: OIr. *creitim*, Lat. *crēdere, crēdidī*, Vedic *śrád dhā-*, Av. *zrazdā-* 'faithful, trusting'. The standard analysis of the PIE verb phrase **ḱréd(s) dʰeh₁-* is 'to attach one's heart to sb/sth' (an

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2 The observation that the syntagmatic cooccurence of words may serve as a catalytist for their cooccurence in the guise of compounds has been made before (for a survey of earlier literature cf. Lindner 2008 and Sadovski 2010). But so far the demonstration was confined to particularized instances outside the frame of recurrent derivational schemes. An example adduced from Vedic Sanskrit by Sadovski is the free syntagm *adháḥ ... padór* 'under the feet' (RV 10.166.2), which corresponds to the compound *adhas-padá-* 'lying beneath the feet' (RV 8.5.38, Sadovski 2010: 52f.).

3 The question of the reconstructional alternative of an *s*-stem **ḱred-s* beside the root noun **ḱred* was brought up by Schindler 1979: 58f. For a discussion of the relevant phonological details see section C below.

analysis invoked e.g. by Köhler 1973: 2, 64). Under this analysis, PIE *$\hat{k}réd(s)$ is an accusative object. This analysis can be substantiated against the doubts entertained by Scarlata (1999: 263).

B.2 Constraints on inflectional and lexical variability.

The object PIE *$\hat{k}réds$ 'heart' is restricted to the singular, and there is no lexical variation. Morphological versatility: Ved. *śrad dhā-* was entrenched firmly enough to give rise to the formation of an abstract noun *śraddhā* 'confidence, belief', and by resegmentation to a secondary root in *-d^h, as e.g. in Latin *crēd-ere*.

B.3 Complex sign

B.3a Idiomatization and noncompositional semantics; loss of referentiality.

The metaphorical extension of 'heart' to denote 'belief, trust, faith' is universal (cf. Grönemeyer 2010). In Vedic, the former object *śrad* (< *$\hat{k}réd(s)$) can no longer be syntactically branched.

B.3b Univerbation.

Condensation is indicated by the tendency for *śrad* and *dhā-* to be juxtaposed.

B.3c Morphological freezing/fixation.

The incorporated object *$\hat{k}réds$ is an archaic allomorph of the accusative sg. form of PIE *$\hat{k}erd-$ 'heart'.[4] It exhibits many phonological and morphological anomalies, which indicate that Vedic *śrád* was no longer semantically transparent already by the Vedic period. This supposition accords well with the fact that *śrád* was conceived of as a preposition by the Indian grammarians (Köhler 1973: 1 fn. 4). The anomalies include the formation of an *s*-stem *$\hat{k}erd-s$, which is otherwise unattested to the same root, and the phonotactic resyllabification of *$\hat{k}erd-s$ as *$\hat{k}red-s$ as per Schindler 1979: 58; the skepticism about the resyllabification voiced by Irslinger in Wodtko et al. 2008: 423 note 25 seems unfounded in light of precedent cases like PIE *h_2eug- → *$h_2uek-s-$ (Hackstein 1995: 342f.), Vedic *darś-* 'see' → *drakṣyati* '(s)he will see', which are now plausibly attributed by Byrd 2010: 52 with n. 20 to the PIE dispreference for superheavy syllables. (Note that the resyllabication could be undone in the individual languages, hence e.g. Gk. ἀέξομαι → αὔξω, αὐξάνω, Toch. [B] *auks-*, [A] *oks-* [Hackstein 1995: 342f.], and, in the same vein, Latin *crēdere,* for which see section C below.) Much of Schindler's discussion of reconstructing an s-stem *$\hat{k}réds$ hinges on the Young Avestan phrase *zras=ca dāt* (underlying *zras=dāt* with interposed Wackernagel clitic *-ca* 'and') and the noun *zras*, whose phonological reconstruction allows for the following possibilities:

a) Root noun: PIE *$\hat{k}erd\ d^heh_1et$ > PIE *$\hat{k}red\ d^heh_1et$ > Ir. *$zrad=dāt$ > OAv. *$zraz=dāt$ → YAv. *$zras=ca\ dāt$ (sandhi development of word-final *-z* into *-s* before word onset *c-*).

b) However, there are reasons to believe that an *s*-stem provided the imput for the resyllabification of PIE *$\hat{k}erd-$ >*$\hat{k}red-$ attested by Indo-Iranian:

s-stem: PIE *$\hat{k}erd-s\ d^heh_1et$ > *$\hat{k}red-s\ d^heh_1et$ > *$\hat{k}ret-s\ d^heh_1et$ > Ir. *$zraz=dāt$ > → YAv. *zras=ca dāt*.

or PIE *$\hat{k}erd-s=k^we$ > *$\hat{k}red-s=k^we$ > *$\hat{k}ret-s=k^we$ > YAv. *zras=ca*; cf. Ir. *$uts-čā$ > YAv. *usca* 'above' (Ved. *uccắ*): cf. Hoffmann & Forssman (2004: 98).

Furthermore, there is at least comparative evidence to bolster the former interpretation as an *s*-stem. For instance, the long *ē* of Latin *crēdere* is easier to accomodate under a preform *$\hat{k}red-s\ d^heh_1-$, see below section C.

B.3d Incipient object incorporation, loss of syntactic constituency, syntactic freezing, change of argument structure, valency reduction.

In its oldest attestations, Vedic *śrad dhā* is construed as intransitive or absolute, or with the dative. Cf.

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4 There is no alternative to considering the construction of the complex verb with direct object as secondary. Supposing an old construction with directional accusative 'to the heart' and direct object does not accord with the old and inherited construction of *d^heh_1- with the locative (Dressler 1971: 11, Cardona 1978:209-211).

śrát te dadhāmi prathamā́ya manyáve "I trust your first wrath." *(*RV 10.147.1a)

śrád dadhati tvíṣīmata índrāya "They trust the furious Indra." (RV 1.55.5cd)

The same holds for Latin *crēdere* 'to give faith to somebody, to trust or believe somebody':

nil credo auguribus "I have no confidence in augurs" (Acc. trag. 169 Ribbeck)

This example coincides with the religious sphere of usage of Vedic *śrad dhā-* that was diagnosed to be old by Köhler (1973: 11f., 38f., 64f.).

ut ego multis credidi! "How many people I have trusted!" (Pl. Pers. 476)

B.4 Morphological and/or syntactic reanalysis; valency extension.

The accusative object PIE **ḱréd-s* fuses semantically and morphologically with the accompanying light verb **dʰeh₁-*, yielding a complex verb with incorporated object. The formation of the complex verb and the incorporation of the object occurred in the individual IE languages, as is clear from the preservation of the non-univerbated form in Indo-Iranian. Likewise, the ensuing deletion of the former object from the verb's argument structure and the extension of the complex verb's argument structure occurred within the individual IE languages. This fits well with the observation that the resulting construction (quasi 'to heart$_1$-entrust something$_2$ to somebody$_3$') is found in languages such as Vedic and Old Latin. In this context, and with respect to Vedic *śrád dhā-*, it is important to note Köhler's (1973: 14) observation of the chronological priority of Vedic *śrád dhā-* + dative over its use with the accusative, which, while appearing only rarely in the RV, spreads in later Vedic texts. Cf. e.g.

śraddádhāna *ójaḥ* "being confident in one's own strength" (RV 1.103.3; Grassmann, *Wörterbuch* 1418; vgl. Köhler 1973: 14, Scarlata 1999: 362)

śrád *víśvā vā́ryā* **kṛdhi** "entrust all goods" (RV 8.75.2; Köhler 1973: 11f.)

ā́ yád áśvān vánanvataḥ **śraddáyā**hám *ráthe ruhám* "because I mounted the chariot, full of confidence in the beautiful horses" (RV 8.1.31); here Köhler (1973: 17) argues convincingly for an interpretation of *śraddáyā* (instrumental 'by placing one's trust/by trusting') as a verbal noun governing the accusative *áśvān vánanvataḥ*.

YAv. *yā mē daēnąm … zras-ča dāṯ* "that she believed in the religion" (Yt. 9.26)

The inability to explain the two syntactic constructions of Vedic *śrád dhā-* led scholars to entertain doubts about the interpretation of the latter as 'place one's heart', which as it stands seems to be irreconcilable with an additional accusative (cf. Scarlata 1999: 263 fn. 362),[5] and presumably made Rix (1995: 246) plead for an interpretation of Avestan *zras* as the locative of the root noun **ḱred*. However, the diachronic analysis proposed here solves these problems.

Likewise, Latin *crēdere* extends its argument structure to include new accusatives, first pronominal objects (accusatives of respect) or factive *quod*-clauses 'regarding the fact that' (*id laetor quod*), *credo enim istuc idem* "for I really believe exactly this" (Pl. Mil. 776), then non-pronominal and non-sentential objects, e.g.

ne quisquam credat nummum "nobody ought to lend you a dime" (Pl. Ps. 506)

qui mi id aurum credidit "who entrusted me with this treasure of gold" (Pl. Aul. 15)

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5 Similarly, Irslinger (in Wodtko et al. 2008: 423 n. 25) thinks that the analyis of Vedic *śrád* (**ḱréds*) in *śrád dadhāti* as an accusative is ruled out by the occasional construction of *śrád dadhāti* with the dative. The alleged contradiction however vanishes, since it is typical for complex predicates to change their argument structure. Upon the incorporation of the object the resulting complex verb may adjust its argument structure to that of other synonymous verbs, thus German *wahrnehmen* replaced its older genitive object by an accusative object following other verbs of perception that govern the accusative.

(Note that pronominal accusatives of respect of the type *id laetor* 'with regard to this, I'm glad/I'm glad about this' could give rise to the syntactic reanalysis as true accusative objects, thus contributing to the spread of nonpronominal accusatives: cf. below *id animadvertere* §3.2 B.4.)

Finally, turning to Old Irish, OIr. *creitid* (*DIL* 519, s.v.) may be construed absolutely in the meaning 'believes, trusts', e.g. *dondí creites* translating *credenti* (Wb. 2ᵇ27), or with direct object in the meaning 'believe in', e.g. *isindí nad creitid Christum* glossing *Deum inhonoras* (Wb. 1ᵈ14): cf. Schumacher (2004: 278-81).

C. Coalescence and extension of morphemes.

It is generally accepted that Lat. *crēdere* is akin to Vedic *śrád dadhāmi* and Avestan *zras-ča dāṯ*, but the details of the phonological development are complex. As it turns out, however, the length of Latin *crēdere* is best explained by an underlying s-stem **ḱréd-s*. Given the possibility of a PIE s-stem **ḱréd-s* (Schindler 1979: 58f.) and with regard to the fact that the verb phrase remained a separable and lexically open collocation in at least some IE languages (Vedic *śrád* X *dhā-/kṛ-*), PIE **ḱréd-s dʰeh₁-* > **ḱrét-s dʰeh₁-* could also have coalesced within Italic (**krez-dʰ-*) late enough not to have undergone the earlier sound change **zdh- > -st-* (Weiss 2009: 150 fn. 8, cf. e.g. **gʰasdʰ- >* Lat. *hasta* 'spear'). Early Latin **krezd-* thus yielded *crēd-* (Weiss 2009: 173; cf. e.g. **ni-zd-o- >* Lat. *nīdus*). Some scholars have suggested a development PIE **ḱréd dʰeh₁- >* Proto-Italic **krēd-* with lengthening before voiced unaspirated dental plus dental by Lachmann's Law (Schrijver 1991: 134f., Scarlata 1999: 263, Hill 2003: 248-251), but this would come at the cost of assuming a very early univerbation in PIE **ḱréd dʰeh₁- >* Proto-Italic **krezdʰ- > *krest-*.

In any case, Latin exemplifies the coalescence and resegmentation of PIE **ḱred-s dʰ(e)h₁- > *krezda- > crēd-e/i-*, whence the deverbal adjective *crēd-ulus* by resegmentation. This naturally does not preclude the persistence of the verbal character of *-dere* in the inflection of *crēdere*, i.e. perfect *-dui* alternating with *-didi*, p.p.p. *-ditum* (Old Latin *crēdui ~ crēdidi, crēditum*). Likewise, Celtic shows the resegmentation of a neo-root **kred-*; the phonological details have been dealt with extensively by Schumacher (2004: 280).

3.2 'Pay attention to': Lat. *animom advortere*

A-B.1 Habitualization of a casual collocation.

The collocation *animom advortere* underwent conventionalization in Old Latin.

B.2 Constraints on inflectional and lexical variability.

The object *animum* is restricted to the singular; there is no lexical variation. Morphological versatility: the conventionalization of *animadvertere* leads to the formation of a noun *animadversio* 'notice' (e.g. Cic. *de Orat.* 2.147), *animadversor* 'observer' (Cic. *Off.* 1.146).

B.3 Complex sign

B.3a Idiomatization and noncompositional semantics; loss of referentiality.

In Old Latin, *animum* is still movable and may take a modifier (*tuom animum*). Thus the meaning of *animum advortere* is still compositional. Cf.

Facete advortis **tuom** *animum ad animum meum* "Cleverly you suit your attention to my intention." (Pl. *Mil.* 39)

Si voles advortere animum, comiter monstrabitur "If you grant your undivided attention, it will be pleasantly demonstrated." (Enn. *scaen.* 397 Vahlen)

B.3b Univerbation and condensation are demonstrated by the adjacency of *animum* and *advortere/advertere* and the fixing of the order (1) *animum*, (2) *advertere* in Classical Latin.

B.3c Morphological freezing/fixation: an inflectional constraint confines *animum* to the singular.[6]

B.3d Incipient object incorporation, loss of syntactic constituency, syntactic freezing, change of argument structure, valency reduction.

As a result of the fixation of the phrase and the incorporation of the accusative object into the verb, the original object is no longer accessible to syntactic operations and ceases to be a syntactic constituent. The freezing of the verb's argument structure has the effect that the now-frozen object position is no longer available to lexemes other than the former object *anim(um)*, resulting in valency reduction. Consequently, *animadvortere* is intransitive, as in the examples cited above under B.3a, and e.g. *animum advortite* "Beware!" (Pl. *Cas*. 29). (Lodge 1924: 61 lists 40 instances of *animum advorere/advortere animum* 'be attentive, pay attention' without further accusative object.)

B.4 Morphological and/or syntactic reanalysis; valency extension.

Over the course of time, the resulting complex verb may again undergo routinization and, by syntactic analogy, may copy the argument structure of (near-)synonymous simple verbs, thus leading to valency extension (Wurzel 1983: 113). By analogy with other verbs of perception like *sentire*, *audire*, *videre*, which are typically transitive, *animadvortere* comes to be transitivized and can take new accusative objects. As in the case of *crēdere*, the constructional type with pronominal accusatives of respect (syntactic type *id laetor* "with respect to this I rejoice") may – through syntactic reanalysis – have furthered the spread of nonpronominal unequivocal accusative objects. Cf. *animum advortere* with pronominal accusative objects:

ecquis hoc animadvortet? "Who will pay attention to that?" (Acc. trag. 233 Ribbeck)

nonne hoc publice animum advorti "Didn't I pay attention to that in the public?" (Pl. *Trin*. 1046)

nunc hoc animum advortite ambo! "Now both of you, pay attention to this." (Pl. *Mil*. 766)

Postquam id animum advertit "Once he had noticed it." (Caesar *B. G*. 1.24)

ea senatus animum advortit ita utei aequom fuit "Of this the senate took notice, as it was just." (CIL 1.586.4, Senatus Consultum de Tiburtibus)

Cf. *animum advortere* with nonpronominal objects:

nunc adeo hanc edictionem nisi animum advortetis omnes "But if all of you do not pay attention to the decree." (Pl. Ps. 142)

ego autem ... animum adverti columellam e dumis eminentem "I saw … a small column sticking out of the underbrush." (Cic. *Tusc*. 5.65)

forte quidam Ligus ... animum advortit inter saxa repentis cocleas "A Ligurian happened to notice some snails between the rocks." (Sall. *Iug*. 93.2)

3.3 'Offer guarantee': German *Gewähr=leisten*

A-B.1 Habitualization of a casual collocation.

German *Gewähr* 'guarantee' and *leisten* 'to offer' are attested as a set phrase at least from the 18th century onward. Initially, the object *Gewähr* is movable and maintains its referentiality. It is branchable, and the modifier position can be filled by the article or adjectives. Cf. Johann Christoph Adelung (1793-1801, Bd. 2: 648, s.v. *Gewähr*): *Wer **leistet** mir **die Gewähr** für das, was du mir sagst?* "Who

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6 *anima adverterunt* in the postclassical inscription *CIL* 2.6278.2 (176-180 A.D.) represents the scribe's attempt at decomposing the underlying *animadverterunt*: *in primis anima adverterunt, quae causa illi morbo vires daret* "foremost they paid attention to what factor might give strength to that illness."

offers me guarantee for what you are telling me?", *Sie können es sicher wieder erzählen,* **ich leiste ihnen die Gewähr** *dafür.* "You can surely recount it again. I can assure you of it."

Johann Christoph Gottsched in his *Grundlegung der deutschen Sprachkunst* (1748) mentions the phrase **die Gewähr leisten** 'to provide the guarantee' (Gottsched 1748: 161). For an example of an adjective in modifier position, cf. *Dieser Plan und die sonst bekannte Gelehrsamkeit des Herrn Verfassers kann* **zureichende** *Gewähr leisten, daß durchgängig alle Gründlichkeit darinne herrscht, …* (Lessing, *Werke* Bd. 3, p. 51f.) "This plan and the author's otherwise well-known erudition can offer sufficient guarantee that all thoroughness is contained therein throughout."

The construction *die Gewähr für etwas leisten* 'to offer guarantee for something' persists unaltered into Modern German, with the sole exception that words other than *die* are excluded from the modifier position next to *Gewähr*.

B.2 Constraints on inflectional and lexical variability: none. Morphological versatility: The formation of a compound German *Gewährleistung* presupposes a complex verb.

B.3 Complex sign

B.3a Idiomatization and noncompositional semantics; loss of referentiality.

Alongside the verb-phrase construction, a variant construction with incipient object incorporation branches off. It typically shows deletion of the article, as well as obligatory adjacency of *Gewähr* and *leisten* and their eventual univerbation.

B.3b Univerbation and condensation are indicated by the adjacency of *Gewähr* and *leisten*.

B.3c Morphological freezing/fixation: none.

B.3d Incipient object incorporation, loss of syntactic constituency, syntactic freezing, change of argument structure, valency reduction.

In the course of the incorporation of *Gewähr* into *leisten*, the thematic object of the guarantee must at first be expressed by a prepositional phrase with *für*. The older argument structure persists in that *Gewähr* blocks additional direct objects (valency reduction). Cf.

Es ist meine eigne Geschichte, und für die Wahrheit derselben kann ich euch **Gewähr** *leisten.* "It is my own story, and I can assure you of its truth." (Naubert, *Volksmährchen* Bd. 4, p. 31)

nur die (wirklichen) notwendigen Gesetze der Erfahrung können für einen künftigen Erfolg Gewähr leisten. "Only the (real) necessary guidelines of experience can offer guarantee for a future success." (Schlegel, *Kritische Ausgabe* p. 23)

Schlegel refers to Kant, who uses *Gewähr* in the meaning 'guarantee':

Das, was **diese** *Gewähr leistet, ist nichts Geringeres, als die große Künstlerin Natur (natura daedala rerum)* "That which offers this guarantee is nothing less than the great artisan Nature." (Kant, *Werke* p. 217; Lydia Glorius, p.c.)

Wenn gleich alle Weisheit eines solchen Entwurfs ihm für den Ausgang nicht **Gewähr** *leisten kann, so bleibt ihm doch der tröstende Gedanke, alles getan zu haben.* "Although all the wisdom contained in such a concept may not guarantee him a happy ending, the consoling thought nevertheless remains that he has done everything (possible)." (Wieland, *Werke* p. 763)

B.4 Morphological and/or syntactic reanalysis; valency extension.

At a later stage, the deletion of *Gewähr* from the argument structure permits *gewährleisten* to take direct objects. Cf.

Es treten zwar regelmäßig Forderungen auf, man möge den Kindern eine besondere Freiheit, eine besondere Schonung gewährleisten. "True, it is regularly insisted upon that a special degree of

freedom, a special degree of indulgence, ought to be granted to children." (Kafka, *Kritische Ausgabe* p. 363)

3.4 'Pay heed to': German *Wahr=nehmen*

A-B.1 Habitualization of a casual collocation.

Germanic, Greek and Anatolian show the reflex of a collocational system involving nominal derivatives of the root **(s)werh₃-* 'perceive, heed'[7] coupled with a transitive change-of-position verb **dʰeh₁-* 'put'. The evidence of all three branches can be subsumed under an open-slot construction of the following type:

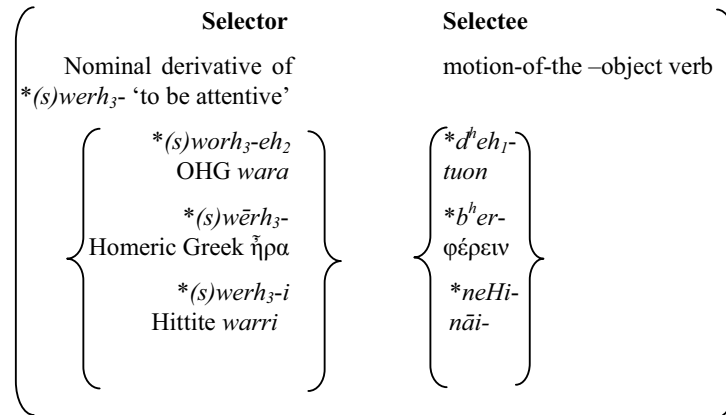| **Selector**	**Selectee**
Nominal derivative of **(s)werh₃-* 'to be attentive'	motion-of-the –object verb
*(s)worh₃-eh₂ OHG *wara*	**dʰeh₁-* tuon
*(s)wērh₃- Homeric Greek ἦρα	**bʰer-* φέρειν
*(s)werh₃-i Hittite *warri*	**neHi-* nāi-

Figure. Open-slot construction 'pay heed to'

The common denominator of the construction is the object noun, which is derived from the same root **(s)werh₃-* in all three branches. In contrast to the object noun, there is some more lexical leeway for the verb. In addition, the noun shows the signs of morphological fixation in Homeric Greek and to a lesser degree in OHG and Anatolian; the accompanying light verb remains lexically open. Both these facts suggest that the noun is the lexical selector (implying the syntagmatic association of certain light verbs, e.g. **dʰeh₁-*) and the light verb the selectee (for the terminology, cf. Cruse 1986: 104).

The routinization and fixation of the open-slot construction set the stage for object incorporation as well as for the formation of compounds, ultimately leading to the creation of complex secondary roots. The etymological relationship between the OHG *wara*, Greek ἦρα, and Hiitite *warri* is substantiated by phraseological links and new morphological equations that permit us to unite OHG *biwarōn*, Greek ὁράω, and Hitt. *warrāizi* under the same root **(s)werh₃-*, cf. e.g. PIE **(s)worh₃-eh₂-* (Greek φρουρᾱ́,

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7 Since opinions have diverged so far on the precise reconstruction of **(s)werH-*, a summary of the comparative evidence in favor of positing PIE **(s)werh₃-* is called for. Evidence for a seṭ-root **(s)werH-* is provided by Hitt. *warri* (from **(s)werH-i/(s)worH-i*) and possibly by disyllabic -ήρα- in Greek ἐπι-ήρα-νος (Watkins 1975a: 208 n. 2); cf. furthermore **(s)wr̥H- > *sruH-* (Epic Greek ῥῦμαι with onset **hr-* < **sr-* or analogically reshaped **wr-*); the restoration of the onset **(s)wr̥H-* is possible by analogy with the *e-* and *o-*grade forms; s-mobile **(s)werH-* is indicated by ὁράω, and with metathesis of the internal aspiration ἑώρων (Hackstein 2002: 131). **H* possibly = **h₃*: **(s)werh₃-*, if **(s)werh₃- >* PGreek **(s)wero- → *(s)[w]oro- > *horo- >* Homeric ὄρονται (Hackstein 2002: 128f. with refs.), Mycenaean *o-ro-me-no*; for the loss of digamma before /o/ in Mycenaean and Epic Greek, see Hackstein 2002: 129. Loss of the laryngeal occurred by de Saussure's Law (**(s)worh₃ > *(s)wor-/̣C*) and language-specific rules, e.g. Anatolian loss of the laryngeal before /i̯/ (Melchert 1994: 65, 69, 73). Tocharian: PIE **(s)wr̥H-sḱe/o-* yields Toch. B *wärsk-* with regular loss of laryngeal between syllabic *r* and consonant (for a collection of cases, see Hackstein 1995: 29); for Toch. B *wär-sk-* 'smell', cf. Pinault 2008: 593, Malzahn 2010: 887f.

OHG *wara*) → OHG *biwarōn* 'surveiller', Hitt. *warrāizi* 'comes to the aid of' (Watkins 1975b: 371f., Oettinger 2002: xxi), Greek ὁράω (by partially analogical derivation; cf. Watkins 1975b: 97, Tucker 1990: 267ff., Rau 2009), and finally Epic Greek εἴρῡ- 'be attentive, aware'. Epic Greek εἴρῡ- 'guard' derives from **weyrū- < *wewrū-* 'having directed one's attention towards something, having become attentive, concentrated' and finds an analog in the Tocharian A preterit participle *wawru* 'purified'. For the semantic transition 'pure, chaste' ← 'concentrated, conscious', cf. German *keusch* 'pure and chaste' ← Lat. *conscius*. Epic Greek εἴρῡ- 'be attentive, ward' finds a match in the causative pret. ptc. Toch. A *wāwru* 'having been caused to gain conscience, awakened' to *wār-* '(cause to) wake up' (Ji, Winter and Pinault 1998: 277), e.g. *ptāñkätt ats **wāwrunt** lkām* "I see ... the Buddha-god **awakened** indeed" (YQ 3 [I.8] b3, ed. Ji, Winter and Pinault 1998: 56). Epic Greek εἴρῡ- 'guard' mostly lacks a digammatic onset (Chantraine 1973: 138), note however ἢ νῶϊν (*F)**εἴρυτο θύρας** πυκινοῦ θαλάμοιο (Od. 23.229), and the etymological and phraseological affinity of εἴρυτο θύρας with θυραωρούς (Il. 22.69), Cypr. *tu-ra-**wo**-(ro-se)* and Goth. *daura-**wards*** (Hackstein 2002: 17).

I. OHG attestations of *wara tuon*:

OHG employs a set phrase *wara tuon* 'to pay attention/heed (to)'. Cf. e.g.[8]

tûot uuára *des cúniges/salemonis únte der corô/non* (24ᵛ18; Schützeichel and Meineke p. 103; transl. 275) "Heed King Salomon and his crown." (Lat. ***spectatum*** *vos properate impositum regi diadema novum salomoni*)

*únte íh/**uuáre** tâte. óbe dér uuîngárto in blûode uuâre* (47ʳ32f.; Schützeichel and Meineke p. 193, 195; transl. p. 288) "and that I checked if the vineyard was blooming" (Lat. *id simul **inspicerem**, si mittit vinea florem*)

II. Homeric Greek attestations of (ἐπὶ) ἦρα φέρειν 'to bring help, to give a favor':

Homeric Greek employs a set phrase ἐπὶ ἦρα φέρειν 'to bring help; to be submissive, compliant'. This phrase, whose etymological and phraseological affiliations were explored by Gusmani (1968) and more recently by García Ramón (2006, see below), shows all the earmarks of formulaicity. The phrase contains frozen morphology in its constituent ἦρα, the accusative of an inherited root noun, which recurs elsewhere in Homeric formulas (e.g. Homeric ἐρίηρες ἑταῖροι), and in Mycenean onomastics (e.g. the personal name *Eriwēros*; *Diccionario Micénico* I 248, s.v. *e-ri-we-ro*, PY Vn 130.9).

τοῖσιν δ' Ἥφαιστος κλυτοτέχνης ἦρχ' ἀγορεύειν
μητρὶ φίλη **ἐπὶ ἦρα φέρων** λευκωλένῳ Ἥρῃ· (Il. 1.571f.)

"Hephaistos, the renowned smith, rose up to speak among them to bring comfort to his beloved mother, Hera of the white arms."

μητρὶ δ' ἐγὼ παράφημι καὶ αὐτῇ περ νοεούσῃ
πατρὶ φίλῳ **ἐπὶ ἦρα φέρειν** Διί, ὄφρα μὴ αὖτε
νεικείῃσι πατήρ, ... (Il. 1.576ff.)

"I advise my mother to support my father so that he doesn't scold (her) again."

…, οἳ τὸ πάρος περ
θυμῷ **ἦρα φέροντες** ἀφεστᾶσ' οὐδὲ μάχονται. (Il. 14.131f.)

"...who otherwise, following only their own intuition, stay away from battle."

III. Hittite attestations of *warri nāi-*:

Gusmani (1968) pointed out the similarity of Greek ἐπὶ ἦρα φέρειν to the Hittite idiom *warri nai-* 'to bring as help'. As García-Ramón (2006) showed, the relationship of the Homeric Greek and the Hittite

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8 I owe my knowledge of the attestations in Williram's OHG commentary of the Song of Songs, ed. by Schützeichel and Meineke, to Maria Kozianka.

phrases is further supported by the fact that the etymological bonds are not confined to Greek ἦρα and Hittite *warri*, but extend to other related phrases in both languages. Thus, Greek ἦρα (φέρειν) alternates with χάριν (φέρειν), which finds an etymological match in the Hittite alternation of *warri (nāi-)* and *kari (tiya-)* 'step to graciousness' (García-Ramón 2006: 834-837). One can add the Greek alternation of Τίνος ἦρα; "To what avail?" (AP 16.299, 5f.) and Τεῦ χάριν; "What for?" (AP 9.37, 2).

> Greek **ἦρα** φέρειν   Hittite **warri** *nāi-* (García-Ramón 2006: 830, no. 3, 4)
>
> **χάριν** φέρειν   **kari** *tiya-* 'step to graciousness' (García-Ramón 2006: 840f.)

Not only does this observation corroborate the identification of Greek ἦρα with Hittite *warri*, but beyond individual words it also indicates the inheritance of a collocational system.

Regarding the Hittite phrase *warri nāi*, *warri* 'help(ing)' may be identified as an accusative sg. neuter of an *i*-stem adjective, an approach already adopted by Friedrich (1930: 216, cf. nom. pl. *warreš*) and Watkins (1975a: 197). Cf.

20 *nu=kan naššu* DUMU=*K[A našm]a* ŠEŠ=*KA ANA* LUGAL KUR ^{URU}*Ḫatti*
21 *QADU* ÉRIN.MEŠ=*KA* ANŠE.KUR.RA.MEŠ=*KA* **warri parā nā[i]**
"So send as support to the king of Hatti either your son or your brother together with your troops and your charioteers."

27 *nu=tta=kkan* LUGAL KUR ^{URU}*Ḫatti*
28 LUGAL KUR ^{URU}*Ḫatti* «*warri*» ÉRIN.MEŠ ANŠE.KUR.RA.MEŠ **warri parā nāi**
 "So the king of Hatti will send you as support troops (and) charioteers." (*KBo* V 9 Kol. II; cf. Friedrich 1926: 17).

B.2 Constraints on inflectional and lexical variability.

OHG *wara* (PIE **(s)worh₃-eh₂-* > Greek ὁρᾱ́, as in φρουρᾱ́ 'look-out, watch, guard') shows no inflectional variation. Similarly, Greek ἦρα presents the frozen accusative of an archaic root noun (**(s)wĕ́rh₃-*; cf. Schindler 1972a: 84, 1972b: 37). Cf. also the employment of ἦρα as a postposition, e.g. Τίνος ἦρα; "To what avail?" (AP 16.299.5f.).

B.3 Complex sign

B.3a Idiomatization and noncompositional semantics; loss of referentiality.

These are indicated by B.2, B3.b-c.

B.3b Univerbation, condensation.

The data adduced (above in A-B.1 and below in B.3d) from OHG, Greek and Hittite document a strong tendency in all three branches for the object and light verb to be juxtaposed. Exceptions are rare: the juncture may be interrupted only by clitics (OHG *des/niet*, Greek ἐπί, Hittite *parā*).[9] In OHG, the separation of *wara* from the light verb by constituents other than clitics and grammatical words is exceptional. Cf.

ich **tûon** *sîn / îedôch sélbo álliz ána* **vuára**. (63^{r}12f.; Schützeichel and Meineke p. 257; transl. p. 298)
     "I take care of the vineyard myself."

In OHG, the order of *tuon* and *wara* is fixed: imperatives require the order *tuon + wara* (a), contrasting with declaratives in which the order *wara tuon* is mandatory (b):

a) Imperative: *tuon + wara*; cf.

ne **tûont** *des nîet* **uuára** / *daz íh so sálo sî*. (11^{r}31; Schützeichel and Meineke p. 49, 51; transl. p. 266)
     "Do not mind that I'm so dark." (Lat. *nolite me considerare quod fusca sim*) Parallel: **ne/ séhent**

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9 The dittography in the second Hittite example cited above may indicate an incipient ability to separate *warri* from the verb.

daz nîet ána . uué/lihes lêides ih lebe (11ᵛ 2ff.; Schützeichel and Meineke p. 51; transl. p. 266) "Do not pay attention to what pain I'm going through."

tuôn *des* **uuára** */* óbe der uuîngárto blûove (55ʳ 5f.; Schützeichel and Meineke p. 225; transl. p. 293) "Let's pay attention to whether the vineyard is blooming." (Lat. **uidendum** *uinea si floret*)

tûot uuára *uuâ sích / dîe hereses áller êres búren.* (19ᵛ23; Schützeichel and Meineke p. 83; transl. p. 272) "Pay attention to where the hereses rise up first."

tûot uuára *des cúniges/salemonis únte der corô/non* (24ᵛ18; Schützeichel and Meineke p. 103; transl. 275) "Heed King Salomon and his crown." (Lat. **spectatum** *vos properate impositum regi diadema novum salomoni*)

b) But declarative: *wara + tuon*; cf.

*únte íh / **uuáre tâte**. óbe dér uuîngárto in blûode uuâre* (47ʳ32f.; Schützeichel and Meineke p. 193, 195; transl. p. 288) "and that I checked if the vineyard was blooming" (Lat. *id simul **inspicerem**, si mittit vinea florem.*)

*únte ôuh dés / **uuáre tuô** . óbe dîu plebs / katholica ... bluôie* (47ᵛ26f.; Schützeichel and Meineke p. 195; transl. p. 289) "and that I pay attention to whether the *plebs catholica* is flourishing" (Lat. *hoc quoque **contemplor***)

*Târ án déro stéte uuirt tés cnôto **uuára ze tûonne**.* (Boethius, *Consolatio*, Nb 12504-6, ed. Firchow 2003: 125) "and with regard to that, attention must be paid all the more" (Lat. *In quo illud **est animadvertendum** magis*)

Absolute construction; cf.

*Also ist hîer in tertio libro **uuára ze tûonne**.* (Boethius, *Consolatio*, Nb 18129, ed. Firchow 2003: 181) "Thus now it is to be noticed in the third book."

B.3c Morphological freezing/fixation.

See above, B2.

B.3d Incipient object incorporation, loss of syntactic constituency, syntactic freezing, change of argument structure, valency reduction.

OHG *wara tuon* exemplifies a three-stage syntactic development leading from lexically free arguments, through an intermediate stage with the elimination of arguments (valency reduction), to valency extension by syntactic analogy. In OHG, *wara tuon* is construed with an adnominal genitive dependent on *wara.* For attestations see Splett (1993: 1065): OHG *wara tuon* ,(an)sehen, wahrnehmen, beobachten, achten auf, sich [jemandes, einer Sache] annehmen'. Many examples can also be found in Williram's commentary to the Song of Songs, see B3b above.

Already in OHG *wara tuon* varies with *wara neman*, which ousts *wara tuon* by the MHG period. For attestations, see Splett (1993: 1065): OHG *wara neman* 'beobachten, zusehen, achten (auf), sich [jemandem] zuwenden, sich kümmern um'. The variant OHG *wara neman* either owes its existence to the deconstruction of the inherited idiom *wara tuon* or it represents an instantiation of the inherited open-slot construction with lexically free light verb. Cf.

*Also **uuára ze némenne** ist.* "Thus it is to be noticed." (Boethius, *Consolatio*, Nb 18127)

The collocation *michila wara neman* 'to pay great attention' is frequently used as the translation equivalent of Latin *ponere oculos*; for attestations see Schützeichel 2004: 392.

Nim sîn mihila wara "take special care of him", translating *pone super illum oculos tuos* (Steinmeyer and Sievers I 633, 32)

Syntactically, the complex verb *war nemen* is intransitive in Middle High German and Early Modern German. It cannot take an accusative object; instead *war* (*wahr*) governs an adnominal genitive.

mîns rosses unde mîn wart vil guot war genomen "My horse and I were very well taken care of." (Hartmann von Aue, *Iwein* 310f.)

Nehmet wahr der Raben, der Lilien auf dem Felde "Behold the ravens, the lilies in the field." (Martin Luther's translation of Luke 12.24)

B.4 Morphological and/or syntactic reanalysis; valency extension.

The genitive construction persists into (the higher registers of) early nineteenth century German; for examples see Paul 1958: 318. Due to the opacity of the nominal form *war* and its semantic and syntactic fusion with *nehmen*, the complex verb *wahrnehmen* was realigned with other transitive verbs of perception and began to take accusative objects quite early. The first examples are found in 15th-century German, according to Paul loc. cit. It was only in Modern German that the argument structure of *wahrnehmen* was realigned with that of simple transitive verbs of perception like *merken, fühlen*. As a result, German *wahrnehmen* today is invariably construed with the accusative.

C. Coalescence and extension of morphemes.

Germanic and Anatolian not only attest the same open-slot construction, they also agree in the formation of a new extended lexeme with accretion of the onset of the light verb *$d^h eh_1$*-. As OHG *wara tuon* is accompanied by the etymologically related secondary root *wart*-[10] (e.g. *wartên* 'to observe, pay attention to, take care of' [Schützeichel 2004: 405f.], OHG *warthūs ,Leuchtturm, Wachhaus, Warte*, vantage-point', OHG *wartman ,Wächter*, guardian' [Schützeichel 2004: 406f.]), so Hittite *warri nai/*dai*- 'bring as help' is coupled with Hittite *waritē*- (Old Script), *weritē*- 'be attentive, full of awe, be afraid'.[11] Greek may also show the same process, if Greek ἔρῑθος is related (Hackstein 2002a: 17). The absence of digamma in the onset of ἔρῑθος reflects the systematic alteration of the root shape as *$swerh_3$*- and *$seruh_3$*- from *$sruh_3$*-, which preserves an old allomorph (from *sw_rh_3*-; cf. Hackstein 2002a: 17 fn. 42, 2002b: 126-8), so that the skepticism of Loma (2009: 290 fn. 13) is unfounded. OHG *wartên* and its West Germanic cognates are transitive; the incorporation of the object has long been completed. This, and the realignment of the verb with other transitive verbs of perception, made it possible for *wart*- to be treated as a transitive root, thus exemplifying Stage **B4** of the above scheme. By contrast, we find the process to be less evolved in the case of Hittite *werite*-, in which object incorporation has clearly begun but is recent enough to block new objects. Opinions diverge in parsing *warri* and *weri*- either as a dative-locative (Eichner 1975: 88[12], Oettinger 2002: 127[13]) or as an accusative (Kloekhorst 2008:1003f.). In fact, there is good evidence in favor of the accusative reading. Under the dative-locative analysis ('to put something to fear'), one would expect the verb to be transitive (cf. Oettinger [2002: 127]: "also ursprünglich wohl transitiv *'zur Verehrung setzen'"), which it is not.

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10 "*dh*-Erweiterung der in *wahren* (s. d.) dargestellten Verbalwurzel" (Kluge and Seebold 2002: 777), "zu der unter *wahren* (s. d.) genannten Wurzel gebildet" (Pfeiffer 2005: 1540).

11 There are no semantic obstacles to deriving Hittite *weri* in *weritē*- from the same root *$(s)werh_3$*- 'perceive' that underlies Hittite *warra*- '(IE *attention >) help', *warri*- 'help(ing)' (< *$(s)u̯orH-o-, *(s)u̯orH-i-$). Within the sphere of attention respectful attention and fearful attention often are overlapping concepts. Hence the crosslinguistically frequent polysemy of 'respect' and 'fear', cf. e.g. the Latin phrase *deos vereri* (e.g. *Iunonem vereri*, Pl. Am. 832)'to respect/ obey and fear the gods', German *gottes-fürchtig* 'god-fearing'. Thus too in Hittite *weritē*- 'be afraid'. For the notion of god-fearing, cf. Greek εἴρυσθαι and Lat. *vereri* both of which convey the notion of 'respectfully and fearfully obey the rules of the gods', cf. e.g. χαλεπόν σε θεῶν αἰει-γενετάων| δήνεα εἴρυσθαι (Od. 23.81f.), ... δικασπόλοι, οἵ τε θέμιστας| πρὸς Διὸς εἰρύαται· (Il. 1.238f.), οὐ σύ γε βουλὰς| εἰρύσαο Κρονίωνος (Il. 21.230) and Latin *verērī deos*.

12 "Die uridg. Wurzel *$d^h eh_1$*- ,setzen, stellen, legen' ist im Heth. außer im Verbum *dai*- ... auch noch in ... *werite*- ,fürchten, respektieren' (etwa ,sich jemandem/etwas zur/in Scheu/Respekt setzen/bestimmen') ... reflektiert." (Eichner 1975: 88).

13 "Hitt. *weritē*- ,sich scheuen', „Zusammenrückung ... aus einem Dat.-Lok. *weri* eines Wurzelnomens der Bedeutung ,Verehrung, Scheu' und *$d^h eh_1$*- ,festsetzen'" (Oettinger 2002: 127).

While one might think of attributing the attested intransitive meaning to a secondary detransitivization (Melchert, per litt.), an explanation for the unexpected intransitivity of Hittite *werite*- is also available under the accusative analysis once we reckon with the incorporation of an accusative object *weri-*, which in accordance with stage **B3c** of the above scheme disallows further accusative objects.

To summarize, West Germanic accords with Anatolian in attesting for the same lexemes the same gradient leading from a free collocation through syntagmatic routinization and conventionalization, and ultimately to the coalescence of words and the formation of a new lexeme. The implementation of the process described above includes the three-stage derivational complex, as summarized in Hackstein 2002: 16f.:

A) syntagm *$(s)worh_3$-eh_2-m d^heh_1*- → B) compound *$(s)worh_3$-d^hh_1-o-* > *$(s)wor$-d^hh_1-o-* → C) secondary root PGmc. *$(s)wor$-d^h*-, as in *$(s)wor$-d^hh_1-u-* > OIc. *vǫrðr*, *$(s)wer$-d^hh_1-u-* > OHG *wirt*; cf. Neri 2003: 334-338.

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