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Toshiya Tanaka

1. The historical nature of the PGmc. strong class I-III preterite formations (sg. **CaiC-*, **CauC-*, or **CaRC-*; pl. **CiC-*, **CuC-*, or **CuRC-*) seems far more straightforward than that of the other strong preterite morphologies, for it appears feasible to interpret them as simply reflecting PIE perfects.¹ The following chart, recently offered by Ringe (2006: 185), also illustrates how representative examples of the strong I-III preterite can be derived from the corresponding perfect forms:

(1) post-PIE perfects		PGmc. preterites				
ind. sg. stem	default stem	ind. sg. stem	default stem			
* <i>b^he-b^hoid-</i>	— * <i>b^he-b^hid-'</i>	'have split'	* <i>bait-</i>	—	* <i>bit-</i>	'bit'
* <i>ġe-ġous-</i>	— * <i>ġe-ġus-'</i>	'have tasted'	* <i>kaus-</i>	—	* <i>kuz-</i>	'chose'
* <i>b^he-b^hond^h-</i>	— * <i>b^he-b^hnd^h-'</i>	'have tied'	* <i>band-</i>	—	* <i>bund-</i>	'tied'
* <i>ue-uort-</i>	— * <i>ue-u_rt-'</i>	'have turned'	* <i>warþ-</i>	—	* <i>wurd-</i>	'became'

As for the issue of how the PGmc. preterites without reduplication have developed from the originally reduplicating perfect formations, Ringe (*ibid.*) submits that “the reduplicating syllable has simply been dropped.”

Traditional Gmc. linguistics would often take ‘haplology’ (= ‘fusion of two similar syllables into one, as in *interpretive* for *interpretative*’; Prokosch 1939: 161) to be responsible for the removal of the reduplicative syllable **Ce-* from the antiquated perfect construction. Regarding the same problem, Jasanoff (2007: 243) has lately made the following statement:

Sometime before the breakup of Proto-Germanic, the majority of strong preterites gave up their reduplication. Like all such changes, the process must have been gradual and accompanied by considerable sociolinguistic variation. The loss of reduplication may have begun in forms with multiple preverbs, as in Old Irish; or it may simply have been an effect of fast speech. But wherever and however it began, the passage of time would have favored the dereduplicated variants, which tended to become more frequent and, other things being equal, to replace the longer forms. The qualification of “other things being equal,” however, is important. In verbs where the vocalism of the present contrasted with that of the preterite – in effect, in the standard six classes of strong verbs – the loss of reduplication was complete.

Although these views about loss of reduplication are not congruous with each other in every detail,

it may be pointed out that they are identical in one respect: they all assume that the previously extant reduplicating syllable **Ce-* disappeared *spontaneously*, not on the strength of any specific external factors. We may therefore label this type of understanding of the absence of reduplication in PGmc. I-VI strong preterites *a theory of spontaneous loss of reduplication*.²

In contrast to the spontaneous loss interpretation, a different assumption has long been available in our research field, which may be tagged *a theory of morphological conflation*. This theory regards the riddance of reduplication as having been triggered by morphological merger of a reduplicating perfect with an athematic root aorist, unreduplicated; cf. Hirt (1932: 152f.), Prokosch (1939: 164), Bammesberger (1986: 48f.),³ and others. A PGmc. strong II verb **kius-i-/keus-a*⁴ ‘choose’ (pret. sg. **kaus-*, pl. **kuz-*; see (1) above), for example, goes back to an aoristic PIE verbal root **ǵeus-* ‘taste’. Because of its aoristic characteristics, the relevant radix was capable of constructing both a stative perfect **ǵe-ǵous-/ǵe-ǵus-* ‘like, enjoy’ (cf. a Ved. perfect *ju-jós-a* ‘enjoys, takes a liking to’) and an athematic root aorist **ǵéus-/ǵus-* ‘tasted’ (cf. a Ved. aorist middle participle *jus-āna-* ‘enjoying’); see Kümmel (1996: 46; 2000: 200ff.) in addition to LIV (2001: 166f.). The PGmc. preterite singular **kaus-* is a reflex of a PIE perfect singular **ǵe-ǵous-*, the original reduplication having been removed after the shape of the root aorist formation with no reduplication **ǵéus-*, whilst the preterite plural **kuz-* is an inheritance not so much from a perfect **ǵe-ǵus-* as from a root aorist **ǵus-*.

Whichever approach of these two theories is adopted, there remains one nontrivial problem: Why does the 3 pl. strong preterite form not show the ending **-ur < *-rs* but **-un < *-nt* (cf. Meillet 1970: 76)? Inasmuch as one adheres to a theory of spontaneous loss, this problem continues to be an enigma, since there should be no motivation for the original 3 pl. perfect to replace its ending **-rs* with the secondary type **-nt* in the process of simply getting rid of its reduplication. The hypothesis of morphological conflation so far advocated, on the other hand, aimed to give a historical account of this mystery: The secondary ending **-un < *-nt* is traced back to that of the athematic root aorist formation. Yet this explanation is incomplete, because a 3 pl. root aorist **ǵus-ént* ‘they tasted’ would not have developed into **kuz-un* ‘they chose’ but into ***kuz-in*, if only regular phonological changes are taken into consideration.

Attribution of a PGmc. strong preterite formation to morphological amalgamation of a perfect with an athematic root aorist from one and the same verbal root will, in my eyes, create another problem. Given that an aoristic root tended to form an athematic root aorist and a (stative) perfect,⁵ whereas a presential radix was likely to construct an athematic or thematic root present as well as its corresponding imperfect (praesens tantum) in the proto-language, it will follow that only the originally aoristic verbs were directly involved in giving rise to the strong preterite system in Proto-Germanic. What, then, happened to the presential verbs before the relevant system was completed? Two conceivable perspectives seem available in order to give an account of this point. One is to suppose that those previously presential roots became able to create a new reduplicating perfect and athematic root aorist at some stage of (pre-)Proto-Germanic, after which their morphological fusion was brought into practice, as was the conflation of the two formations from aoristic radices (Scenario 1):

(2) Scenario 1

PIE	perf. * <i>ĝe-ĝóus-e</i> aor. * <i>ĝéus-t</i>	(pres. * <i>réudH-ti</i>) imperf. * <i>réudH-t</i> ⁶	(pres. * <i>skéud-e-ti</i>) imperf. * <i>skéud-e-t</i> ⁷
post-PIE		perf. * <i>re-róudH-e</i> aor. * <i>réudH-t</i>	perf. * <i>ske-skóud-e</i> aor. * <i>skéud-t</i>
pre-PGmc.	morph. conflation	morph. conflation	morph. conflation
PGmc. Str. II	* <i>kaus-/kuz-</i> 'chose'	* <i>raut-/rut-</i> 'lamented' ⁸	* <i>skaut-/skut-</i> 'shot' ⁹

The other is to presume that morphological admixture first transpired among those verbs that possessed both a reduplicating perfect and an athematic root aorist construction, giving birth to a significant number of strong preterites; thereafter, the erstwhile presential verbs, exempt from the operation of morphological amalgamation, altered their preterite (that is, imperfect) configurations so that they may fit the newly emerging strong preterite shape (Scenario 2):

(3) Scenario 2

PIE	perf. * <i>ĝe-ĝóus-e</i> aor. * <i>ĝéus-t</i>	(pres. * <i>réudH-ti</i>) imperf. * <i>réudH-t</i>	(pres. * <i>skéud-e-ti</i>) imperf. * <i>skéud-e-t</i>
pre-PGmc.	morph. conflation		
earlier PGmc.	Str. II * <i>kaus-/kuz-</i> 'chose'		
later PGmc.		Str. II * <i>raut-/rut-</i> 'lamented' (on the analogy of * <i>kaus-/kuz-</i> 'chose' and other Str. II verbs from quondam aoristic verbal roots)	* <i>skaut-/skut-</i> 'shot'

Scenario 1 looks unrealistic, for there seems to be no incentive at all for the original imperfect to transform itself into two distinct preterital forms, i.e. a reduplicating (resultative) perfect and an athematic root aorist, as portrayed in (2) above. A post-PIE or pre-PGmc. stage is best identified as having preserved the parental distinction in verbal aspect between imperfective (imperfect) and perfective (aorist). Therefore, it is an especially questionable move to posit creation of a new athematic root aorist from an earlier presential verbal radix.¹⁰ Albeit it is not impossible to surmise that a pre-PGmc. stage saw new emergence of a reduplicating resultative perfect even from a presential verbal root, this prospect remains uncertain, given that no other IE branch shows any corresponding perfect (for **skéud-*, see *LIV*2001: 560).

Doubt may also be thrown on Scenario 2 as schematized in (3) above. If it is true that strong I-III preterites were first (say, at an earlier PGmc. stage) invented via morphological fusion of a reduplicating perfect with an athematic root aorist from an aoristic verbal radical such as **ĝéus-*, we may wonder what type of preterite formation resided at that time with those verbs stemming from older presential verbal roots. As the chart (3) itself suggests, it may have been an athematic or thematic imperfect construction, such as **reuta* (< **réudH-t*) or **skiut-i* (< **skéud-e-t*):

(4) Supposed Earlier PGmc. Preterite Forms Descended from PIE Presential Radices

	<i>*reut(a)</i> - ‘lamented’	<i>*skiut-i/skeut-a</i> - ‘shot’
sg. 1	<i>*reut-uⁿ</i> (< <i>*réudH-ŋ</i>)	<i>*skeut-aⁿ</i> (< <i>*skéud-o-m</i>)
2	<i>*reuta-z</i> ¹¹ (< <i>*réudH-s</i>)	<i>*skiut-iz</i> (< <i>*skéud-e-s</i>)
3	<i>*reuta</i> (< <i>*réudH-t</i>)	<i>*skiut-i</i> (< <i>*skéud-e-t</i>)
Pl. 1	<i>*ruta-m</i> (< <i>*rudH-mé</i>)	<i>*skeut-a-m</i> (< <i>*skéud-o-me</i>)
2	<i>*ruta-đ</i> (< <i>*rudH-té</i>)	<i>*skiut-i-đ</i> (< <i>*skéud-e-te</i>)
3	<i>*rut-in</i> (< <i>*rudH-ént</i>)	<i>*skeut-a-n</i> (< <i>*skéud-o-nt</i>)

According to the theoretical model under discussion, the preterite paradigms presented in (4) would have been ousted completely from the verbal system for some reasons and have grown into the strong II preterite paradigms by analogy with the already extant **kaus-/kuz-* type of verbs, emanating from PIE aoristic radices:

(5) Supposed Later PGmc. Analogical Changes

	<i>*reut(a)</i> - ‘lamented’	<i>*skiut-i/skeut-a</i> - ‘shot’	cf. <i>*kaus-/kuz-</i> ‘chose’
sg. 1	<i>*reut-uⁿ</i> → <i>*raut</i>	<i>*skeut-aⁿ</i> → <i>*skaut</i>	<i>*kaus</i>
2	<i>*reuta-z</i> → <i>*raus-t</i>	<i>*skiut-iz</i> → <i>*skaus-t</i>	<i>*kaus-t</i>
3	<i>*reuta</i> → <i>*raut</i>	<i>*skiut-i</i> → <i>*skaut</i>	<i>*kaus</i>
Pl. 1	<i>*ruta-m</i> → <i>*rut-um</i>	<i>*skeut-a-m</i> → <i>*skut-um</i>	<i>*kuz-um</i>
2	<i>*ruta-đ</i> → <i>*rut-uđ</i>	<i>*skiut-i-đ</i> → <i>*skut-uđ</i>	<i>*kuz-uđ</i>
3	<i>*rut-in</i> → <i>*rut-un</i>	<i>*skeut-a-n</i> → <i>*skut-un</i>	<i>*kuz-un</i>

Now it seems legitimate to ask whether or not a morphological conflation theory is bound to presuppose that only aoristic verbs provided the basis of the relevant strong preterite conjugations, the morphological moulds of which were taken over at a later stage by all those strong verbs arising from presential roots. Unless there is any substantial evidence for the presumed large-scale morphological change of an imperfect into a perfect-aorist paradigm as illustrated in (5), a different nature of morphological fusion theory may be sought for, where both aoristic and presential verbs would have directly been engaged in the genesis of the strong preterite paradigms in question.

The aim of this article is twofold. One is to propose a new historical account of how the PGmc. strong I-III preterites acquired the **-un* < **-ŋt* as their 3 pl. ending. The other is to offer a new viewpoint, according to which the majority of those verbs comprising the PGmc. strong I-III classes directly took part in the morphological conflation process that produced their characteristic strong preterite formations. In so doing, it will be seen that essentially the same approach as that proposed in Tanaka (2009b) can be taken in order to elucidate how the strong I-III preterite paradigms arose in the PGmc. verbal system. It will also be demonstrated that Osthoff’s Law played a vital role in determining the strong I-III preterite morphological shapes, whose non-singular formations, reflecting zero-grade roots, depart markedly from those of strong IV and V verbs, showing a lengthened-grade radical vowel **-ē^l*- (or **-ǣ-*).

2. A typical disparity between the PIE and the PGmc verbal system lies in the presence or absence of morphologized aspectual distinction. The PIE system distinguishes two aspectually different verbal conjugations with preterite tense: the imperfect (imperfective or durative aspect) and the aorist (perfective or momentary aspect). In the PGmc. grammar, on the other hand, there is no conjugational difference in aspect but only in tense (and diathesis). Soon after the Gmc. branch split off from the parent language, three preterite conjugations must have coexisted in the verbal system: the imperfect, the aorist and the resultative perfect. Given that “the perfect indicative and aorist indicative became isofunctional in pre-PGmc., thereafter the perfect having ‘won out’ completely,”¹² the (resultative) perfect and the imperfect must have stayed alive in the system, just before their aspectual contrast (i.e. perfective vs. imperfective) was cancelled. I believe that the relevant cancellation was realized by way of their morphological conflation.¹³ Fusion of a perfect like **ĝe-ĝóus-e* (> **ke-kaus*) ‘chose’ with an amphikinetic imperfect like **réudH-t* (> **reuta*) ‘was lamenting’ can be taken to have proceeded in the following fashion, which yielded the immediate basis of the PGmc. strong II preterite formations:

(6)¹⁴ Morphological Amalgamation of a Resultative Perfect with an Amphikinetic Imperfect

	perf.		str. II pret.		imperf.		str. II pret.
	‘chose’	→	‘chose, was/were choosing’		‘was/were lamenting’	→	‘lamented, was/were lamenting’
sg. 1	<i>*ĝe-ĝóus-h₂a</i>	→	<i>*ĝóus-h₂a</i>		<i>*réudH-m</i>	→	<i>*róudH-h₂a</i>
2	<i>*ĝe-ĝóus-th₂a</i>	→	<i>*ĝóus-th₂a</i>		<i>*réudH-s</i>	→	<i>*róudH-th₂a</i>
3	<i>*ĝe-ĝóus-e</i>	→	<i>*ĝóus-e</i>		<i>*réudH-t</i>	→	<i>*róudH-e</i>
pl. 1	<i>*ĝe-ĝús-mé</i>	→	<i>*ĝús-mé</i>		<i>*rudH-mé</i> (continuing into PGmc. <i>*rut-um</i>)		
2	<i>*ĝe-ĝús-té</i>	→	<i>*ĝús-té</i>		<i>*rudH-té</i> (continuing into PGmc. <i>*rut-ud</i>)		
3	<i>*ĝe-ĝús-ŕs</i>	→	<i>*ĝús-ńt</i>		<i>*rudH-ént</i>	→	<i>*rudH-ńt</i>

It can be observed that, through the proposed morphological conflation process, the perfect and the imperfect mutually affected their verbal configurations, thereby having brought forth some conspicuous morphological alterations. In the singular, on the one hand, the perfect gave up its inherent reduplication under the influence of the imperfect morphology, preceded by no reduplication, whereas the ensuing shape with the *o*-grade radical followed by the perfect endings but without any reduplication intruded into the earlier imperfect formations. In the plural, on the other, the amphikinetic imperfect morphology with a zero-grade root followed by the imperfect (i.e. secondary) endings basically lived on in the resulting strong preterite conjugations,¹⁵ with the single exception of the 3 pl. desinence having assimilated to the *-ŕT* structure (i.e. an accented syllabic sonorant followed by an obstruent) of the perfect ending **-ŕs*, namely **-ént* → **-ńt*.¹⁶ The 1 and 2 pl. imperfect formations **rudH-mé* and **rudH-té* survived into the PGmc. strong preterite **rut-um* and **rut-ud*, respectively,¹⁷ though the PGmc. 1 pl. **-um* and 2 pl. **-ud* endings were not a direct phonological reflex of the pre-PGmc. **-mé* and **-té* but a morphological renovation patterned after the 3 pl. **-un* (see Tanaka 2009a: p.87 fn.127; and the references cited there).

In the case of the genesis of the present tense formation of a preterite-present verb, Tanaka (2009a: Chapter 4) submits that a PIE or pre-PGmc. athematic root present middle (e.g. **d^hug^h-(t)óǵi* ‘avails, is

useful (for himself)')¹⁸ or a reduplicating perfect middle (e.g. **He-Hiĥ-(t)ŏi* 'rules over or possesses (for himself)') morphologically merged with a reduplicating perfect active (e.g. **d^he-d^hŏug^h-e* 'avails, is useful' and **He-Hŏjĥ-e* 'rules over or possesses'). This implies that two distinctive verbal formations with analogous meanings (i.e. present stative significations) derived from one and the same verbal root were conflated to produce a PGmc. present tense morphology of a preterite-present verb (e.g. **đaug* - 'suffice(s), avail(s)' and **aiχ/g-* 'possess(es), own(s)'). In contrast to the cases of preterite-present verbs, I conjecture that strong preterite formations were brought into being by fusing a reduplicating perfect from one radix together with an imperfect from another in the way described in (6) above. This difference in point of departure of the respective verbal forms will explain the discrepancy in productivity between the preterite-present and the strong preterite: the number of the preterite-present verbs are so restricted that no more than 14 or 15 examples are attested in the documented ancient Gmc. dialects (cf. Tanaka 2009a: Chapter 4, esp. p.88 fn.130), whilst the strong preterite formations comprise an open class. Provided that the number of aoristic verbal roots was as great as that of presential radices, an endless number of strong preterites could, at least theoretically, be produced by the procedure of a resultative perfect and an imperfect morphology affecting each other, with the result that they merged into the same new formation (i.e. a strong preterite). As for preterite-presents, on the other side, they were created from those verbal roots forming both a present stative perfect and an athematic root present middle (or comprising the PIE 'stative-intransitive system' in Jasanoff's 2003 framework; see Tanaka 2009a: 82ff.),¹⁹ whose number must have obviously been confined.²⁰

3. When dealing with the genesis of the PGmc. strong IV and V preterite formations, I suggested that an athematic Narten imperfect like **bhér-t* 'was carrying' (3 pl. **bhér-ŋt* ← **bhér-ŋt*) or **nēs-t* 'was coming back' (3 pl. **nēs-ŋt* ← **nēs-ŋt*), more archaic than a thematic imperfect like **bhér-e-t* (3 pl. **bhér-o-nt*) or **nēs-e-t* (3 pl. **nēs-o-nt*),²¹ should be concerned in the morphological conflation process; it was amalgamated with a resultative perfect to create idiosyncratic morphological constructions of the strong IV or V preterite (Tanaka 2009b: 18).²²

(7) Admixture of a Perfect with a Narten Imperfect: the Rise of the Strong IV and V Preterites

a.	perf.		str. IV pret.		imperf.		str. IV pret.
	'shattered'	→	'shattered,		'was/were	→	'carried,
			was/were shattering'		carrying'		was/were carrying'
3 sg.	<i>*de-dór-e</i>	→	<i>*dór-e</i>		<i>*b^hér-t</i>	→	<i>*b^hór-e</i>
3 pl.	<i>*de-dŕ-ŕs</i>	→	<i>*dér-ŋt</i>		<i>*b^hér-ŋt</i> (continuing into PGmc. <i>*bæŕ-un</i>)		
b.	'fell asleep'	→	'fell asleep,		'was/were	→	'came back,
			was/were sleeping'		coming back'		was/were coming back'
3 sg.	<i>*se-suóþ-e</i>	→	<i>*suóþ-e</i>		<i>*nēs-t</i>	→	<i>*nós-e</i>
3 pl.	<i>*se-sup-ŕs</i>	→	<i>*suép-ŋt</i>		<i>*nēs-ŋt</i> (continuing into PGmc. <i>*næs-un</i>)		

Besides the type of morphological fusion described in (7) above, another mode of conflation process must also have availed in the language system prior to the PGmc. time, whose structure was identical

with the case of the evolution of the strong I-III preterites, an instance of which was diagrammed in (6) above:

(8) Merger of a Perfect with an Amphikinetic Imperfect

a.	perf.		str. IV pret.		imperf.		str. IV pret.
	'shattered'	→	'shattered, was/were shattering'		'was/were shearing' ²³	→	'shore, was/were shearing'
3 sg.	* <i>de-dór-e</i>	→	* <i>dór-e</i>		* <i>skér-t</i>	→	* <i>skór-e</i>
3 pl.	* <i>de-dǫ-ƿs</i>	→	* <i>dǫ-ŋt</i>		* <i>skr-ént</i>	→	* <i>skǫ-ŋt</i>
b.	'fell asleep'		'fell asleep, was/were asleep'		'was/were collecting' ²⁴	→	'collected, was/were collecting'
3 sg.	* <i>se-suóp-e</i>	→	* <i>suóp-e</i>		* <i>lés-t</i>	→	* <i>lós-e</i>
3 pl.	* <i>se-sup-ƿs</i>	→	* <i>sup-ŋt</i>		* <i>l_s-ént</i>	→	* <i>l_s-ŋt</i>

A comparison between the two outcomes (7) and (8) reveals that the singular invariably takes a form with the *o*-grade radix preceded by no reduplication but followed by a perfect ending, whereas the plural shows variation. It might be the case that, at an earlier PGmc. stage, two different preterite plural forms coexisted side by side, such as the pair of **tǣr-un* (< **dér-ŋt*) and **tur-un* (< **dǫ-ŋt*) 'they tore'. Nevertheless, this cohabitation would not have lasted for a long time. The most important principle that worked in the language system when founding the PGmc. strong preterite system as reconstructed by the comparative method must have been that *there should be an optimal difference in stem shape between the present and the preterite formation* (cf. Tanaka 2006: 19f.; 2009b: 19). A thematic present **ter-i/a-* 'tear' was better contrasted to a lengthened-grade preterite **tǣr-* than to a zero-grade **tur-* 'tore'; in other words, a quantitative opposition **-ǣ-* vs. **-ā-* was more prominent than a qualitative **-ǣ-* vs. **-ǔ-*. Hence, **tǣr-um/uþ/un* was in the final analysis chosen as the strong IV preterite plural formation over **tur-um/uđ/un*.²⁵ At the same time, the 3 pl. **skur-un* (< **skǫ-ŋt*) and **luz-un* (< **l_s-ŋt*)²⁶ followed the fixed pattern, thereby having been transformed into **skǣr-un* 'they shore, were shearing' and **lǣs-un*²⁷ 'they collected, were collecting', respectively.

In keeping with the discussion on the establishment of the strong IV and V preterite morphologies, we should now examine another morphological merger process for engendering the strong I-III preterites, apart from (6) above. It is well known that the PIE root **steu-* 'praise' formed an acrostatic or Narten present/imperfect **stéu-t(i)*, **stéu-ŋt(i)* (cf. Narten 1968; LIV 2001: 601f.). What happened if this type of acrostatic present/imperfects persisted into the pre- or earlier PGmc. epoch when the morphological mixture under discussion was put in practice?

It is possible to construe the PIE root **h₂seut-* 'boil' as having built an acrostatic present/imperfect, for a cognate Lith. present *siáutu* 'assaults, rages' (inf. *siáutėti*; cf. OLith. *siausti*) points to the acute accent placed on the *e*-grade radix (see LIV 2001: 285).²⁸ If this is the case, the relevant PIE present-imperfect paradigm must have been shaped like **h₂séut-m(i)/s(i)/t(i)* (sg.) and **h₂séut-me(s)/te(s)/ŋt(i)* (pl.). As discussed in Tanaka (2009b: 16), the original acrostatic ablaut **-éu-* (strong stem) vs. **-éu-* (weak stem) would have been generalized into the strong, lengthened-grade counterpart by the pre-PGmc. period, hence the imperfect **h₂séut-m/s/t*, **h₂séut-me/te/ŋt* having been obtainable in the pre-PGmc.

lexis. Given these circumstances, the following fashion of morphological fusion can be thought of as having turned out strong preterite formations whose plural constituents notably departed from those presented in (6) above:

(9) Morphological Amalgamation of a Resultative Perfect with a Narten Imperfect

	perf.		str. II pret.		imperf.		str. II pret.
	'chose'	→	'chose'		'was/were	→	'boiled,
			was/were choosing'		boiling'		was/were boiling'
sg. 1	* <i>ġe-ġóus-h₂a</i>	→	* <i>ġóus-h₂a</i>		* <i>h₂séut-η</i>	→	* <i>h₂sóut-h₂a</i>
2	* <i>ġe-ġóus-th₂a</i>	→	* <i>ġóus-th₂a</i>		* <i>h₂séut-s</i>	→	* <i>h₂sóut^s-th₂a</i>
3	* <i>ġe-ġóus-e</i>	→	* <i>ġóus-e</i>		* <i>h₂séut^s-t</i>	→	* <i>h₂sóut-e</i>
pl. 1	* <i>ġe-ġus-mé</i>	→	* <i>ġéus-me</i>		* <i>h₂séut-me</i>		(no morphological change)
2	* <i>ġe-ġus-té</i>	→	* <i>ġéus-te</i>		* <i>h₂séut^s-te</i>		(no morphological change)
3	* <i>ġe-ġus-ηs</i>	→	* <i>ġéus-ηt</i>		* <i>h₂séut-ηt</i>		(no morphological change)

The two distinct merger processes delineated in (6) and (9) would have brought into being two discrete plural strong preterite formations such as **ġus- η t* and **ġéus- η t* 'they chose, were choosing'.²⁹ In the course of time, one of these twins ought to have been done away with in the strong preterite paradigm, when the same morphological principle must have been put to use that had facilitated setting up **tær-un* as the 3 pl. strong IV preterite 'they tore, were tearing' in preference to **tur-un*; that is, it must have been crucial when screening out one over the other whether **ġus- η t* or **ġéus- η t* was able to make an optimal difference in stem shape from the parallel thematic present **ġéus-onti* 'they choose, are choosing'. The zero-grade preterite stem **ġus-* > **kuz-* would have yielded a palpable opposition to the thematic present stem **ġéus-o-* > **keus-a-*, i.e. pres. pl. **-eu-* vs. pret. pl. **-u-*. The lengthened-grade counterpart **ġéus*, on the other hand, would not have brought about such a contrast, since **ġéus-* would have grown into **ġéus-* by Osthoff's Law (i.e. *-V:RT* > *-VRT* = shortening of a long vowel before the cluster of a non-syllabic sonorant and an obstruent),³⁰ and therefore there would have been no difference in stem vocalism at all between the strong preterite **ġéus- η t* > **keus-un* and the thematic present **ġéus-onti* > **keus-and*. This condition must have allowed the zero-grade **ġus- η t* > **kuz-un* to have lasted out into the later PGmc. period, having ousted the previously lengthened-grade **ġéus- η t* > **ġéus- η t* > **keus-un* from the strong II preterite paradigm. In accordance with this pattern, the formerly acrostic imperfect **h₂séut- η t* 'they were boiling' (> **h₂séut- η t* via Osthoff's Law) would have been altered into a zero-grade shape **h₂sut- η t* > **sut-un* 'they boiled, were boiling' (cf. 3 pl. thematic present **h₂séut-onti* > **seub-and* 'they boil, are boiling').³¹

Following in the footsteps of Tanaka's (2009b) approach to the origin and development of the PGmc. strong IV and V preterite formations, this section has proposed that the strong I-III preterite formations, comprised of the singular **C₁aiC₂*, **C₁auC₂*, or **C₁aRC₂* (with no effect of Verner's Law on *C₂* even if *C₂* was a post-Grimm voiceless fricative) and the plural **C₁iC₂*, **C₁uC₂*, or **C₁uRC₂* (with *C₂* being voiced by Verner's Law in case *C₂* was a post-Grimm voiceless fricative), are to be explained in terms of exactly the same type of morphological conflation procedure and the same principle of maximum morphological divergence of the preterite from the present form that have been adopted

to give a historical account of the strong IV and V preterite morphologies. In a significant departure from the strong IV and V preterites, where the plural stem shows a long vowel (i.e. $*-e^l-$ or $*-\bar{e}$), the strong I-III preterite exhibits a zero-grade ablaut in the plural stem. This morphological difference can be ascribed to the ability or inability to apply Osthoff's Law to the pertinent formations; the morphological shape of the strong IV and V preterite plural originating from an acrostatic imperfect $*C\acute{e}R/T-$ was deviant from the context of Osthoff's Law, whereas that of the strong I-III correspondence $*C\acute{e}i/u/RT-$ was liable to it, with the result that the non-lengthened, e -grade form $*C\acute{e}i/u/RT-$ germinated in the preterite plural paradigm. The lengthened-grade stem $*C\acute{e}R/T-$ survived as the strong IV and V preterite, since it afforded a salient contrast to the e -grade present $*C\acute{e}R/T-e/o-$, whilst the strong I-III equivalent $*C\acute{e}i/u/RT-$ ($< *C\acute{e}i/u/RT-$) was expelled from the preterite plural conjugation system, for there was no conspicuous difference in stem vocalism between it and the thematic present $*C\acute{e}i/u/RT-e/o-$.

4. The present work has addressed two questions. One is how PGmc. strong I-III verbs acquired their 3 pl. preterite ending $*-un$ ($< *-\eta t$), which has so far been left unexplained by either a spontaneous loss theory or a morphological conflation theory that focuses solely on the admixture of a perfect with an athematic root aorist morphology. The other is what nature of linguistic mechanism lent a hand in establishment of the whole strong I-III preterite system, where the plural constructions were characterised by the root in zero grade, outstandingly contrastive to the strong IV and V counterparts with the radix in lengthened grade.

With reference to the first issue, we should like to claim that the PGmc. morphological makeup of the 3 pl. $*CiC-un$ (e.g. $*\acute{b}it-un$ 'bit'; strong I), $*CuC-un$ (e.g. $*kuz-un$ 'chose', $*rut-un$ 'lamented'; strong II), or $*CuRC-un$ (e.g. $*\acute{b}und-un$ 'tied', $*wurd-un$ 'became'; strong III) can be traced back to a product of the morphological fusion of a resultative perfect (e.g. $*\acute{g}e-\acute{g}us-\acute{f}s$ 'they chose') with an amphikentic imperfect (e.g. $*rudH-\acute{e}nt$ 'they were lamenting'), whereby the earlier 3 pl. imperfect or secondary desinence $*-\acute{e}nt$ was adjusted to the $*-\acute{R}T$ configuration of the parallel perfect ending $*-\acute{f}s$, therefore having attained the $*-\acute{\eta}t$ shape ($> *-un$).

Regarding the second problem, the foregoing sections have confirmed that there were at least two distinct morphological admixture schemata to breed a strong preterite formation, one being the fusion of a perfect with an amphikinetic imperfect (e.g. (6) and (8)) and the other the merger of a perfect with an acrostatic imperfect (e.g. (7) and (9)). Furthermore, it has also been demonstrated that, in case two diverse preterite shapes were created (in the plural paradigm) by way of morphological conflation of a perfect with an imperfect, the principle of optimal morphological difference between the thematic present and the strong preterite was in operation to winnow out one from the two competing conjugational forms. Albeit these devices were equally applicable to the cases of strong I-III preterites on the one hand and the cases of strong IV and V preterites on the other, the plural formations were characteristically at variance between these two groups of strong preterites. We have made out a case that Osthoff's Law was responsible for the morphological discrepancy in preterite plural between the strong I-III and the IV-V classes. A long diphthong stem in the strong I-III preterite plural conjugation, such as $*\acute{g}\acute{e}us-$ 'chose' and $*h_s\acute{s}\acute{e}ut-$ 'boiled', would have been changed into a short diphthong stem like $*\acute{g}\acute{e}us-$ and $*h_s\acute{s}\acute{e}ut-$ in virtue of Osthoff's Law, and the resulting short diphthong morph was not suitable for a strong preterite formation since it could not have been marked out sufficiently from

the matching present like **ĝéus-e/o-* ‘choose(s)’ and **h₂séut-e/o-* ‘boil(s)’. Consequently, only the zero-grade alternative such as **ĝus-* ‘chose’ and **h₂sut-* ‘boiled’ had eventually taken hold in the strong I-III preterite plural system.

We have yet to approach a couple of other major problems. One is whether or not the origin and development of the PGmc. strong VI and VII preterite formations can also be satisfactorily accounted for by means of the same two contrivances that have been assumed for dealing with the pre-history of the strong I-V preterite conjugations, namely, the morphological conflation of a reduplicating perfect with an imperfect formation and the principle of the optimal morphological difference between the thematic present and the strong preterite form. The other is whether or not the morphological amalgamation patterns are restricted to the two types as illustrated in the present work, that is, the merger of a resultative perfect with an amphikinetic (athematic root) imperfect and the mixture of a perfect with an acrostatic (or Narten) imperfect. I would like to treat these issues in depth elsewhere.

Notes

- 1 The fact is also relevant here that the effects of Verner’s Law are normally observed with the strong I-III preterite formations. On this count, Prokosch (1939: 163) makes the following observation: “[I]t [= Verner’s Law: T.T.] is remarkably regular in classes I, II, III, but in classes V, VI, VII it is either entirely missing, or it appears sporadically and in irregular distribution over the tenses. This indicates that the assumed distribution of the accent (root accent in the singular, suffix accent in the plural) is valid only for the first three classes, while the other four classes had different accent conditions.”
- 2 When carrying out a historical and comparative analysis of the present tense formations of PGmc. preterite-present verbs, I also employed this designation to refer to the position that a PIE stative perfect lost its own reduplication *spontaneously* during the course of its growth into a PGmc. preterite-present verb; see Tanaka (2009a: Chapters 4-6).
- 3 Not only does Bammesberger (*ibid.*) contemplate the possibility of ascribing the loss of reduplication in strong I-III preterites to the perfect-aorist blending operation, but he also suggests another mechanism, where the PGmc. root **swemm-* ‘swim’ (created secondarily inside the Gmc. branch) formed the perfect **se-zwamm-* (strong form) vs. **se-zumm-* (weak form) with the effect of Verner’s Law, from which the **-e-z-* sequence was eliminated in order to retrieve the original root initial **sw-* or **su-* shape (hence, **swam-* vs. **sum-*). If the **-e-z-* had really been dropped from the perfect formation **se-zwamm-/se-zumm-*, it would have been difficult for the same type of syncope to take place in all the strong I-III preterite formations, since those strong preterites with a non-voiceless-fricative initial consonant at a post-Grimm stage were immune from Verner’s Law (e.g. * *bē-bait-/bē-bit-* ‘bit’).
- 4 The following two rules of the PGmc. phoneme */e/ belong here (Ringe 2006: 220):
 - i) In unstressed syllables PGmc. underlying */e/ was raised to **i* unless **r* followed immediately.
 - ii) PGmc. underlying */e/ was also raised to **i* if a high front vocalic occurred in the following syllable.

See also the paradigms adduced in (4) and (5) below.

- 5 This does not mean that all the aoristic radicals could build a stative perfect in Proto-Indo-European. Harðarson (1998: p.336 fn.39) attributes PIE 'perfect-qualifying' transitive radices to those provided with a meaning whose accomplished act can imply a change of state in the subject (see also Tanaka 2009a: 217 fn.386).
- 6 From the PIE root **reudH-* 'cry, weep', no perfect or athematic root aorist was derived; see *LIV* (2001: 508). Vedic documents an athematic root present (Class II) *rudānti* 'they weep'; cf. Macdonell (1910: 337; 1916: 413).
- 7 From the PIE radix **(s)keud-* 'impel', no perfect or athematic root aorist was available; see *LIV* (2001: 560). Vedic testifies a thematic present *codāmi* 'I impel' and a parallel injunctive *códat* 'he-impel'; cf. Macdonell (1910: 320 and 323; 1916: 382) and Gotō (1996: 142).
- 8 The PGmc. Strong II verb **riut-i-/reut-a-* 'lament' (pret. sg. **raut-*, pl. **rut-*) continues into ON *rjóta* 'roar, rattle', OE *rēotan* 'make a noise, lament, wail', MLG *reten* 'make a noise', and OHG *riozan* 'weep, howl'; see Orel (2003: 303) and the references cited there.
- 9 The PGmc. Strong II verb **skiut-i-/skeut-a-* 'shoot' (pret. sg. **skaut-*, pl. **skut-*) is inherited by Crim. Go. *schieten*, ON *skjóta*, OE *sceotan*, OFris. *skiata* 'shoot', OS *skiotan* 'telo sequi', and OHG *skiozan* 'shoot, throw'; see Orel (2003: 339) and the references cited there.
- 10 (2) above takes a notably unlikely turn in the supposed reanalysis of a thematic imperfect **skéud-e-t* 'he was shooting' as an athematic root aorist **skéud-t* 'he shot'. The case of **réudH-*, furthermore, is involved in reinterpretation of the originally imperfect **réudH-t* 'he was weeping' as a new aorist 'he wept'. It is altogether unclear what kind of linguistic factors enabled these changes to take place.
- 11 For a discourse on the retention of any PIE final **-s* in Proto-Germanic, see Boutkan (1995: 43-51).
- 12 See Ringe's (2006: 157) remarks, quoted in Tanaka (2009b: p.1 fn.2).
- 13 The following observation by Jasanoff (1994: 269) would seem to accord with my view provided in the present study: "The history of the Germanic verbal system is for the most part a history of simplification and regularization. ... Germanic merged all three [i.e. the imperfect, the aorist, and the perfect: T.T.] into a single category, known simply as the preterite. The preterite and the present ... were the only tenses in the Proto-Germanic verbal system."
- 14 Here as well as (7) below, the pre-laryngeal-loss and pre-Grimm representation of each verb is provisionally utilised. The current investigation leaves open the issue of the relative chronology between the morphological admixture under scrutiny and the phonological changes (i.e. disappearance of the three laryngeals, consonant and vowel shifts, etc.).
- 15 Here it looks like the original 1 and 2 pl. imperfect formations survived almost as they were (save for some minor morphological changes of the endings, mentioned immediately below in the main text). However, the case of morphological conflation giving rise to the present tense formation of the preterite-present verb indicates that the resulting 1 and 2 pl. forms (e.g. **durz-um/uđ* 'we/you dare') were grounded on the reduplicating perfects (e.g. **d^he-d^hʀs-mé/té* 'we/you are courageous') though their reduplicative syllable was dropped in the course of merger with the unreduplicated root preterite middle (e.g. **d^hʀs-méd^hh₂i/d^h(u)uēi* 'we/you are courageous'); see Tanaka (2009a: Chapter 4). Given this evidence, the 1 and 2 pl. forms now at issue may better be interpreted as inherited from the original perfect configurations, with the proviso that their reduplication was lost

on the model of the corresponding imperfect formations.

- 16 This type of morphological modification of the 3 pl. ending also took place when the present tense formation of a preterite-present verb was generated via the morphological mixture of a reduplicating perfect with an athematic present middle (i.e. the original athematic root present middle termination **-ŋtói* changed into **-ŋt* after the *-ŘT* figure of the 3 pl. perfect desinence); see Tanaka (2009a: 86f., 95, *et passim*).
- 17 The direct phonological development of those strong II preterite formations from **reudH-* provided in (6) above would have been sg. 1 **raut*, 2 **rauta-đ*, 3 **raut*, pl. 1 *ruta-m*, 2 *ruta-đ*, 3 *rut-un*, thus two verbal stems **r(a)ut-* and **r(a)uta-* having been at hand. By the late PGmc. period, however, the simpler alternative **r(a)ut-* must have been generalized in this verb.
- 18 In Jasanoff's (2003: 160 *et passim*) terminology, the formation at issue is called a 'root stative-intransitive present', which is supposed to be derived 'internally' from an *h₂e*-conjugation aorist. The concept of 'internal derivation', accredited to Jochem Schindler, refers to a change of the accent and ablaut class without being involved in any affixation; see *op. cit.* p.171 along with Fortson (2004: 110) and Tichy (2006: 79).
- 19 There are some exceptions to this standard, such as **kann-* 'know', **ann-* 'love, grant', and **mag-* 'have power'; for details, see Tanaka (2009a: 122ff.)
- 20 I regard the preterite-present category in Proto-Germanic as more productive than its counterpart in any recorded Gmc. dialects; see Tanaka (2009a: 66f. and 208ff.). From this, however, it does not follow that they used to be so prolific as strong verbs.
- 21 As against Jasanoff's (1998, 2003) analysis of a PIE 'Type I' thematic present like **bhér-oh₂* 'I carry' as an autonomous evolution from an acrostatic *h₂e*-conjugation present like **bhér-h₂e* 'I am carried, carry in my own interest, carry along' (cf. Tanaka 2009b: 11ff.), Yoshida (2009) has recently proposed that the **ie/o*-present developed the thematic conjugation first, as traceable in the Anat. data, thereafter the acrostatic *h₂e*-conjugation present having followed precedent. He also clarifies that the primeval **-o-* thematic vowel, proper to the PIE middle, is preserved in the Toch. III (IV) present and the Go. mediopassive paradigms as an archaism (2009: 277) (cf. Tanaka 2009b: pp.20f. fn.32).
- 22 My understanding of the genesis of the strong IV and V preterite plural morphology, advanced here and in Tanaka (2009b), differs significantly from that of Jasanoff (1994: 273), who holds that "[t]he **-ē-* of the preterite plural in class IV was borrowed from class V, replacing **-u-* (**burum* < **(bhe)bh₂mē*)." A standpoint similar to Jasanoff's is also put forward by Bammesberger (1986: 55), Mottausch (2000: 45 and 54), Ringe (2006: 227f.), and Tanaka (2006: 19-21).
- 23 *LIV* (2001: 556f. and 711) lists the PIE **(s)ker-* 'cut' as one of the radicals from which an amphikinetic root present was derived. Assuming that *LIV*'s classification holds true, it is reasonably decided that the PIE amphikinetic present/imperfect underlies the PGmc. strong V **skeran* 'cut, shear', from which ON *skera* 'cut, slaughter', OE *sceran*, OFris. *skera*, MLG *skeran*, OHG *skeran* 'cut, shear' were descended; see Orel (2003: 338f.) and the references cited there.
- 24 *LIV* (2001: 413f. and 711) includes the PIE **les-* 'collect, gather' among the radices from which an amphikinetic root present was derived (cf. Hit. *less^{mi}* 'gather'). This root lays the groundwork for the PGmc. strong V verb **lesan* 'collect, gather', whose direct descendants are Go. *lisan* 'collect',

- ON *lesa* 'glean, gather, grasp', OE *lesan* 'gather, collect', OS *lesa* 'pick, collect, gather', and OHG *lesan* 'gather, read'; see Orel (2003: 241) and the references cited there.
- 25 The analogous concomitance of **sub-un* (< **sup-ŋt*) with **swāf-un* (< **suēp-ŋt*) 'they fell asleep, were asleep' was likewise given up, only the latter having been handed down to later periods.
- 26 A pre-PGmc. **R_cC-* morph may be considered to have developed into a PGmc. **RuC-*, allowing for the case of a present middle **h₂n.k-ŋtói* (→ **h₂n.k-ŋt*) having grown into a preterite-present **nug-un* (cf. OE *ge-nugon*) 'they suffice, are enough' in connection with a matching perfect **h₂a-h₂n.k-ŋs* 'they have attained' (cf. Tanaka 2006: 16; 2009a: 176ff.). Alternatively, we might conceive a change of pre-PGmc. **R_cC-* > **uRC-* → PGmc. **RuC-* (cf. Ringe 2006: 84f.), namely, **ŋs-ŋt* > **ulz-un* → **luz-un* as well as **h₂ŋk-ŋt* > **ung-un* → **nug-un*.
- 27 Attested preterite plural forms such as Go. *lesun*, ON *lǫso*, OE *lǣson*, and OS *lāsun* support reconstitution of PGmc. **lǣs-un* rather than **lǣz-un*. The ostensible Verner's Law alternation observable with OHG *lārun* (sg. *las*) can be an OHG innovation. For the data, see Seebold (1970: p.332, s.v. *les-a*).
- 28 Evidence for the root-initial laryngeal **h₂-* is furnished by a related Gk. feminine noun *ἀύτμη* 'steam, exhalation' (< **h₂sut-méh₂-*); see Fritz (1993) and LIV (2001: p.285 note 1).
- 29 Some problems remain as to the 1 and 2 pl. strong preterite forms. (9) has tentatively represented the 1 and 2 pl. figures in question as **ġéus-me*, **h₂séut-me* and **ġéus-te*, **h₂séut-te*. However, given the case of the evolution of a preterite-present from the fusion of a perfect with an athematic root present middle (cf. fn. 15 above), the 1 and 2 pl. strong preterite constructions engendered may have been **ġus-mé/té* and **h₂sut-mé/té*, i.e. dereduplicated perfect forms. This view entails the assumption that, although the morphological difference between the 1/2 and the 3 pl. strong preterite (i.e. 1/2 pl. **ġus-*, **h₂sut-* vs. 3 pl. **ġéus-*, **h₂séut-*) subsisted for a shorter period, morphological levelling occurred subsequently so that the lengthened-grade stem **ġéus-* and **h₂séut-* spread throughout the preterite plural paradigm. The same qualification is also applicable to the cases of strong IV and V preterites diagrammed in (7) above.
- 30 For recent expositions of the (pre-)PGmc. phonological change dubbed Osthoff's Law, see Jasanoff (1994: 259 and 274) and Ringe (2006: 75ff.).
- 31 The PGmc. strong II verb **siup-i-/seup-a-* (pret. **sauþ-/suct-*) continues into ON *sjóða* 'cook', OE *seoðan*, OFris. *siatha*, MLG *seden*, OHG *siodan* 'seethe'; see Orel (2003: 326) and the references cited there.

References

- Bader, Françoise (ed.) 1994. *Langues indo-européennes*. Paris: CNR.
- Bammesberger, Alfred 1986. *Der Aufbau des germanischen Verbalsystems*. Heidelberg: Winter.
- Boutkan, Dirk 1995. *The Germanic 'Auslautgesetze'*. Amsterdam: Rodopi.
- Fortson IV, Benjamin W. 2004. *Indo-European Language and Culture: An Introduction*. Oxford: Blackwell.
- Fritz, Mattias 1993. "Griechisch *ἀύτμη* 'Dampf, Duft'." *Historische Sprachforschung* 106, 288-301.

- Gotō, Toshifumi 1996. *Die "I. Präsensklasse" im Vedischen. Untersuchungen der vollstufigen thematischen Wurzelpräsentia*, 2nd edition. Wien: Verlag der Österreichischen Akademie der Wissenschaften.
- Harðarson, Jón Axel 1998. "Mit dem Suffix **-eh₁-* bzw. **-(e)h₁-ye/o-* gebildete Verbalstämme im Indogermanischen." In Meid, 1998, 323-339.
- Heesterman, J. C., G. H. Schokker and V. L. Subramoniam (eds.) 1968. *Pratidānam: Indian, Iranian and Indo-European Studies Presented to Franciscus Bernardus Jacobus Kuiper on his Sixtieth Birthday*. The Hague: Mouton.
- Hirt, Hermann 1932. *Handbuch des Urgermanischen*, Part II: *Stammbildungs- und Flexionslehre*. Heidelberg: Winter.
- Jasanoff, Jay H. 1994. "Germanic." In Bader, 1994, 251-280.
- 1998. "The Thematic Conjugation Revisited." In Jasanoff, Melchert and Oliver, 1998, 301-316.
- 2003. *Hittite and the Indo-European Verb*. Oxford: Oxford University Press.
- 2007. "From Reduplication to Ablaut: The Class VII Strong Verbs of Northwest Germanic." *Historische Sprachforschung* 120, 241-284.
- , H. Craig Melchert and Lisi Oliver (eds.) 1998. *Mir Curad: Studies Presented to Calvert Watkins*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Kümmel, Martin Joachim 1996. *Stativ und Passivaorist im Indoiranischen*. Göttingen: Vandenhoeck & Ruprecht.
- 2000. *Das Perfekt im Indoiranischen*. Wiesbaden: Reichert.
- LIV 2001. *Lexikon der indogermanischen Verben*, 2nd edition, comp. by Helmut Rix et al. Wiesbaden: Reichert.
- Macdonell, Arthur A. 1910. *Vedic Grammar*. Strassburg: Trübner.
- 1916. *A Vedic Grammar for Students*. Oxford: Clarendon.
- Meid, Wolfgang (ed.) 1998. *Sprache und Kultur der Indogermanen: Akten der X. Fachtagung der Indogermanischen Gesellschaft Innsbruck, 22.-28. September 1996*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Meillet, Antoine 1970. *General Characteristics of the Germanic Languages*, tr. by William P. Dismukes. Florida: University of Miami Press.
- Mottausch, Karl-Heinz 2000. "Das Präteritum der 4. und 5. starken Verbklassen im Germanischen." *NOWELE* 36, 45-58.
- Narten, Johanna 1968. "Zum "proterodynamischen" Wurzelpräsens." In Heesterman et al., 1968, 9-19.
- Orel, Vladimir 2003. *A Handbook of Germanic Etymology*. Leiden: Brill.
- Prokosch, Eduard 1939. *A Comparative Germanic Grammar*. Philadelphia: Linguistic Society of America.
- Ringe, Don 2006. *A Linguistic History of English*, Vol. 1: *From Proto-Indo-European to Proto-Germanic*. Oxford, New York: Oxford University Press.
- Seebold, Elmar (comp.) 1970. *Vergleichendes und etymologisches Wörterbuch der germanischen starken Verben*. The Hague: Mouton.
- Tanaka, Toshiya 2006. "Old English *ǣt* 'ate' and the Preterite Plural Formation of the Strong Class V Verbs." *Eigo-Eibungaku Ronso (Studies in English Language and Literature, Kyushu University)* 56, 13-22.

- 2009a. *The Genesis of Preterite-Present Verbs: the Proto-Indo-European Stative-Intransitive System and Morphological Conflation* (Languages and Cultures Series XIX). Fukuoka: Faculty of Languages and Cultures, Kyushu University.
 - 2009b. "The Proto-Germanic Third Person Plural Strong Preterite and the Proto-Indo-European 'Type I' Thematic Present Formations: With Special Reference to the Strong IV and V Classes." *Gengo Kagaku (Linguistic Science, Kyushu University)* 44, 1-23.
- Tichy, Eva 2006. *A Survey of Proto-Indo-European*. Bremen: Hempen.
- Yoshida, Kazuhiko 2009. "On the Origin of Thematic Vowels in Indo-European Verbs." In Yoshida and Vine, 2009, 265-280.
- and Brent Vine (eds.) 2009. *East and West: Papers in Indo-European Studies*. Bremen: Hempen.