The Phonology of Morpheme Realization in the Germanic Strong Preterites*

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1. Introduction

The verbal systems of the Germanic languages – such as Gothic, Old Norse, and English – are traditionally divided into two types of verbs, "weak" and "strong" (cf. Prokosch 1938: 159–203). The classification of a given verb is principally determined by how it forms its preterite stem(s). Weak verbs form their preterites through affixation of the "dental preterite" suffix. Strong verbs, on the other hand, are a less uniform class. These verbs form their preterite stems through various phonological changes applied to the root. Traditional descriptions identify seven classes of strong verbs, each with a somewhat different pattern of phonological marking. However, these classes can also be defined in terms of the phonological properties of the roots involved. Drawing principally on material from Gothic, the oldest attested Germanic language, we will show that the particular phonological change which marks a given strong preterite can be directly predicted by the phonological properties of the verbal root. For this reason, we will propose that the strong preterites are built with a null preterite "morpheme," and that differentiation of stems is induced by a family of constraints that require overt exponence of morphosyntactic features: REALIZE MORPHEME (RM; Kurisu 2001). The nature of the changes undergone to satisfy RM falls out from the interaction between the phonological properties of individual roots and the ranking of markedness and faithfulness constraints.

2. (Pre-)Gothic historical phonology

The majority of the phonological changes that mark the strong preterites in the Germanic languages are vocalic alternations ("ablaut"). Such vocalic alternations were abundant in Gothic, and persist among smaller groups of verbs in the present-day Germanic languages. The vocalic alternations that characterize strong verbs (described in detail in Section 3)

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constituted a robust system in the latest stage of the last common ancestor of all Germanic languages, Proto-Germanic. The analysis to be constructed in Section 5 applies cleanly to the system of strong verbs as reconstructable for late Proto-Germanic based on comparative evidence from all Germanic languages. To ground the present enterprise as much as possible, we take the system of strong verbs in Gothic (attested ∼350 CE) as a point of departure. However, shortly prior to its attestation, the vowel system of Gothic underwent three substantial sound changes that render a neat analysis of the morphophonological relations in the system of strong verbs substantially more complex (if not in fact opaque in some respects). These three sound changes were:

(1) *Vocalic sound changes from "Pre-Gothic" to Gothic*

a. *Merger of front vowels*
Short */e/ raises and merges with short /i/.
Example: Pre-Gothic infinitive *[nem-an] 'to take' > Gothic [niman]

b. *Monopthongization*
The diphthongs *[aj, aw] become [ɛ,ɔ].
Example: Pre-Gothic 1SG.PRET. *[bajt] 'I bit' > Gothic [bɛt]

c. *"Breaking"*
Short /i,u/ lower to [ɛ,ɔ] before [r, h, h^{w}].
Example: Pre-Goth. inf. */ber-an/ 'to bear' (> */bir-an/) → (Pre-)Goth. [bɛran]

The proper object of inquiry and description in this paper will therefore be an entity that we will refer to as 'Pre-Gothic', i.e., the language as attested in Gothic but without the effects of the sound changes in (1).[1] Most significant among these is the phonemic merger (1a), as this change affected the distribution of distinctive features within the vowel system.

Once we have reconstructed past these changes, the Pre-Gothic vowel system consists of 8 vowel phonemes, contrasting for three features: [+/-high], [+/-back], and [+/-long]. Among the non-high vowels, the features [+/-low] and [+/-round] are distributed differently for different phonemes, but are non-contrastive. This is summarized in the following table:

(2) *Distinctive features in the Pre-Gothic vowels*

	-back	**+back**
+high	i/iː	u/uː
-high (-low)	e/eː	oː (+round)
-high (+low)	–	a (-round)

Using these representations of the vowels, the phonological changes affecting the strong verb preterites can be derived by constraints referring to just these distinctive features.

[1] We also reconstruct past three (post-lexical) phonological processes that affect consonants in attested Gothic, also resulting from recent sound changes: (i) /Vnh/ → [Vːh]; (ii) post-vocalic obstruent spirantization, e.g., /b/ → [β] / V_(V); and (iii) final devoicing of obstruents. The treatment of process (i) as post-lexical has an important implication for the analysis of the (Pre-)Gothic vowel system, because all surface instances of [aː] in (Pre-)Gothic are attributable to the operation of this process.

3. The (Pre-)Gothic verbal system

In (Pre-)Gothic, the weak and strong verbs are differentiated both morphologically and phonologically (consult generally Lambdin 2006). The weak verbs are morphologically derived (e.g., denominal, etc.), and display a stem-forming element in both present and preterite formations: verbs of Weak Class I terminate in /j/ – 1PL.PRES. [nas-j-am] 'we save'; Weak Class II terminate in /oː/ – 1PL.PRES. [salb-oː-m] 'we anoint'; Weak Class III terminate in /a(i)/ – 1PL.PRES. [hab-a-m] 'we have'; Weak Class IV terminate in /n/ (plus /oː/ in the preterite) – 1PL.PRES. [full-n-am] 'we fill'. On the other hand, strong verbs are non-derived formations, built directly to the verbal root.[2] The roots that compose the strong verbs are typically monosyllabic and consonant-final, e.g., 1PL.PRES. [geb-am] 'we give', [hald-am] 'we call'. This difference in morphological complexity of the stem further affects the manner of preterite formation. Weak verbs build their preterites with the "dental preterite" suffix, which appears as [-d-] in the singular and [-deːd-] in the plural, and which attaches outside of the stem-forming derivational suffix: 1SG.PRET. [nas-i-d-a] 'I saved', [salb-oː-d-a] 'I anointed', [hab-ai-d-a] 'I had', [full-noː-d-a] 'I filled'. The strong preterites lack the dental suffix, and instead form their preterite stems with phonological changes applied to the root.

The system of strong verbs is divided into seven classes, distinguishable by the phonological properties of the verbal root. These properties in turn determine how the preterite is formed. In the following table, we provide examples for each of the seven classes in their reconstructed Pre-Gothic forms.

(3) *Pre-Gothic strong verb classes*

Root Shape	**Class**	1SG.PRES	3SG.PRET	1PL.PRET	GLOSS
/CeRC/	I	bejt-a	bajt	bit-um	'bite'
	II	kews-a	kaws	kus-um	'choose'
	III	bend-a	band	bund-um	'bind'
/CeC/	IV	nem-a	nam	neːm-um	'take
	V	geb-a	gab	geːb-um	'give'
/CaC/	VI	dab-a	doːb	doːb-um	'happen'
/CV{ː,C}C/	VIIa	hajt-a	he-hajt	he-hajt-um	'call'
	VIIb	sleːp-a	se-sleːp	se-sleːp-um	'sleep'
	VIIc	floːk-a	fe-floːk	fe-floːk-um	'bewail'
	VIId	leːt-a	le-loːt	le-loːt-um	'let'

The diversity of patterns among the seven classes can be reduced when we group the classes by the broad phonological shape of the root. Classes I–III represent the three different patterns arising from roots of the shape /CeRC/, where R represents the class of sonorants: /j/ (Class I); /w/ (Class II); /r, l, m, n/ (Class III). In the preterite plurals of these classes, the underlying vowel of the root appears to be deleted, and the medial sonorant consequently

[2]There is a very small group of strong verbs which display a stem-forming element in the present (e.g. /j/ as in [hafjan] 'seize'), but this element does not carry over to the preterite.

vocalizes. For underlying glides (Classes I & II), sonorant vocalization directly yields the corresponding short high vowel: [bitum] ← //bjt-um//, [kusum] ← //kws-um//. The situation in Class III is slightly less transparent, but precisely equivalent. Syllabic [+consonantal] sonorants are realized with a preceding epenthetic [u]: [bundum] ← //bnd-um//.

Similarly, Classes IV and V can be collapsed as roots of the shape /CeC/: Class IV roots are those in which the root-final consonant is a sonorant (/CeR/), while Class V roots are those in which that consonant is an obstruent (/CeT/). Unlike in Classes I–III, the root vowel is not deleted in the preterite plural; instead, it lengthens to [eː]. We will demonstrate below that this lengthening is due to the absence of a vocalizable sonorant.

Classes I–V all share the property of having an underlying root vowel /e/. This underlying vocalism correlates with a preterite singular stem vowel in [a]. Roots *without* an underlying /e/ – Classes VI and VII – do not form their preterite singular by changing the root vowel to [a]. Instead, these roots form their preterite singular stems (and indeed their preterite plural stems as well) by other means: lengthening of the underlying root vowel /a/ in Class VI (which surfaces as [oː]) and reduplication in Class VII. In the following sections, we will demonstrate how each of these distinct patterns is generated by the drive to establish non-identity between stems for roots that select for a null preterite morpheme.

4. Stem contrast and REALIZE MORPHEME

Even after making the simplifying generalizations that relate root shape to type of preterite stem formation, a great diversity of patterns among the strong verbs still confronts us. This presents a vexing problem: how are we to analyze the underlying representation (UR) of the preterite morpheme? A logical place to start in identifying potential URs might be the preterite plurals of Classes I–III, where the surface stem "vowel" represents just a vocalized consonant. Relative to this form, the present stem has an additional [e], and the preterite singular has an additional [a]. This might lead us to posit that these vowels are the markers of PRESENT and, say, SINGULAR, respectively (ignoring the question of how the vowels would be linearized in the string). To assume that the preterite plural reflects the UR of the root, and that the other tense/number stems are derived through affixation of [e] and [a], immediately encouters fatal difficulties outside Classes I–III. For example, this would lead us to posit an underlying representation for Class V verbs as /Ceː C-/; addition of the PRESENT marker /e/ would then have to somehow yield *shortening* to [CeC-] in the present. Similar problems will recur under all approaches that assign explicit segmental or featural material as markers of PRETERITE and PLURAL; we omit this exposition for reasons of space, but do not consider such a line of inquiry to be productive.

In the absence of a cohesive system based on a small set of identifiable substantive underlying representations, the most parsimonious analysis will be the following: the UR of the preterite morpheme is phonologically null, and phonological exponence is determined by other means. Such an approach finds signifcant support in the form of two broad generalizations that hold across the entire verbal system. It has long been noted that the preterite stem is always phonologically distinct from the present stem (cf. Meid 1971). In the weak verbs, this contrast is effected by the addition of the dental suffix without any concommitant phonological changes to the root (or even the derived stem). In the strong verbs, this

differentiation is effected by the phonological changes to the root, as described in Section 3. Furthermore, there is also a strong tendency for the stem of the preterite singular to be distinct from the stem of the preterite plural. This universally holds of the weak verbs, reflected in the number-conditioned allomorphy of the dental suffix (SG [-d-] vs. PL [-deːd-]). It holds also of the strong verbs of Class I–V, which each have [a] in the preterite singular, but some other phonological differentiation from the present stem in the preterite plural. Strong Classes VI and VII do not follow this generalization, but for principled reasons.

These generalizations suggest that *contrast between stems* is a crucial part of the verbal system of (Pre-)Gothic. This contrast can be effected even in the absence of segmental material belonging to some underlying affix, provided that the need for contrast is encoded in the constraint grammar. We propose that this need for contrast is driven by constraints of the type REALIZE MORPHEME, defined as follows:

(4) REALIZE MORPHEME (RM; Kurisu (2001: 39)):
Let α be a morphological form, β be a morphosyntactic category, and F(α) be the phonological form from which F(α+β) is derived to express a morphosyntactic category β. Then RM is satisfied with respect to β iff F(α+β) $\neq$ F(α) phonologically.

This constraint states that any morphological form containing a strict superset of features of another morphological form must be phonologically distinct from that form. RM will thus derive the two generalizations discussed above if we make the following assumption: the morphosyntactic features PRETERITE and PLURAL are visible in the output of the morphological component, but PRESENT and SINGULAR are not.[3] Therefore, RM will be violated if, for a given root, there is no phonological distinction between present stem and preterite stem, or no distinction between a tense stem in the singular and that tense stem in the plural.[4] However, as mentioned above, the extent to which these contrasts are actually realized varies. The desire for a preterite stem distinct from the present is always actualized, but the desire for a preterite singular stem distinct from the preterite plural fails to be actualized in Strong Classes VI and VII. Therefore, REALIZE MORPHEME must be broken up into constraints on *individual morphosyntactic features*, such that they can be variably ranked in the grammar and thereby generate different distributions. (The constraint family might, therefore, be more aptly named REALIZE MORPHOSYNTACTIC FEATURE.)

(5) a. **REALIZE MORPHEME: PRETERITE (RM:PRET)**
Assign a violation mark * for any preterite stem which is not phonologically distinct from the present stem formed from the same root.

b. **REALIZE MORPHEME: PLURAL (RM:PL)**
Assign a violation mark * for any preterite plural stem which is not phonologically distinct from the preterite singular stem formed from the same root.

[3]This "invisibility" could be due either to privativity of these features, or deletion of those feature values in the morphological component. On morphosyntactic deletion operations, see Arregi & Nevins 2012: Ch. 4.

[4]This distinction is not observed in the present. Therefore, the enforcement of this number contrast must in some way be restricted to the preterite.

When these constraints are active in the phonological evaluation, they will disfavor the faithful mapping from the underlying form just in case some fixed phonological content from an affix denoting the relevant morphosyntactic property is not available. In the weak verbs, such affixal material is available in the form of the dental preterite suffix. Nonetheless, RM:PL seems to be relevant, in that it could drive the singular-plural allomorphy of the dental suffix ([-d-] vs. [-deːd-]). When no such affixal material is available, the manner by which the phonological contrast is effected will be determined by the ranking of relevant markedness and faithfulness constraints. The variety of surface patterns derives from the way in which these constraints affect roots of different shapes differently. In the next section, we demonstrate that, assuming a phonologically null preterite morpheme for the strong verbs, a coherent constraint ranking which includes the RM constraints can generate the full range of strong preterite forms given in table (3) above.

5. Synchronic derivation of the Pre-Gothic strong preterites

In this section, we will provide a complete analysis of the various surface patterns seen in the Pre-Gothic strong preterites, built around the hypotheses developed above, namely, phonologically null "morphemes" that bear the morphosyntactic features PRETERITE and PLURAL, and active REALIZE MORPHEME constraints that induce the surface contrasts.

The optimal strategy for marking the preterite in the strong verbs is *vowel backing*, as observed in the preterite singulars of Classes I–V. To model this and other similar changes, we will employ DEPFEATURE constraints referencing specified feature values, in parallel to the work of Casali 1996 *et seq.* on MAXFEATURE constraints. The constraint penalizing vowel backing will thus be DEP[+back]-IO.[5] This constraint is violated if the feature value [+back] surfaces in the output despite not being contained in the input.[6] DEP[+back]-IO will be in competition with other DEPFEATURE constraints, e.g., DEP[+high]-IO. We also assume that complete deletion of a vowel is penalized by standard MAXV-IO. Vowel backing is preferred to complete vowel deletion, but we will see this emerge as a repair in other contexts. The derivation of the Class I–V preterite singulars is illustrated in tableau (7).

(6) a. **DEP[+back]-IO:** Assign one violation mark * for each [+back] feature in the output which was not present in the input.
b. **DEP[+high]-IO:** Assign one violation mark * for each [+high] feature in the output which was not present in the input.
c. **MAXV-IO:** Assign one violation mark * for each vowel in the input which lacks a correspondent in the output.

[5]The change from [-back] /e/ to [+back] [a] naturally entails violation of MAX[-back]-IO as well. Yet, the interaction of other feature-changing processes with MAXV-IO reveals that it must indeed be the DEP versions which are operative. The one exception will be MAX[+back]-IO, which operates in Class VIIa.

[6]The MAX/DEP[F] system allows for feature mobility, which is penalized by the constraint the LINEARITY[F]-IO. We do not observe feature mobility in (Pre-)Gothic, so this constraint must be highly ranked. Given the lack of feature mobility, our constraints will be in practice nearly identical to asymmetric IDENT constraints. However, the simultaneous ban on *vowel fronting* and *vowel deletion* just in case the vowel is underlyingly [+back] (Class VI and Class VIIa) requires the MAX/DEP[F] approach we employ.

(7) *Pret.Sg. of Class II (also Class I–V)*

/kews, PRET/ ; BASE: PRES [kews-]			RM:PRET	DEP[+high]	MAXV	DEP[+back]
a.		kews	*!			
b.		kiws		*!		
c.		kus (← //kws//)			*!	
d.	☞	kaws				*

With the preterite singular computed, let us now consider the corresponding preterite plural. In the preterite plural, both RM constraints will be active. Therefore, the stem will aim to be distinct not only from the present stem, but also from the preterite singular stem. Since the preterite singular stem has already claimed the optimal vowel backing repair, the preterite plural must settle for the next best option, which is *vowel deletion*:[7]

(8) *Pret.Pl. of Class II (also Class I–III)*

/kews, PRET, um/ ; BASES: PRES [kews-], PRET.SG: [kaws-]			RM:PRET	DEP[+high]	RM:PL	MAXV	DEP[+back]
a.		kewsum	*!				
b.		kiwsum		*!			
c.	☞	kusum (← //kwsum//)				*	
d.		kawsum			*!		*

In Classes IV & V, the preterite plural is formed not by vowel deletion, but rather by *vowel lengthening* – violating DEP[+long]-IO ('*one * for each output* [+long] *feature not in the input*').[8] This repair occurs, contrary to the normal preference for vowel deletion, in order to avoid the result of vowel deletion in roots of the shape /CeC-/. If vowel deletion were to occur in such roots, they would surface as [CC-] (followed by a suffix-initial vowel). This would create a new consonant cluster, and thus a new violation of *CLUSTER (*CC). Although some of the resulting consonant clusters would be phonotactically licit, there seems to be an emergent preference to avoid new clusters. Under the ranking *CC ≫ DEP[+long]-IO (≫) MAXV-IO, if deletion would create a new cluster, vowel lengthening will occur instead. As long as the faithfulness constraints MAXC-IO and DEPV-IO outrank *CC, no repair will apply to an underlying cluster, as in /skip/ → [skip] 'ship'.

(9) *Pret.Pl. of Class V (also Class IV)*

/geb, PRET, um/ ; BASES: PRES [geb-], PRET.SG: [gab-]			RM:PRET	*CC	RM:PL	DEP[+long]	MAXV	DEP[+back]
a.		gebum	*!					
b.		gbum		*!			*	
c.		gabum			*!			*
d.	☞	geːbum				*		

[7] A point that must be addressed is why the singular is derivationally *prior* to the plural, insofar as RM:PL violations have been assessed in the tableau for the plural, but not in the tableau for the singular. We intend this to follow from our assumption that number in this system is a privative feature, and thus the derivation for the "singular" is really the derivation for the unmarked/default stem of the preterite. The plural stem is actually marked for number, and thus stands in the sort of superset relation relative to another morphological output that is necessary to activate REALIZE MORPHEME (here RM:PL).

[8] This constraint is roughly equivalent to DEPμ-IO.

The ranking proposed thus far properly derives both singular and plural of Classes I–V. Next to consider are the forms of Class VI, which display vowel lengthening in both singular and plural, and Class VII, which display reduplication in both singular and plural. Crucially, Classes VI & VII differ from Classes I–V in their root vocalism: Classes I–V have root vowel /e/; Classes VI & VII include all other attested root vowels (/a, eː, oː/). Since DEP[+back]-IO is low ranked, roots with an underlying short /e/ vowel are free to form their preterite (singular) by simply backing that vowel. But, since we have defined our DEP constraints with the value specified, the DEP constraint with the opposing value – DEP[-back]-IO – is not bound to be ranked in the same position. What we see is that DEP [-back]-IO is indeed active and ranked higher, thus preventing *vowel fronting* from being a viable solution for RM. Instead, the same lengthening repair seen in the preterite *plurals* of Classes IV & V is observed also in the *singular* (and plural) of Class VI, but applied to a different underlying vowel.

(10) *Pret.Sg. of Class VI*

/dab, PRET/ ; BASE: PRES: [dab-]		RM:PRET	⋆CC	DEP[-back]	DEP[+high]	DEP[+long]	MAXV	DEP[+back]
a. dab		⋆!						
b. db			⋆!				⋆	
c. deb				⋆!				
d. dub					⋆!			
e. ☞ doːb (← //daːb//)						⋆		

As noted earlier, Class VI (and also Class VII) does not accord with the generalization that the preterite plural is distinct from the preterite singular. This implies that RM:PL is lower ranked than any further faithfulness constraints (e.g., DEP[-back]-IO or DEP[+high]-IO) that could be violated to generate a distinct output form. The same will hold of INTEGRITY-IO ('*no multiple correspondence*'), which will be particularly relevant for Class VII.

(11) *Pret.Pl. of Class VI*

/dab, PRET, um/ ; BASES: PRES: [dab-], PRET.SG: [doːb-]		RM:PRET	⋆CC	DEP[-back]	INTEGRITY	RM:PL	DEP[+long]	MAXV	DEP[+back]
a. dabum		⋆!							
b. dbum			⋆!					⋆	
c. debum				⋆!					
d. dedabum					⋆!				
e. ☞ doːbum (← //daːbum//)						⋆	⋆		

Finally, we turn to the Class VII strong verbs, which form their preterites through *reduplication*. The reduplication is prefixal, and generally of the shape [Ce-], where C is a copy of the first consonant of the root/base.[9] Class VII includes roots with underlying long vowels (Class VIIb-d), and also roots with underlying root /a/ followed by two consonants (Class VIIa). What these two types have in common is that, if they were to undergo lengthening, the result would be a superheavy (i.e., trimoraic) syllable. Given a sufficiently high ranking

[9]When the root begins in an /ST/ sequence, the entirety of the /ST/ sequence is copied, yielding a reduplicant in STe-. See Steriade 1988: 136–9 for a basic analysis of these facts.

of *SUPERHEAVY ('*no trimoraic syllables*'),[10] lengthening will be a non-optimal repair in precisely these cases. The constraint violated instead is INTEGRITY-IO.

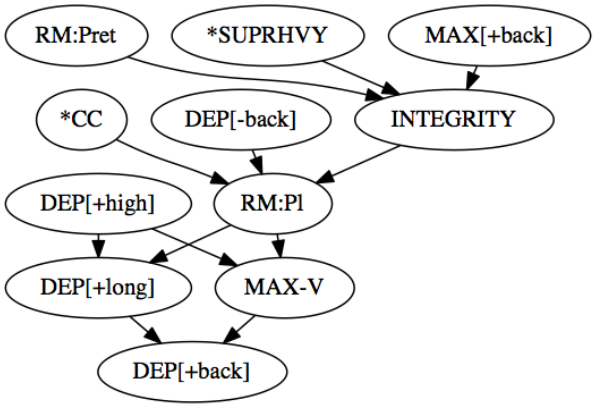
Class VII also shows us that there is one MAXFEATURE constraint which is active in the system: MAX[+back]-IO. The root structure of Class VIIa differs from that of Classes I–III only in that the underlying root vowel is back /a/ rather than front /e/. In the plural of Classes I–III, we saw deletion of that root /e/. In principle, vowel deletion should be available to Class VIIa, since these roots contain a post-vocalic sonorant that could vocalize. The fact that this is not observed indicates that there is a preference to *maintain* the underlying [+back] feature, not simply to not insert the [-back] feature. MAX[+back]-IO must dominate INTEGRITY-IO in order to block vowel deletion in favor of reduplication.[11]

(12) *Pret.Sg. of Class VII*

/hajt, PRET/ ; BASE: PRES [hajt-]		RM:PRET	*SUPERHEAVY	MAX[+back]	DEP[-back]	DEP[+labial]	INTEGRITY	RM:PL	DEP[+long]	MAXV	DEP[+back]
a.	hajt	*!									
b.	ho:jt (← //ha:jt//)		*!						*		
c.	hit (← //hjt//)			*!						*	
d.	hejt			*!	*!						
e.	hawt					*!					*
f. ☞	hehajt						*				

For Classes VIIb-d, which contain underlying long vowels, DEP[-long]-IO (or MAX[+long]-IO) will replicate the effect of MAX[+back]-IO in preventing any change to the vowel's length.[12] Just as with Class VI, as long as RM:PL ranks below all additional faithfulness constraints whose violation could yield a distinct stem, the grammar will not generate a distinct plural stem for Class VII. This is indeed what we find: 1PL.PRET. [hehajt-um]. In (13) below, we provide a Hasse diagram summarizing the constraint rankings used in the above analysis.

(13) *Hasse diagram of rankings*



[10]We hold that word-final consonants are non-moraic (extrametrical) in Proto-Germanic and Pre-Gothic; word-final syllables of the shapes VCC# and V:C# do not, therefore, induce a violation of *SUPERHEAVY.

[11]Further consideration of how the precise form of the reduplicant is derived within the system cannot be undertaken here for reasons of space.

[12]A remaining issue is that Class VIId appears to show too many repairs in generating the preterite stem: [lelo:t] incurs violations of both DEP[+back] and INTEGRITY, where just a violation of DEP[+back] ought to have sufficed. In effect, the curent ranking predicts 3SG.PRET. *[lo:t] : 1PL.PRET. *[lele:tum].

6. Conclusion

The analysis developed above has shown that the pattern of morphological markings found among non-derived ("strong") verbs in the immediate historical precursor of the Gothic language ('Pre-Gothic') can readily follow from the ranking of markedness and faithfulness constraints, interwoven among REALIZE MORPHEME constraints. This Pre-Gothic system of verbal morphology thus provides compelling evidence that specific morphosyntactic features are visible to the phonology, and that the extent to which such morphosyntactically distinct forms remain formally distinct can be modeled in terms of language-specific constraint grammars. The results of this analysis may be interpreted to support the classical distinction between *morphophonology*, which is sensitive to morphological structure and morphosyntactic information, and *"post-lexical" phonology*, which is not.

Internal to the synchronic system analyzed in this paper, the reduplication repair observed in Class VII might seem peculiar. Why should reduplication serve as a last resort repair for RM in a system where all other repairs involve fairly simple vocalic alternations? This question is easily answered from a comparative Indo-European perspective: based on comparative evidence from Sanskrit and Ancient Greek, the system described here arose from an earlier system in which *all* preterites were characterized by reduplication, as in Strong Class VII (cf. again Meid 1971). The vocalic alternations, absent in Class VII but preserved in Classes I–V, were triggered to some extent by accentuation, but were not themselves morphological markers of the category. Changes in the prosodic system of Proto-Germanic (specifically, the development of fixed word-initial stress) led, either directly or indirectly, to the system observed for (Pre-)Gothic. In future work, we intend to show that, because formerly automatic phonological vowel alternations could be repurposed as (morpho)phonological exponents of stem contrast, preterite stem candidates exhibiting both reduplication and ablaut were harmonically bounded by preterite stem candidates exhibiting solely ablaut. This ultimately resulted in the REALIZE MORPHEME-based system proposed above, in which reduplication assumes but a residual role.

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