Syllabification and Word Division in Gothic

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This article discusses methodological aspects of using Gothic orthography for the purposes of deducing phonological properties of the language. The vowel/glide alternation known as Sievers' law is used as an example. In order for scholars to propose an analysis of this alternation they must form a view of how syllable structure works in Gothic, and in order to do that they must interpret the orthography and determine to what extent it reflects phonology. It is primarily consonant clusters and word divisions that serve as orthographic sources for syllabification, beside alternation of *i/j* and *u/w* in related forms. A closer methodological look at some of the arguments that have been brought to bear on the issue of orthography and syllabification reveals that the strongest position that word division consistently reflects phonological syllabification cannot be upheld. Furthermore, it is shown that word division has little bearing on which word-initial clusters are possible in Gothic.[*]

1. Introduction.

The longstanding interest in Gothic syllabification has to do with the special status Gothic manuscripts have in shedding light on the phonology of older stages of Germanic. The combination of the age of the language reflected in the manuscripts with the wealth of data they offer makes them invaluable for the purposes of deducing an understanding of early changes in the Germanic dialects, for example, West Germanic gemination, Holtzmann's law in Icelandic and Gothic and also to some extent the various syncopations and apocopations that have taken place in all the languages of the family at different times. One topic that has drawn considerable interest is the vowel/glide alternation known as Sievers' law.[1] For most researchers, the issue of syllabification is of decisive importance for the proposal they make for Sievers' law.

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[1] For overviews of the older and newer research on this topic, see, for example, Seebold 1972, Riad 1992, Barrack 1998, Palviainen 2001, and Pierce 2001.

Conversely, the analysis of Sievers' law is sometimes taken as important evidence for the syllabification in Gothic, and by implication the other early Germanic dialects. This gives us an interesting opportunity to study the methodology of research on a topic where the conclusions in one domain affect the analysis of another, and vice versa.

In reconstructing Gothic syllabification we draw on various sources such as internal alternations, genetic relationship to other languages, general typological patterns, and orthography. These sources are all secondary compared to direct observation in that they convey phonological information that relies on some external factor or assumption. Thus while orthography tends to be heavily influenced by phonology, it is not necessarily a direct reflection of it. Typological and genetic arguments appeal to our expectation that similar phenomena should be analyzed similarly, but the connection is not a necessary one. Internal alternation, such as morphophonology, is the most self-sufficient of these sources. In the case of Gothic it is mediated through orthography and interpreted within a theory, but it still provides patterns that are reliably understood as linguistic.

With a dead language we are easily led to an overly clear analysis. Cheering ourselves on with Occam's razor, we almost inevitably end up with a relatively transparent and regular proposal for Gothic syllabification. A simple account seems more correct than any proposal resembling what has been offered and accepted for, for example, Modern English, dealing with such topics as ambisyllabicity, resyllabification, onsetless syllables following closed syllables, among others (Kahn 1976, Gussenhoven 1986, Myers 1987, Jensen 2000). But if unusual things are true for Modern English, they may be true for Gothic, and so we find that Occam's razor cuts both ways. With Modern English we can collect new data to seek support for our proposals regarding syllabification, but with Gothic we are stuck with the Bible, and a methodological vacuum of sorts is created between desired simplicity and the finite supply of data. In situations where absolute empirical support for one's statements is hard to come by, it is common for scholars to disagree on the reliability of sources of information. We therefore find that the extant proposals for Gothic syllabification rely to differing degrees on internal evidence, typology and orthography, respectively. This might of course reflect a real lack of consensus around the value of these different sources, but more likely, I think, other concerns of the analysis, for example, a theoretical agenda and lack of methodological discussion influence the importance attributed to the sources of information.

I hope to contribute here to a methodological discussion concerning orthography and internal evidence as clues to syllabification in Gothic.[2] I think that if such methodological matters can be clarified, we can also avoid some of the confusion that goes with the discussion of syllabification in Gothic.

The domain of investigation encompasses morphophonological alternation between vowels and glides as an example of internal evidence for syllable structure, and word divisions as orthographic evidence for syllable structure. I show below that particular assumptions made in the one area of evidence have consequences for the treatment of the other, and those consequences are, I think, decidedly *un*desirable. This prompts us to take a closer look at method. Ideally, we should manage to move some issues from the domain of theory, where different views are expected, to the domain of method, where differences of opinion are not as common.[3]

2. Internal Evidence: Vowel/Glide Alternation.

Let us first look at some data and establish the basic fact that Sievers' law involves syllable structure. The typical examples of vowel/glide alternation with the high, front vocoid are found in the paradigm of masculine *ja*-stem nouns and in weak verbs of the first class. Standard orthography and phonetic transcription are given in 1. With the alternating vocoids a geminate representation is used for long vowels to keep track of the alternation. Translations are given in basic form throughout.

(1) Vowel/glide alternation: The typical Sievers' law data.

	a.	b.	c.	d.
gen.sg.	harjis		herdeis	ragineis
	[har.**ji**s]		[her.d**ii**s]	[ra.gi.n**ii**s]
	'army'		'shepherd'	'counselor'

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[2] Typological evidence will only be brought to bear in a general way.

[3] I refrain from presenting a particular analysis of Sievers' law here, since that would be beside the point. My analysis of this alternation is given in Riad 1992, chapter 2.

2sg.pres.	nasjis	stôjis	sôkeis	mikileis
	[nas.**jis**]	[sto:.**jis**]	[so:.**kii**s]	[mi.ki.l**ii**s]
	'save'	'to judge'	'to seek'	'to praise'
			namneis	sipôneis
			[nam.**nii**s]	[si.po:.**nii**s]
			'to name'	'disciple'
3sg.pres.	nasjiþ	stôjiþ	sôkeiþ	mikileiþ
	[nas.**ji**þ]	[sto:.**ji**þ]	[so:.**kii**þ]	[mi.ki.l**ii**þ]

As shown here, there is vowel/glide alternation of palatal vocoids. Let us represent the alternating segment as /I/, the capital letter referring to the fact that this phoneme is underspecified for the feature [±consonantal]. In 1a and 1b /I/ is realized as a glide, because it occurs as onset after a heavy syllable. In 1c and d /I/ forms a long vowel together with the following vowel, as there is already an onset consonant to the second syllable. Analyses differ in how this result is arrived at (and syllable boundaries are not always where I have put them), but there is consensus around the fact that <j> marks the realization in onset position and <i> marks the realization in nucleus position, and that those graphemes directly reflect consonantal and vocalic realization of /I/ in this set of data. This is the alternation that is most typically subsumed under the name of Sievers' law (references include Lahiri 1982, Murray and Vennemann 1983, Lahiri and van der Hulst 1988, Dresher and Lahiri 1991, Riad 1992, Calabrese 1994, Barrack 1998, Kiparsky 1998, Kim 2001, Palviainen 2001, and Pierce 2001). Note that this consensus only concerns the onset/nucleus distinction pure and simple, not the issue of whether <j> is tautosyllabified with a preceding consonant (for example, Sievers 1892, Barrack 1998) or not (Murray and Vennemann 1983, Pierce 2001). That issue is partly open, and one purpose of my discussion is to emphasize this fact.

There are also other cases of *i*/*j* alternation, and there is also vowel/glide alternation with the labiovelar vocoid *u*/*w*. They often occur together, as in the examples in 2.

(2) Vowel/glide alternation: Other relevant data.

weina-tr**iu**	'wine tree'	~	weina-tr**iw**a	dat.sg.
tr**iu**	'tree'	~	tr**iw**is	gen.sg.
ana-q**iuj**an	'quicken'	~	ga-q**iwi**da	pret.
þ**iuj**ôs	gen.sg.	~	þ**iwi**	'maid'

a**ju**kdûþs	'eternity'	~	a**iw**	'eon'
ta**uj**an	'do'	~	ta**wi**da	3sg.pret.
ma**uj**ôs	gen.sg.	~	ma**wi**	'girl'
ba**i**	'both'	~	ba**j**ôþs	'both'
band**j**ôs	gen.sg.	~	band**i**	'fetter'

We can represent the labiovelar vocoid as /U/, again indicating that this phoneme is underspecified for [±consonantal]. When /U/ ends up in onset position or coda position it is realized as [w] (*tri.wis*, *hlaiw*) and when in the nucleus it is vocalic [u] (*triu*, *ajukdûþs*). Data for *u/w* that is fully parallel to that given in 1 is not available in Gothic. There is the form <manwus> 'ready' (presumably [man.wus]), but there are no putative "*wu*"-stems or inflectional forms in -*u* that would trigger /UU/ combinations within, say, *wa*-stems.[4] Thus there is a data shortage. Nevertheless, it is clear from the examples given in 2 that vowel/glide alternation in Gothic motivates phonological treatment of *both i/j* and *u/w*.

2.1. The Reification Problem.

Standard phonological methodology would lead us to seek a unified explanation for the vowel/glide realizations in all the contexts above. However, in recent research the analysis is quite commonly narrowed down to the *i/j* alternation. In this way, the *u/w* alternation may be disregarded altogether, or may be dismissed as parallel to *i/j*, the assumption being that anything that is true of *i/j* will automatically carry over to *u/w*. Another consequence is that the scope of contexts for *i/j* alternation is narrowed down to 1. In my view, this is a methodological mistake.

In older research more heed is taken of *u/w* and other sonorants, for example, Sievers 1878 and Osthoff 1884. When Sievers formulated his

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[4] To put it bluntly, the following data set is missing; compare i below with the data in 1.

(i)	a.	b.	c.	d.
gen.sg.	+har.**wu**s		+her.d**uu**s	+ra.gi.n**uu**s
2sg.pres.	+nas.**wu**s	+stô.**wu**s	+sô.k**uu**s	+mi.ki.l**uu**s
			+nam.n**uu**s	+si.pô.n**uu**s
3sg.pres.	+nas.**wu**þ	+stoo.**wu**þ	+sô.k**uu**þ	+mi.ki.l**uu**þ

generalization regarding vowel/glide alternation in Vedic Sanskrit he included both alternations.[5]

(3) Sievers (1878:129) on vowel/glide alternation.
     [U]nbetontes […] *i* oder *u* vor einem vocal ist consonant nach kurzer, vocal nach langer silbe ohne rücksicht auf die sonstige accentlage des wortes.
     'Unstressed *i* or *u* before a vowel is consonantal after a short syllable and vocalic after a long syllable, regardless of the stress pattern elsewhere in the word.'

This much cited quotation is neither comprehensive nor all that well put once you look at it closely, but it is at least clear that Sievers intended his generalization to hold for both vocoids, where their distribution is connected to the preceding syllabic context.

As mentioned above, the *i*/*j* alternation is much more extensive than the *u*/*w* alternation, in Gothic. Barrack (1998:86) explicitly puts the *u*/*w* alternation to the side for this reason, and many scholars do not even mention the *u*/*w* alternation. From the point of view of linguistic analysis, this is an opportunity lost, however. Though limited, the *u*/*w* alternation is there, unequivocally, and therefore we must ultimately analyze it. It is hard to see how linguistic research methodology could lead to any other conclusion than that *u*/*w* alternation must be treated together with *i*/*j* alternation (compare the data in 2), and how, in turn, the connection between the data in 1 and 2 could *not* be made. Furthermore, a simple carryover of conclusions for *i*/*j* to *u*/*w* will not suffice either, as there are asymmetries between /I/ and /U/ requiring that they not be given completely uniform treatment, as we see in section 4.4.

The disregard of the contexts in 2, as well as other contexts not mentioned above, comes from a reification of Sievers' law in the research tradition. Some researchers have narrowed the scope of morphological contexts studied in Germanic on the basis of the distributions in Vedic Sanskrit. Again, Barrack (1998:87) explicitly delimits his discussion in this way, although he is aware of the phonological overlap. In this way, Sievers' law has come to be understood as a "rule" that could be traced historically in several languages, even though it changes shape every now and then (see, for example, Palviainen 2001). Many other researchers,

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[5] According to Palviainen (2001), Hermann Osthoff is responsible for dubbing this generalization "Sievers' law". The term "law" is somewhat overused among the Neogrammarians.

within and outside of the Neogrammarian tradition, have simply taken over the data set from previous accounts, and so Sievers' law has become the name of an alternation occurring in a *subset* of the relevant set of data. This is, to my mind, methodologically unsound and linguistically artificial. Consider the following paradigms.

(4) Part of Sievers' law reified?

	yes	*no*
N.	kun**i**	band**i**
G.	kun**j**-is	band**j**-ôs
D.	kun**j**-a	band**j**-ai
A.	kun**i**	band**j**-a
	masc. ja-stem	*fem. jô-stem*

Some assume that a certain paradigm falls under the scope of Sievers' law, for example, for historical reasons (Barrack 1998:86–87). If so, the *kuni* paradigm is included and the *bandi* paradigm is not, and then two different explanations will, in principle, be needed for the synchronic *i/j* alternation in the respective cases.[6] Some assume that Sievers' law only applies to certain morphological classes (see Palviainen 2001:66), such as nominative and genitive in certain paradigms (and, mutatis mutandi, verbal paradigms). If so, we will need one explanation for the [j] in *kunjis*, namely Sievers' law, and another for the [j] in *kunja*. It is hard to see how any of those positions could be reasonably defended, without treating the cases left out. Our duty as linguists is to seek generalizations, as Sievers did, and make them as generally applicable as possible. Of course, morphologically motivated analogy may exempt some contexts from being targeted in the same way as others by the Sievers' law processes, but then those need to be understood, defined, and integrated into the analysis (cf. Kiparsky 2000).[7]

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[6] Barrack does state that the underpinnings of the rules for both types of forms may be the same, but this means a generalization is lost, in the synchronic account, because of the reification of the law.

[7] I do not discuss further the morphological limitations on Sievers' law, which do not bear on the interpretation of word division as a source for syllabification. Obviously, morphological conditions on Sievers' law require both a diachronic treatment (glide strengthening, for example; Vennemann 1985) and a synchronic treatment (underlying specified glides as opposed to underspecified archiphonemes, for example; Riad 1992).

In the following sections, I try to show that the consequences of the unwarranted limits imposed on the research object mentioned above have affected the analysis of Sievers' law as well as the interpretation of orthographic evidence in troubling ways.

2.2. Rules of the Game.
One rule of the game has already been mentioned, namely Occam's razor, spelled out here in particular (partly overlapping) statements for vowel/glide alternation in Gothic.

(5)   If there are vowel/glide alternations for both *i/j* and *u/w* in Gothic, then an analysis that includes both is more desirable than one that only accounts for one, all else being equal.

(6)   The more cases of vowel/glide alternation that one's analysis covers, the better. Limiting the analysis to certain morphological classes requires motivation, while assuming it is completely general does not.

(7)   If the vowel/glide alternation can be explained as regular syllabification, rather than as a particular rule (beside syllabification), then that is preferable, all else being equal.

The delimitation of the research object to a subset of the relevant data might work if the subset is representative. But if it is not, problems are to be expected. A case in point is the question of underlying phoneme for the vowel/glide alternation. For many, the choice has been between vowel and glide, and as long as one is dealing only with the contexts in 1, the consequences of choosing the one or the other are not very dramatic. It might look arbitrary, but one's rule is just going to either vocalize a glide or glide a vowel, leaving the alternant be in the complementary contexts. However, as soon as one considers a larger data set, including *u/w*, it becomes clear that one needs conversion both ways.

(8)   ma**wi**   ma**uj**ôs   'girl'
      nom.sg.   gen.sg.

      tr**iu**   tr**iw**is   'tree'
      nom.sg.   gen.sg.

      ana-q**iuj**an   ga-q**iwi**da   'quicken'
      inf.   pret.

As shown above, mere inspection of the morphologically more basic forms on the left is not going to help in deciding whether the underlying segment is a vowel or a glide. Also, the form as glide or vowel seems to be dependent to some extent on neighboring segments, one or both of which may be realizations of the other glide/vowel. We may be led to posit the nominative of *mawi* as reflecting the underlying form /mawi/, but then we would need both a vocalization rule /w/ > [u] and a gliding rule /i/ > [j] to derive the genitive singular form. It might seem unnatural to have different underlying forms for the different vowels/glides, and choosing the one over the other is going to be quite arbitrary (largely as in phonemic theory, compare Moulton 1948). The solution, of course, is to assume that the segments in question are un(der)specified for the feature [±consonantal], and that the phonetic realization of the segment is determined by what position it ends up in in syllable structure. In this way, the desired realizations will not be predetermined by an arbitrary decision on vocalic and consonantal representation.[8]

3. Word Division and Syllabification.
Very much of the phonemic system of Gothic is directly represented in the orthography. Alphabetic writing systems are good at that. Parts of the phonemic system that do not yield to immediate interpretation include complex graphemes for single phonemes. We might mention the status of the digraphs <ai> and <au> and their phonemic interpretation now as diphthongs, now as monophthongs (Vennemann 1971, d'Alquen 1974). Another deviation from regular reflection of phonemes in the orthography is the usage of some graphemes in loan words. Examples include <Swria>, <swnagoge>, <Iohannes>, <Iosef>, and <Iudas>. To establish the phonemes in these cases, we obviously need to go beyond orthography. Scholars tend to disagree on the value of the orthographic evidence in these areas, simply by virtue of the fact that there is some room for interpretation.

In the case of syllable structure this becomes very clear. There are major disagreements regarding Gothic syllabification, and much of the

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[8] We need underspecified segments in phonology in any case, compare, for example, the very common process of nasal assimilation. One may consider Swedish, where of three nasals, /m/, /ŋ/, and /n/, only /n/ takes over the place of articulation from a following segment. The simplest analysis of this is to say that /n/, unlike the other two nasals, lacks a place of articulation in its specification, that is, it is underspecified.

disagreement stems from differences in reliance on, and interpretation of, the orthography. Let us now focus on the question of using orthography to determine phonological syllable structure.

There are two types of information that are primarily used in order to establish syllable structure from orthography, namely word divisions between lines and sequencing of consonants in clusters. The latter is mostly seen as a function of phoneme and temporal order, such that linear phonotactics are taken to be directly reflected in orthography. Sometimes this leads into situations that are in conflict with the phonology reflected. Forms like *taikn* 'sign', *bagms* 'tree', and *tagl* 'hair', if taken to be monosyllabic, contain a sequence in violation of sonority sequencing. One way of dealing with such a situation is to assume that not only vowels can be nuclear to Gothic syllables, but also sonorant consonants, viz. [tai.kn], [ba.gms], and [ta.gl] (Vennemann 1985). Another way is to bite the bullet and assume that the unusual sequences are phonological, only typologically marked. One is reminded of words like *rhythm* and *spasm*, which are phonetically disyllabic in English and monosyllabic (*rytm*, *spasm*) in Swedish. Here, our focus is on word division, and the question we pose is again a methodological one: To what extent is it reasonable to rely on word division at line's end as a source of evidence for phonological syllabification?

3.1. Gothic Word Division.
Orthographic word divisions in Gothic manuscripts clearly follow certain patterns, but the extent to which these are phonologically motivated is not obvious. The most important generalizations are given below.[9] I use the terms "line 1" and "line 2" to refer to either side of the word division.[10]

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[9] A fine overview of the orthographic patterns is given in Vennemann 1987. The data given here were originally collected in papers by Hechtenberg Collitz (1906) and Schultze (1908).

[10] Legend: M = morpheme, V = vowel, C = consonant, O = obstruent, R = sonorant, L = liquid, gem = geminate, rt = root, af = affix, | = word division, + = morpheme boundary.

(9) <M|M> Compounds and (some) affixed forms divide
            morphologically.
    rt+   silda|leikidedun   'gaze, admire'
           anda|nahti   'evening'
           weina|gardis   'vineyard'
           miþ|ushramidans   'crucified (with)'
    af+   ga|lewjands   'betraying, abandoning'
           ga|swiltan   'die'
           un|þwahanaim   'unwashed'
           at|iddjedun   'come'
           afskai|skaidun   'divide'
    +af   was|uh   'and was'
           suns|ei   'as soon as'
           inn|ana   'from within'

(10) <V|CV> A single consonant between vowels is moved to line 2.
    V: stai|nam   'stone'
           sei|namma   *reflexive pronoun*
           tau|jan   'do'
    V   da|ga   'day'
           ma|nagei   'multitude'
           su|nu   'son'

(11) <VC|CV>Two consonants between vowels are generally
            divided such that the first ends line 1 and the second
            begins line 2.
    gem   sab|batim   'sabbath'
           al|lans   'all'
           Johan|nes   *proper name*
    R|C   bal|gins   'tube'
           hil|pan   'help'
           hair|deis   'shepherd'
           þaur|nus   'thorn'
           stan|dans   'standing'
           sin|þa   'time'
    O|C   stib|nai   'voice'
           nid|wa   'wearing down'
           waurst|wa   'worker'
           sweg|neid   'jubilate'
           haus|jan   'hear'
           mat|jan   'eat'

(12)   <VO|RV> Obstruent+liquid[11] (muta cum liquida) too, are
        generally divided between the lines, in particular in
        the Codex Ambrosianus B and E. In the Codex
        Argenteus the few examples of obstruent+liquid
        there are tend to go to line 2.

    O|L   Ambrosianus B and E

Pait|rau	*proper name*
hlut|rans	'clean'
broþ|runs	'brother'

    |OL   Argenteus, Ambrosianus A

para|kletu	'comforter'
fa|dreinais	'type'
Pai|trus	*proper name*

The decision regarding which pattern is the more regular with respect to Gothic phonology is a matter of interpretation. Presumably, the best analysis will explain why manuscripts vary in this particular regard.

(13)   <VCC|CV> If there are three or more consonants, all but the
        last one are kept on line 1 (unless the two last
        consonants are obstruent+liquid).

gaþrafs|tein	'comfort'
skohs|la	'demon'
faurh|tei	'fear'
waurk|jan	'bring about'
band|jan	'prisoner'
fulhsn|ja	'concealed'
waldufn|ja	'power'
framaþl|ja	'estrange'

(14)   <VC|OLV> Obstruent+liquid invariably go to line 2 in this type
        of cluster.

    C|OL

sun|dro	'particular'
Mam|bres	*proper name*
win|trau	'winter'

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[11] The term "obstruent+liquid" is used for convenience, but strictly speaking it only covers a stop or *þ* followed by a liquid, while the other fricatives do not participate in this pattern.

The question now is how we relate these orthographic observations to our understanding of the phonology of Gothic syllabification. To what extent do these observations carry over? Are some observations more "phonological" than others? Several scholars support the strongest claim, namely that word divisions faithfully reflect Gothic syllabifications. For instance, Murray and Vennemann (1983:515) make the following statement:

> Excepting sequences containing a stop or þ plus a liquid, Go[thic] syllabic divisions may be stated as follows. [...] Within a simplex (uncompounded) word, a group of marginal segments is divided between two nuclear segments in such a way that all segments but the last belong to the first syllable.

They then discuss the obstruent+liquid pattern that does not fit the general pattern. It is suggested that that context could be explained either as depending on loan orthography or on morphology. The conclusion at any rate is that the rule above is "the general principle governing Go[thic] syllabification" (Murray and Vennemann 1983:516). This is a really concise description of Gothic orthographic word division, but it cannot be a singular *principle* of phonology. Rather, it needs to be broken down into components, and in doing so it is possible to see the grouping of obstruent+liquid not as deviant syllabification, but as a phonological regularity, which causes some variation in this particular area (Vennemann 1987). My aim, then, is to try to make clear that some pieces of orthographic information are more reliable than others when it comes to the phonological interpretation.

3.2. Implications for Syllabification.
First of all, *morphology* likely plays a role in orthographic word divisions in Gothic (compare Voyles 1992, Barrack 1998), just as in many other systems. This is seen clearly in the treatment of compounds and prefixed forms in 9 above. It is true that the division of compounds like <weinalgardis> could be understood as phonologically motivated by virtue of the reasonable assumption that compound members are syllabified separately, and that they hence constitute prosodic words. Under this view, examples like <innlana> and <miþlushramidans> in 9 are particularly informative, since the morphemes *inn*, and perhaps also *miþ*, are not necessarily their own phonological words. Rather, it seems it is indeed the morphological boundary that is reflected in Gothic word

division.[12] Thus, whether the phonology in normal speech is [in:.ana] or [in.nana] is an open question (until other argumentation is brought to bear), while word division is not.[13] The influence of morphology in word division generally is widely recognized, but it is usually put to the side once the obvious domains in which it is applicable have been mentioned. This does in no way entail that morphology is not involved in other instances of word division where the divide coincides with lesser morphological boundaries. From a methodological point of view, it is only when we find positive evidence against it that we can rule out the influence of morphology in word division. With suffixes, the role of morphology is less clear; that is obviously part of the problem of interpreting word division as phonological, morphological, or otherwise. The point is made clearly in Vennemann (1987:172), where the Skeireins divisions of <þaþǀro> and <iupaþǀro> disrespect what morphology would have dictated (*þaǀþro* and *iupaǀþro*). But on the other hand, there is much to say for morphological influence on word division, too (Barrack 1998:39–40; Riad 1992:86–87).

Second, the well known phonological *onset principle* (see, for example, Blevins 1995:230ff; Kager 1999:93) is directly motivated in orthographic word division. The onset principle (or the constraint ONSET) requires that syllables begin with a consonant.[14] Examples 10–14 all show this. It seems more important to satisfy this constraint than any other phonological criterion. While in larger consonant clusters there seems to be a prima facie tendency to cluster the consonants on line 1 and to put just one consonant on line 2, it is still the case that when there is only one intervocalic consonant, it goes to line 2; compare 10. Notice in particular that this happens regardless of the length of the preceding

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[12] The reduplicant <skai> of <afskaiǀskaidun>, viz., [af.ske.ske.dun], definitely is not a phonological word, but might hypothetically form one together with the prefix <af>. If there are instances of word divisions that only break out the reduplicant, then that would clinch the argument that morphology is directly involved in word division.

[13] As one of the anonymous *JGL* reviewers points out, forms like <atǀiddjedun> in 9 might abide by the tendency not to divide after an initial single vowel, and hence not provide evidence of morphological word division (compare Vennemann 1987:180, Barrack 1998:44–45).

[14] In some models, the *maximization* of onsets is also included in this principle, but not here. One consonant satisfies it.

vowel: <seiⁱnamma> [si:nam:a], <daⁱga> [daga]. The pattern as such is static, however, exhibiting no alternation. In light of this, it is fortunate that the onset principle is so easy to motivate on typological grounds (for example, in processes of stop insertion).

Third, there is a clear tendency to satisfy *sonority sequencing*, which shows up with the cases where a consonant cluster consists of or ends with an obstruent+liquid sequence; compare 12 and 14. The patterns are somewhat variable here, but if we take first the clusters of three consonants and more, we can see that sonority sequencing of obstruent+liquid plays out against the otherwise general orthographic pattern of maximizing the number of consonants on line 1 (modulo ONSET). The orthographic obstruent+liquid pattern must be motivated by the phonological sonority properties of obstruent+liquid. Murray and Vennemann (1983) downplay the role of sonority sequencing, or rather shift the motivation for this word division to Greek and Latin phonology, from where several of the forms in question are borrowed (<winⁱtrau, sunⁱdro, Paiⁱtrus>). In a later paper, Vennemann (1987) analyzes the whole set of relevant word division data in terms of sonority sequencing and thus provides a phonological interpretation. Even without appeal to word division, however, it is trivially the case that sonority sequencing is motivated *within* Gothic. The crucial data are easy to come by, as shown in 15.

(15)   triu   'tree'
       sprautoo   'quickly'
       graban   'dig'
       knussjan   'fall down'

Thus, initial sequences of consonants show that consonants are sequenced according to sonority (as expected, of course) and crucially that obstruents and liquids can cooccur in syllable onsets. The simple conclusion for word division is that divisions like <paraⁱkletu> and <sunⁱdro> obey sonority sequencing, and that this phonological principle manifests itself dynamically by overriding what is otherwise the regular word division pattern.

Fourth, when we turn to sequences of two intervocalic consonants, the tendency is to divide the cluster in the middle. In Ambrosianus B and E this holds even when the consonants are an obstruent followed by a liquid. In Argenteus and Ambrosianus A the picture is more mixed. The Ambrosianus B and E evidence is interesting here because it provides an alternation in the treatment of obstruent+liquid. This alternation tells us

that there is some phonological principle that causes the first syllable to sometimes be closed by a consonant. Thus when there are only two intervocalic consonants following a short vowel, one will be claimed by line 1. With an obstruent+liquid sequence this procedure is in conflict with sonority sequencing, as we now know from inspecting trisyllabic consonant clusters. Clearly, whatever the constraint is that claims a consonant to line 1, it is satisfied by one consonant, and when there are enough consonants left, sonority sequencing can rule (the same result is found for Old English, see Lutz 1986). The question is what this other constraint is. The best guess is *Prokosch's law* (PL). Prokosch's law (Prokosch 1939; Vennemann 1988; Riad 1992, 1995), also known as the Stress-to-Weight principle (McCarthy and Prince 1993, Kager 1999), states that stressed syllables should be heavy. This is again a universal tendency, and it is manifest in several ways in Germanic languages, both in synchrony and diachrony (syncope, apocope, quantity shift). Thus, a disyllabic word like <stib|nai> is divided such that—if this is a true reflection of phonology—Prokosch's law is satisfied by [b] and the onset principle is satisfied by [n]. As always, it is alternation that is truly informative, and Ambrosianus B and E provide it both internally and vis-à-vis Argenteus and Ambrosianus A. The variable behavior of obstruent+liquid in bi- and tri-consonantal clusters, respectively, shows that Prokosch's law (or its equivalent) influences word division (Riad 1992:87). And Prokosch's law is clearly more important than sonority sequencing when there is a conflict, since in the choice of [pe.tro] and [pet.ro], the latter is chosen. This is not to say that all word division reflects Prokosch's law, only that Prokosch's law is motivated within some word division and not contradicted, unless provoked by a stronger constraint (compare 9).[15] There is of course more to say for the variation within and between manuscripts; compare Vennemann 1987. Our point is merely a methodological one, namely that word division does support the relevance of Prokosch's law in Gothic syllabification.

When there is no phonological conflict, however, the pattern is clear, in all manuscripts. If the vowel preceding the division is long as in <hlei|þrai> 'tent' and <bai|trei> 'bitterness', or unstressed as in <para|kletu>, or followed by three consonants as in <win|trau>, then the

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[15] Further motivation for Prokosch's law in synchronic Gothic can be found in other domains, for example, Sievers' law alternations (*nas.jis* versus *sô.kiis*).

sonority sequencing plays out in full, since Prokosch's law is either satisfied (<win|trau>) or not relevant (<para|kletu>).

Before moving on, let us note that if we did not have this alternation in behavior among obstruent+liquid sequences, we would not be able to motivate Prokosch's law within the word division evidence, since the data are otherwise static (compare the situation for the onset principle). Alternation is thus crucial for us to establish from word division that something phonological is going on. If obstruent+liquid invariably split or invariably shifted to line 2, then we would have less of an argument for the visibility of Prokosch's law in orthography.

As our fifth and sixth phonological conclusions, we can list two orders of priority among the constraints that we have found to be motivated within the word division data. They are listed together with examples of data that crucially shows this relation. (Note that "≫" should be read as 'is more harmonic than'.)

(16) PROKOSCH'S LAW >> SONORITY   (<Pait|rau> ≫ <Pai|trau>)
     ONSET   >> PROKOSCH'S LAW[16] (<su|nu> ≫ <sun|u>)

The onset principle is more important than Prokosch's law, as a light stressed syllable will be preferred over an onsetless following syllable.

Each of the above conclusions is reflected in the orthographic evidence, but importantly, they are all motivated outside of this domain of evidence. Thus, the onset principle is a well known universal. But since it is a very highly valued constraint in Gothic (as in many other languages), alternations where this constraint asserts itself are hard to come by. However, in the variable realizations of /I/ and /U/ it can be demonstrated that ONSET is in fact active. Thus, /maUI/ comes out [ma.wi], obeying ONSET and violating Prokosch's law, rather than *[mau.i], where Prokosch's law is met and ONSET violated. (In the genitive both constraints can be satisfied: [mau.jo:s]). Beyond diachrony, Prokosch's law is manifest in the synchronic realization of sequences of vowels/glides (/nasIIs/ comes out as [nas.jis] rather than *[na.si:s]). Next, the tendency for obstruents and liquids to tautosyllabify is well known from many

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[16] The transitive dominance relation here (ONSET >> SONORITY) is not possible to motivate within the narrow scope of word division, but it can be motivated within the vowel/glide alternations of which Sievers' law is part (Riad 1992:77–78). /sUnIUs/ comes out as <sunjus>, that is, [sun.jus], where unattested +[sun.ius] would satisfy SONORITY in the face of ONSET, and +[su.nius] would satisfy SONORITY in the face of PROKOSCH'S LAW.

languages (for example, Latin and Modern Icelandic). It is just a subcase of sonority sequencing in syllable structure. As we have seen, it asserts itself in Gothic word division through the variable behavior in clusters of two and three consonants, respectively. Finally, the fact that the members of compounds form separate syllabification domains (viz., prosodic words) is clear in the modern languages as well. Nothing leads us to assume that things were different in Gothic.

4. Making Too Much of It.

Some researchers have wanted to assume that word division reflects not only the central aspects of syllabification manifest in the onset principle, Prokosch's law, and sonority sequencing, but indeed all of it. This amounts to much stronger and therefore more controversial claims in two areas: the maximization of codas and the anti-sonority sequencing treatment of cluster-final glides. Here the stakes go up considerably, and my methodological point is that if this putative phonological information is to be read off the orthography—in word division and elsewhere—external arguments must be brought to bear. In itself, orthography is compromised too much by morphological sensitivity and possibly orthographic generalizations in their own right, for an all-out phonological interpretation.[17]

4.1. Coda Maximization.

When we have peeled off the last consonant in a cluster and used it as onset on line 2, we may be left with up to 4 consonants at the end of line 1. Prokosch's law has use for at most one of these. If the vowel of the first syllable is stressed and short, then, in accordance with Prokosch's law, that first syllable will claim one consonant in order to become heavy (bimoraic). This yields a residue of consonants, as illustrated below.

(17) *orthography*   *phonology* (PROKOSCH'S LAW, ONSET)
        band|jan   ban.d̲.jan
        gaþrafs|tein   gaþraf.s̲.tein
        skohs|la   skoh.s̲.la
        faurh|tei   faur.h̲.tei
        waurk|jan   waur.k̲.jan

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[17] For this view, see for example, Dresher and Lahiri 1991, Riad 1992, and Barrack 1998.

In clusters of more than two consonants there are leftovers, and the question is what we should do with them.[18] Orthography clearly puts as many of these as possible on line 1, except in the obstruent+liquid cases, discussed above. Now, for the coda clusters, unlike the situation with obstruent+liquid clusters, we are left with a static pattern in orthography. Moreover, support from other sources such as change or morphophonological alternation is lacking. There is no known particular process of coda maximization in phonology. If anything, it is onsets that tend to be maximized. Furthermore, codas are banned in many languages, while onsets are banned in no language. Thus, it is even phonologically unlikely that some language would have a coda maximization rule. Notice that we need to get away from sonority sequencing in order to isolate a putative maximization rule, whether for onsets or codas. This is so because sonority sequencing often fully determines the syllabification, making a particular maximization principle redundant. Thus, there is really only one possible syllabification of a word like *libandans* 'living', namely *li.ban.dans*. The *n* and *d* cannot belong to the same syllable, because that would violate either sonority sequencing (**li.ba.ndans*), or the onset principle (**li.band.ans*).[19] Thus, in order to properly test coda maximization we must look at clusters where a medial consonant that is out of reach for both the onset principle and Prokosch's law could go both ways, in terms of sonority.[20]

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[18] It has been suggested that sonorants, beyond /I/ and /U/, could become syllabic, for example, *tagr* [ta.gr] 'tear', *namnjan* [na.mn.jan] 'to name', *twifl* [twi:.fl] 'doubt' (Vennemann 1985:208). For longer medial consonant clusters this would mean syllabifications like the following: *framaþlja* [fra.ma.þl.ja] 'estrange', *fulhsnja* [fulh.sn.ja] 'secret', *waldufnja* [wal.du.fn.ja] 'authority' with sonorant syllable nuclei. While this may be true, it is not supported by any word divisions reported in Hechtenberg Collitz 1906. Putative such divisions would be *<talgr> and *<waldulfnja>. In order to avoid the issue, which is orthogonal to the point made here, I have not included such clusters in 17.

[19] For the purposes of the discussion here I assume that Prokosch's law does not hold in syllables other than the root syllable, thus leaving it to sonority and the onset principle to determine syllabification there. In some proposals, foot structure has a prominent role across the whole word, and that may induce Prokosch's law effects also in other syllables (see especially Kiparsky 1998).

[20] Rather than appealing to a maximization principle, Pierce (2001:49ff.) extends the sonority-based analysis of the division of consonant clusters, by employing constraints that control syllable contact.

The methodological question that arises here is whether orthographic word division *alone* is reliable as a foundation for a full interpretation as phonological syllabification in Gothic? I think the answer has to be no. There are two a prioristic reasons for this, the first being the fact that morphology appears to influence orthography. We have seen this in compounds and prefixed forms. How can we know that morphology does not affect orthographic word division elsewhere? At the very least, the case against morphological word division outside of those domains must be made. The second reason is the fact that there are orthographic rules in most writing systems. Most of these have their foundation in phonology or morphology, but there is often a residue of sundry rules that are usually called orthographic conventions. For instance, in Modern Swedish there is an orthographic rule that says that when you divide a word you should bring just one consonant to line 2. This rule applies even when it is not phonologically motivated.[21] Without making any assumptions for the orthographic standards of Gothic written language, we must at least entertain the possibility of the influence of a writing convention in Gothic word division.

Next, it seems to me that any phonological conclusion drawn from orthography should be supported by some type of phonological evidence, too. At the very least, such information will affect the reliability of those conclusions. Nevertheless, it is not uncommon for people to assume that Gothic is a coda maximizing language, as a matter of phonological principle. The formulation of how this maximization is brought about varies, from a straight descriptive principle (Murray and Vennemann 1983, accepted by Palviainen 2001), to rankings of sonority related constraints (Pierce 2001:55). Note, however, that there is no alternation to support this conclusion. Coda maximization *qua* principle does not assert itself in the face of some other known phonological principle of Gothic. It is merely a static fact about all but the last consonant in clusters (*modulo* obstruent+liquid sequences). Coda maximization *qua* sonority-related constraints poses ranking problems, discussed below. We contend then, that coda maximization in Gothic is supported *only* by this orthographic pattern, and that it therefore is that

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[21] The words *stappla* 'to stagger' and *stapla* 'to heap' are both divided before <l>, viz., *stapp|la* and *stap|la*, even though the phonology divides them differently: [stap.pla] and [sta:.pla]. For discussion of the relationship between phonology and orthography in Swedish, see Hellberg 1974. For general discussion of orthographic conventions, compare Parkes 1992.

much less reliable than the other principles. All it would take is for someone to show that Gothic word division does not always reflect phonological syllabification, and the support for coda maximization evaporates. The following discussion of another controversy, which arises from trusting orthographic word division too much, goes some way toward this.

4.2. Anti-sonority Treatment of Cluster-final Glides.

Sonority sequencing is largely respected in syllabification. It is the guiding principle for how consonants are grouped around a vowel in a syllable. Sonority rises toward the vowel and falls away from the vowel. Everybody accepts the tautosyllabification of obstruent+liquid as a pattern grounded in sonority. The following problem then arises: Glides are even more sonorous than liquids, and so by universal implication, glides should also tautosyllabify with a preceding obstruent, at least in the same environments as liquids.[22]

(18) Sonority scale.
     obstruents > nasals > liquids > glides > vowels

However, orthography does not give any reflection of tautosyllabification of obstruents and the glide *j*, and that is the problem. Cast in methodological terms, the problem is that the situation exhibited in orthography means that we must either find some explanation for the unexpected phonology that we take to be reflected in orthography, or we must conclude that orthography is untenable as an indicator of all phonological syllabification. On the whole, the tendency among those concerned has been to try to salvage orthography as a source of evidence on phonological syllabification (beyond the core), and to find reasons not to expect phonologically tautosyllabified obstruents and *j* in Gothic onsets. The brute force solution is to propose a filter against tautosyllabified consonant and glide sequences. A straight formulation of this constraint as "*Cj" is given in Calabrese (1994:163) and Kiparsky (1998:351). The constraint militates against any consonant followed by the palatal glide within the same onset or coda. Some scholars stop here and use the filter as is in their further analysis, ultimately an unsatisfactory

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[22] Nasals, on the other hand, are typically less sonorous than liquids (Blevins 1995:211), and so, the tautosyllabic grouping of obstruents+liquid does not entail that obstruents should necessarily group with nasals, compare 18.

solution, but defensible perhaps as an interim solution.[23] Other scholars look for reasons why a filter like *Cj should hold in Gothic. Murray and Vennemann (1983) formulated the so called glide strengthening theory, further developed in Vennemann 1985, and argued against in Barrack 1998. Murray and Vennemann looked for arguments that would support a view of the glide [j] as a fricative. If the glide can be understood as less sonorous than the liquids, then of course the troubling sonority problem goes away.

Below we take a closer look at the evidence internal to Gothic that can be brought to bear on this discussion. My basic contention is that we are better off sacrificing some of our trust in orthography and thereby salvage sonority sequencing. The argument is made on methodological grounds. Thus I hope to convince the reader that our null hypothesis should be that *Cj is not right for Gothic because it goes against the basic methodologies by which we normally work.

4.3. *Cj.

Let us look first at the motivation for *Cj. In discussions of orthography and syllabification in Gothic, it is invariably observed that the sequence Cj does not occur word initially in Gothic (Murray and Vennemann 1983, Calabrese 1994, Kiparsky 1998, Palviainen 2001, and Pierce 2001). And when we look at word divisions we find that words very regularly divide directly before the glide.

(19)   a.   tauljan   'do'
              tauljau   1sg.subj.

        b.   gahailljan   'produce'
              motarljos   'customs keeper'
              sunlja   'truth'
              biwaibljand   'surrounding'
              bidlja   'ask, beg'
              hausljon   'hear'
              matljan   'eat'
              galewljands   'betraying, abandoning'

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[23] One is reminded of the once celebrated **that*-trace filter, which had this status to begin with.

c. liugn|ja   'liar'
    usidd|ja   'go out'
    waldufn|je   'power'
    gamarz|jai   'give offense'
    barnisk|ja   'being childish'
    framaþl|ja   'estrange'

It would thus seem that the grouping of an obstruent or any other consonant with a following glide is avoided. As mentioned, the two sources of evidence that are brought to bear are word-initial clustering and behavior in word division. The filter *Cj formalizes this constraint and (nominally) accounts for why neither of these contexts displays tautosyllabic consonant+*j* sequences.

When we consider the value of these sources as cues to phonotactics, there are differences. When two consonants occur tautosyllabically as onsets, then that is good evidence for what *can* occur in Gothic onsets. But when two consonants do not occur together, then that is not good evidence for what *cannot* occur in Gothic onsets. Of course, in a case of outlandish sonority sequencing (*nkau*), few would be inclined to assume that such sequences might occur in Gothic, but when the sonority sequencing is normal, the evaluation of the evidence—a methodological question—makes a difference. Possibly, the absence of consonant+*j* in word-initial position could be an inductive gap, due to, say, the fact that the Gothic manuscripts that have been preserved are too short or too genre-bound for that fairly rare Gothic word to occur.

Thus, scholars turn to word division in order to boost the argument for *Cj. However, it is easy to show that word division is unreliable for this purpose, but this fact has not figured in the discussion of orthographic word division as a source to Gothic syllabification. Part of the reason for this is the skewed focus on *i*/*j*, as opposed to *i*/*j* and *u*/*w*, in discussions of Sievers' law. Since the analysis of Sievers' law always involves a discussion of syllable structure, and therefore potential orthographic evidence, the constraint *Cj comes up, but putative *Cw or *Cn do not. Let us examine the argument in detail.

Consider first the sequence *k*+*n*. This is an obstruent followed by a nasal. In view of 18, it should be harder for these segments to cluster together than for an obstruent and a liquid, since nasals are less sonorous than liquids. When we look at orthographic word divisions we find that *k* and *n* before a vowel are invariably divided: <taik|neiþ> 'sign', <swik|nein> 'cleansing'. Now, does this naturally lead to the assumption

that these consonants cannot be grouped together? No, first we need to check the word-initial context and there we find *kniu* 'knee', *knussjan* 'fall down', and several more. Thus we assume that [kn] is a legitimate onset sequence, and for good reason. However, methodologically the consequence of this argumentation is that the regular separation of <k> and <n> by word division in orthography is not allowed as counterargument to phonological tautosyllabification. By the same token, then, the separation of any two consonants by word division should not be taken as evidence *against* their tautosyllabification.[24] One must always check the word-initial position, as well as the sonority sequencing. We find the same situation for example, with the fricative *h* followed by a sonorant: <hrains> 'clean', <hneiwan> 'incline', <hlahjan> 'laugh' versus <rah|neiþ> 'count'.

The relevance of these remarks for putative *Cj becomes even clearer when we look at consonant+*w*, since this sequence parallels consonant+*j* for which the filter *Cj has been proposed. Again we find that C+*w* is regularly split in orthographic word division: <iz|war> 'your', <waurst|wa> 'worker', just like consonant+*j* sequences. Does this lead anyone to assume that there is a constraint *Cw? No, since when we look at the word-initial context we find that, unlike Cj, Cw does occur: *swein* 'pig', *twaddje* 'second'. Again, it is the word-initial context that provides information on the possible clustering of consonants in the onset. Indeed, we expect Cw to tautosyllabify, because of the obstruent+liquid behavior both word-initially and in word division. This means that all we have that speaks against the tautosyllabification of consonant+*j* is the *absence* of such sequences word-initially. This is an inductive gap, and at best negative evidence. And it cannot be boosted by any obvious sonority reasons, since it should be a *better* context for tautosyllabification than obstruent+liquid. Indeed, since the other glide *w* happily teams up with an obstruent, it seems curious that tautosyllabic Cj should be ruled out in principle. The crucial conclusion to draw so far, then, is that orthographic word division does *not bear* on the issue of whether Cj is ruled out or not, since word division gives contradictory information in several other contexts. Thereby, word division is compromised as a source for what is a legitimate onset in Gothic.

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[24] Defenders of syllabifications leading to coda maximization will have to stigmatize all word-initial consonant clusters, since they contain more than one consonant. Also, there will be contradictions vis-à-vis universal sonority relations.

One reason why C+*j* may be an inductive gap is the difference in sonority of *i*/*j* vis-à-vis *u*/*w*, discussed in the next section.

4.4. *Glide Strengthening and the Asymmetry of* /I/ *and* /U/.

Murray and Vennemann (1983) realized the limited value of orthographic evidence with respect to the absence of C+*j* and looked further for a principled reason why Cj might not occur. They proposed that a strengthening process affected the glide *j*, turning it into a fricative. This would entail a radical change in sonority relations, moving *j* to the other side of liquids and nasals on the sonority scale; compare 18. This is a methodologically sound way to proceed, but as it happens, the argument as such runs into two problems relating to methodology that are particularly relevant to the present discussion.[25] First, it does not solve the problem. Glide strengthening proposes to explain (among other things) the putative heterosyllabification that the word division is taken to show, but as we have seen above, word division has no bearing—this way *or* that—on the sequencing of consonants in onsets, since word division facts routinely deviate from word-initial facts. Therefore, whether glides are strong or not cannot be determined or supported by word division. Second, glide strengthening of *j* creates a new problem with the other glide. The labiovelar glide commonly appears with other consonants on either side of it, and still it is demonstrably *less* sonorous than *j*, as discussed below.[26]

There is a sonority difference between /I/ and /U/, which manifests itself in the phonotactic patterns they take part in. When we look at the realization of these underspecified phonemes in sequence with each other and other segments, we find indications that they differ in terms of sonority. /I/ is more sonorous than /U/, as we can see in three areas. First, when these segments occur in a sequence where *only* sonority influences

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[25] The point here is not to take a stand on the phonetic value of the sounds represented by <j> and <w>, only to separate out word division as bearing on that issue. Other arguments may be made for (or against) glide strengthening, but word division can only be among them if one has already assumed that it reflects phonological syllabification all the way. Arguments against glide strengthening occur in Barrack 1998, chapters 3 and 4, Palviainen 2001, and Pierce 2001.

[26] Vennemann (1985) includes *w* in the glide strengthening. That does not affect the argument, since the pattern is still there. Anything one says for *i*/*j* should be harder with *u*/*w*.

their realization, the outcome is not symmetric: *wi* but not *ui*, *iu* but not *ju* (frequently). We find words like *wilþeis* 'wild' (*uilþeis), *winds* 'wind' (*uinds), but also *siuks* 'sick' (*sjuks), *tiuhan* 'pull away' (*tjuhan), and *iupa* 'upper' (*jupa). This means that if syllable nuclei tend to occur at the relatively more sonorous points in the string, then /I/ is more sonorous than /U/ (Riad 1992:55–56). We have the diphthong /iu/, but not the reverse one */ui/ in Gothic. Second, in combination with other segments, only *w* can occur outside of a consonant, both in onsets (*wlits* 'face', *wrikan* 'pursue') and in codas (*gaidw* 'lack', *waurstw* 'work'). Words like putative +*jlits* and +*gaidj* do not occur in Gothic. Third, the glide *j* cannot occur alone in a coda, a fact we can ascertain by looking at forms where /I/ and /U/ combine with a vowel: *hlaiw* 'grave', but *mauj, and *mawi* 'girl', but *hlaju.

Thus if phonotactics should be understood as controlled in part by sonority, the conclusion must be that the glide *w* is less sonorous than *j*. Indeed, the glide *w* is so strong that it can occur on the outside of other consonants. Nevertheless, this segment happily combines with a preceding consonant in the critical contexts. The question then arises what good it does for the analysis of syllable structure to assume that there is strengthening of *j*. Why should a strengthened *j* lead to its inability to occur together with another consonant in a cluster, when the other glide, which is manifestly less sonorous, does occur with another consonant in Gothic consonant clusters? It seems that the only argument for *Cj is negative: C+*j* is not found initially in Gothic. Argumentation for putative glide strengthening will have to be made elsewhere than in orthographic word division.

The methodological point that I want to make is that word division does not bear on the issue. There is no principled reason to assume that *Cj is a real constraint, and at the very least, word division is no evidence for such a constraint.

Obviously, it remains unsatisfying to just flatly state that the absence of C+*j* word-initially is due to an inductive gap. However, there is a simple and easily checked diagnostic prediction here. If the absence of C+*j* is an inductive gap in the Gothic lexicon and the reason for this is chiefly the high sonority of /I/ (as compared to /U/ and all consonants), then the same gap, or at least a tendency toward it, could be expected to occur with a *singular j* initially, too. To check this expectation we should compare the number of *j*+V-initial words with the number of *w*+V-initial words.

(20)	Wright 1954		Streitberg 1908	
#j+V	n=19	12%	n=36	13%
#w+V	n=146	88%	n=245	87%
total	n=165	100%	n=281	100%

This is a crude count of all entries in the two glossaries, but the result is clear enough: There are strikingly few word-initial *j*s in Gothic. When we further look at the word types occurring under *j*+V and *w*+V, we find that the *j*+V group is mostly made up of function words (*ja*, *jabai*, *jah*, *jai*, *jainar*, *jaind*, *ju*, etc.) and proper names (*Jaeirus*, *Janna*, *Judas*), and that there is only a handful of content words (*jiukan* 'to contend', *judaiwisks* 'Jewish', *juggs* 'young', *juk* 'yoke', and a few derivations of them). The *w*+V contains mostly content words. This result points in the direction of an inductive gap for word-initial C+*j*.

5. Conclusion.

We conclude that word division at the line's end can give us but limited evidence of phonological syllabification (namely the situations discussed), and not the whole package. By throwing out coda maximization as a phonological principle, we can rescue the implications of sonority sequencing. As far as I know, nobody has suggested that the division of *kn* and *tw* into <...k|n...> and <...t|w...> at line's end is a major problem for syllabification, while that is precisely what it is, for those who commonly assume that orthography reflects syllabification in the simplistic way. If obstruent+liquid sequences stay together when none of the more crucial factors interferes, why do not the constituent segments of obstruent+glide or obstruent+nasal stay together, even when we know that they tautosyllabify word-initially? It seems to me that the only reasonable conclusion to draw is that word division only reflects phonological syllabification in its core properties, namely the onset principle (statically), and Prokosch's law and sonority sequencing in the limited context context of obstruent+liquid (dynamically). This way we can salvage the expectations that sonority sequencing gives us. It would still mean that syllabification is quite influential in word division, but not entirely.

Once the three core properties of syllabification are in place (in their internal ranking order of influence), other factors may come into play, like morphology and orthographic conventions that may cut across morphological and phonological generalizations. Many endings begin with *j* or *w*, or conversely, most instances of word division before a *w* or a

j is also a morphological boundary (Riad 1992:86–87, Barrack 1998:39), but not all (compare Pierce 2001).

Our result is that in the research history of Sievers' law and Gothic syllabification, a couple of important methodological points have come to be overlooked. The narrow focus on *i/j* alternation in morphologically limited environments has also narrowed the understanding of vowel/glide alternation in Gothic as a synchronic phenomenon. When the issues of syllabification as such come up as a result of the studies of Sievers' law, the fact that consonant+*j* sequences are lacking in word-initial position and in word division has led to the assumption that word division can tell us something important about the syllabification of consonants in clusters that fall outside of the purview of the central syllabification principles. However if we include *u/w* and the extended data set in our analysis of Sievers' law, we get a more general understanding of the vowel/glide alternation as a rather direct function of syllabification. We are also not led to accept word division as an all-out reflection of phonological syllabification, since with C+*w* and other consonants, the correspondence between word-initial position and word division is broken. The upshot, instead, is that orthographic word division of consonants in clusters of three or more (modulo obstruent+liquid) works according to some principle other than a phonological one.

REFERENCES

Barrack, Charles. 1998. Sievers' law in Germanic. New York: Peter Lang.

Blevins, Juliette. 1995. The syllable in phonological theory. The handbook of phonological theory, ed. by John Goldsmith, 206–244. Oxford: Basil Blackwell.

Calabrese, Andrea. 1994. Sievers' law in Gothic: A synchronic analysis with some notes on its diachronic development. The Linguistic Review 11.149–194.

D'Alquen, Richard. 1974. Gothic AI and AU: A possible solution. (Janua linguarum, series practica, 151.) The Hague: Mouton.

Dresher, Elan, and Aditi Lahiri. 1991. The Germanic foot: Metrical coherence in Old English. Linguistic Inquiry 22.251–286.

Gussenhoven, Carlos. 1986. English plosive allophones and ambisyllabicity. Gramma 10.119–141.

Hechtenberg Collitz, Klara. 1906. Syllabication in Gothic. Journal of English and Germanic Philology 6.72–91.

Hellberg, Staffan. 1974. Graphonomic rules in phonology. Doctoral dissertation, Acta Universitatis Gothoburgensis, Göteborg.

Jensen, John. 2000. Against ambisyllabicity. Phonology 17.187–225.

Kager, René. 1999. Optimality theory. Cambridge: Cambridge University Press.

Kahn, Daniel. 1976. Syllable-based generalizations in English phonology. Doctoral dissertation, MIT. (Published 1980 by Garland Press, New York.)

Kim, Yookang. 2001. Prosody and *i/j* alternation in Gothic. Journal of Germanic Linguistics 13.97–130.

Kiparsky, Paul. 1998. Sievers law as prosodic optimization. *Mír Curad*: Studies in honor of Calvert Watkins, ed. by Jay Jasanoff, H. Craig Melchert, and Lisi Olivier, 345–360. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft..

Kiparsky, Paul. 2000. Analogy as optimization: "Exceptions" to Sievers' law in Gothic. Analogy, levelling, markedness, ed. by Aditi Lahiri, 15–46. Berlin: Mouton de Gruyter.

Lahiri, Aditi. 1982. Theoretical implications of analogical change: Evidence from Germanic languages. Doctoral dissertation, Brown University.

Lahiri, Aditi, and Harry van der Hulst. 1988. On foot typology. North East Linguistic Society Proceedings 18, ed. by J. Blevins and J. Carter, 286–299. Somerville, MA: Cascadilla Press.

Lutz, Angelika. 1986. The syllabic basis of word division in Old English manuscripts. English Studies 67.193–210.

McCarthy, John, and Alan Prince. 1993. Prosodic morphology I: Constraint interaction and satisfaction. Unpublished manuscript, University of Massachusetts–Amherst and Rutgers University.

Moulton, William. 1948. The phonemes of Gothic. Language 24.76–86.

Murray, Robert, and Theo Vennemann. 1983. Sound change and syllable structure in Germanic phonology. Language 59.514–528.

Myers, Scott. 1987. Vowel shortening in English. Natural Language and Linguistic Theory 5.485–518.

Osthoff, Hermann. 1884. Zur Geschichte des Perfects im Indogermanischen mit besonderer Rücksicht auf Griechisch und Lateinisch. Strassburg: Karl Trübner.

Palviainen, Santeri. 2001. Sievers' law in Gothic: A synchronic and diachronic analysis. Master's thesis, University of Helsinki.

Parkes, M. B. 1992. Pause and effect: An introduction to the history of punctuation in the West. Aldershot: Scolar Press.

Pierce, Marc. 2001. Syllable structure and Sievers' law in Gothic and Old Norse. Doctoral dissertation, University of Michigan.

Prokosch, Eduard. 1939. A comparative Germanic grammar. Philadelphia: Linguistic Society of America.

Riad, Tomas. 1992. Structures in Germanic prosody. A diachronic study with special reference to the Nordic languages. Doctoral dissertation, Department of Scandinavian Languages, Stockholm University.

Riad, Tomas. 1995. The Germanic quantity shift. A typology. Amsterdamer Beiträge zur älteren Germanistik 42.159–184.

Schulze, Wilhelm. 1908. Wortbrechung in den gotischen Handschriften. Sitzungsberichte der Preußischen Akademie der Wissenschaften, Phil.-his. Klasse, 610–624.

Seebold, Elmar. 1972. Das System der indogermanischen Halbvokale. Heidelberg: Carl Winter.

Sievers, E. 1878. Zur Accent- und Lautlehre der germanischen Sprachen. Beiträge zur Geschichte der deutschen Sprache und Literatur 5.63–163.

Sievers, E. 1892. Zur westgermanischen Gemination. Beiträge zur Geschichte der deutschen Sprache und Literatur 16.262–265.

Streitberg, Wilhelm. 1908. Die gotische Bibel. Heidelberg: Carl Winter.

Vennemann, Theo. 1971. The phonology of Gothic vowels. Language 47.90–132.

Vennemann, Theo. 1985. Phonologically conditioned morphological change. Exceptions to Sievers' law in Gothic. Phono-morphology: Studies in the interaction of phonology and morphology, ed. by Edmund Gussmann, 193–219. Lublin: Catholic University of Lublin.

Vennemann, Theo. 1987. Muta cum liquida: Worttrennung und Syllabierung im Gotischen. Zeitschrift für deutsches Altertum und deutsche Literatur 116.165–204.

Vennemann, Theo. 1988. Preference laws for syllable structure and the explanation of sound change. Berlin: Mouton de Gruyter.

Wright, Joseph. 1954. Grammar of the Gothic language. Oxford: Oxford University Press. (Glossary pp. 302–358 available at: http://www.ling.upenn.edu/~kurisuto/germanic/goth_wright_glossary.html).

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